Vanderbilt Journal of Transnational Law

Volume 12
Issue 1 *Winter 1979*

Article 1

1980

Finance, Rules and the Indexation of Brazilian Government Bonds

Mark J. Roe

Vanderbilt Journal of Transnational Law

VOLUME 12 WINTER 1979 NUMBER 1

FINANCE, RULES AND THE INDEXATION OF BRAZILIAN GOVERNMENT BONDS

*Mark J. Roe**

TABLE OF CONTENTS

I. INTRODUCTION

In roughly a dozen years, Brazil has created a sophisticated multi-billion dollar system of public debt in the midst of an unpredictable inflationary financial climate. During this time the government bonds were initially all indexed against inflation; the obligations were automatically periodically adjusted in accordance with price index changes. However, as shall be seen, the indexation of the bonds was not necessarily the cause of the expansion of the market for public debt.

* B.A. 1972, Columbia College; J.D. 1975, Harvard Law School. The author wishes to thank the Instituto Brasileiro de Mercado de Capitais in Rio de Janeiro for providing access to their research facilities, as well as for the conversations with the IBMEC staff about aspects of this article. This article bears a July 1978 date.

The legal-economic mechanism of Brazilian indexation is not widely understood in the United States. The method used to calculate the index that provides the basis for readjusting the indexed Brazilian government obligations has been frequently and unpredictably changed, primarily to improve and refine the index. At other times strong macroeconomic justifications support the changes. Thus, because the indexed adjustments are not made solely on the basis of predetermined and objective indicia of inflation, a jurisprudential structure has arisen similar to that in other systems in which the government undertakes macroeconomic adjustments that often unpredictably affect private obligations. Because the Brazilian government itself chooses the method by which the value of its existing debt is calculated, informed autonomous buyers of indexed government bonds have been relying upon the government not to alter the method of calculation unless there is a technical, economic justification for doing so, and have been discounting the risk of such unforeseen changes. Much of the indexed government bond market is, however, not autonomous; the indexed government bond in effect serves as a flexible accounting device for ordering the obligations of large, state-controlled enterprises and private enterprises that are required or induced by regulation to acquire the government's indexed bonds.

Moreover, since this government bond index serves as the basis for indexation of government loans and private borrowings, as well as for indexation of rents and of other indexed financial obligations, the Brazilian government has acted directly and indirectly as a mediator of the interests of debtors and creditors, apparently at times adjusting the index for the purpose of furthering goals of national economic development. Rights associated with indexed debts in Brazil do not solely arise out of formally fixed rules which would order private conduct, as well as government conduct as a debtor or creditor; rather, such rights arise from direct government regulation similar to the use of indirect fiscal and monetary instruments in more developed nations.

This may be indicative of the emergence of a capitalist legal system that attempts to foster initial economic progress without the development of generally fixed, formal rules within which economic actors bargain with calculable legal results. The predictability of legal results has been widely held to be a necessary foundation for the development of finance and trade in Europe. This historical description was perhaps best articulated by Max Weber, and analogous ideas in utilitarian and prescriptive form underlie much modern American legal thinking about law, economy, and development. Yet this Weberian description and these utilitarian

assumptions may simply fail to explain the legal framework within which Brazilian financial markets have developed in the last dozen years. A multi-billion dollar financial system has been constructed in Brazil despite the lack of a fine-gauged predictability of legal results. The Brazilian financial community, which is partially regulated by the government, apparently understands that the government will make often justifiable rule changes and discounts those changes as one more risk to a contract. The legal structure within which Brazil has developed its large and complex debt valuation system thus avoids traditional Weberian calculability[1] and represents the direct establishment of the legal realm of the mixed economy. This aspect of monetary correction is the central thesis of this article.

It is important at the outset to distinguish legal risks from economic risks. Legal risks are those that arise from the possibility that the legal structure in the future will vary from that presently expected (*i.e.*, the government might directly change the rules within which a transaction is framed for future performance). Economic risks are those that arise as a result of unexpected future business, political, or social events, each of which may be indirectly influenced by government action or inaction. Either type of risk could "demoralize" economic transactions by making them appear so risky that agreements for future performance would be avoided. Furthermore, the economic decisionmaker's concern is with the *total* risk, not with one component apart from the other. For example, an economist's portfolio analysis of the implications of the legal risks arising from the mutability of the Brazilian inflation index is primarily interested in the magnitude of the risk to be encountered, and is unconcerned with the source—legal or economic—of the risk.[2] As a seemingly inconsistent by-product of the effort to eliminate the massive economic risks arising from unpredictable inflation, a discrete element of legal risk has been created. The government's method of recalculating debts may change, sometimes lowering the government's revenues (principally when it is a creditor and the index is adjusted downward). Brazilian indexation may have decreased the total risk of long-term lending

1. *See* 1-3 M. WEBER, ECONOMY AND SOCIETY: AN OUTLINE OF INTERPRETIVE SOCIOLOGY (G. Roth & C. Wittich eds. 1968) (concluding that the development of law characterized by formal rules was a foundation for the European development of a capitalist-market economy); text accompanying notes 91-127 *infra*.

2. W. NESS, A INFLUÊNCIA DA CORREÇÃO MONETÁRIA NO SISTEMA FINANCEIRO 63-72 (1977).

in an inflationary environment, but the by-product—the creation of risks of legal change—provides a basis for the study of fluid rules.

Concern with indexation devices is not unknown in the United States. Discussion of indexation increases during time of rapid, substantial changes in prices and decreases when prices begin to stabilize.[3] Such an abatement of concern during times of relatively steady prices is unwarranted, however, since the most basic use of price-level indexing should be to decrease the risks of unexpected changes in prices, which would alter the real value of financial obligations.[4] Indexation is an effort to use contract law to eliminate the economic risks arising from the possibility that inflation will vary from expectations. Because contracts made during calm periods of stable prices may later be distorted by a burst of inflation, as long as there is a significant possibility of future unanticipated price fluctuations, indexation should be examined as a potential shelter from the threat of such unexpected changes.[5]

3. *See, e.g.*, JOINT COMMITTEE ON THE ECONOMIC REPORT, MONETARY POLICY AND MANAGEMENT OF THE PUBLIC DEBT, S. Doc. No. 123, 82d Cong., 2d Sess. 142-45, 888-89, 1097-114 (1952) (response to Korean War inflation); H. GIERSCH, M. FRIEDMAN, W. FELLNER, E. BERNSTEIN & A. KAFKA, ESSAYS ON INFLATION AND INDEXATION 42 (1974) ("[i]f by some miracle, inflation were to disappear in the near future, all talk of [escalator clauses] would also disappear"); R. MUSGRAVE & P. MUSGRAVE, PUBLIC FINANCE IN THEORY AND PRACTICE 599 (2d ed. 1976) ("[o]ne proposal, advanced repeatedly over the years and again timely under current inflationary conditions, is for the issuance of a 'stable purchasing-power bond' "); ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT, INDEXATION OF FIXED-INTEREST SECURITIES 9 (1973) ("particulary when there is a rapid increase in prices, [there are] proposals for indexing interest income and financial assets"); Bach & Musgrave, *A Stable Purchasing Power Bond*, 31 AM. ECON. REV. 823 (1941) (response to price changes of the 1920s and 1930s); Dawson & Coultrap, *Contracting by Reference to Price Indices*, 33 MICH. L. REV. 685 (1935); Rosenn, *Protecting Contracts from Inflation*, 33 BUS. LAW. 729 (1978).

4. A seemingly small unanticipated percentage change in inflation can have a significant effect on the absolute value of financial obligations. The United States Office of Management and Budget estimated that an increase of only 0.5% in the nominal interest rate for 1977 on government bonds would have increased the government's interest payments by $300 million. EXECUTIVE OFFICE OF THE PRESIDENT, OFFICE OF MANAGEMENT AND BUDGET, THE BUDGET OF THE UNITED STATES GOVERNMENT: FISCAL YEAR 1978, at 197 (1977). In the early 1970s, an unanticipated one percent variation in inflation could have transferred over $30 billion between creditors and debtors. G. BACH, THE NEW INFLATION 24 (1973).

5. Although this article will not focus upon the merits of indexing from an economic perspective, it is useful to summarize several of the major arguments concerning indexing and its relationship with inflation. The most common argument against indexation is that it builds inflation into the economic system by

guaranteeing the transmission of past inflation into the future. A counterargument is that after gaining experience with inflation, economic actors become sufficiently sophisticated to expect future inflation and negotiate contracts involving future payments accordingly (*e.g.*, labor agreements, interest on debt obligations, prices for future delivery of goods). *See, e.g.*, Harriss, *Causes and Effects of Inflation*, 31 PROC. ACAD. POLIT. SCI. 3 (No. 4, 1975); Rutledge, *Irving Fisher and Autoregressive Expectations*, 67 PROC. AM. ECON. A. 200 (1977). Inflationary expectations might then become a significant source of continued inflation which indexation would arguably eliminate. Indexation of long-term financial agreements is often justified on the basis that inflation causes potential debtors and creditors to be confronted with substantial risks that inflation will vary from their expectations and these risks might atrophy long-term financial markets. Thus, indexation of long-term financial obligations and indexation of aspects of the tax system would tend to eliminate certain distortions from the economic system. *See generally* ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT, *supra* note 3, at 25-26. For a mathematical model of an indexed economy and its relation to inflation, see Lemgruber, *Uma Análise das Hipóteses de Friedman sôbre Correção Monetária*, REVISTA DE ESTUDOS ECONÔMICOS, January 1976, at 39. Risk analysis provides a possible explanation for the lack of substantial indexation in American financial markets although both borrowers and lenders take substantial risks when contracting in nominal terms. If the borrower has significant assets in nonindexed monetary instruments, then it would prefer to borrow in nominal terms as a hedge against an inflationary devaluation of its nonindexed monetary assets. The lender, who would otherwise prefer an indexed asset in order to provide insulation from unexpected inflation, does not find it worthwhile to accept a lower real interest rate on the indexed obligation to compensate the borrower for its increased risks. Thus, the borrower and lender contract in nominal terms. *See* Liviatan & Levhari, *Risk and the Theory of Indexed Bonds*, 67 AM. ECON. REV. 366, 368 (1977).

Even if an inflation rate were accurately reflected in an index, it might not reflect the increased costs to the lender or the increased revenues of the borrower. Without a loan specifically tied to their own costs or revenues, some borrowers and lenders may conclude that a specific nominal interest rate would better reflect the price changes that most concern them. Two other possible explanations for the lack of development of indexed financial assets are that the special transactions costs of a new form of lending are a barrier and that there are sufficiently adequate alternatives for some lenders and borrowers by using the variable prime rate or another variable interest rate (*e.g.*, the interest rate may be a direct function of short-term United States Treasury paper yields) that might be sensitive to inflation. For example, "[f]loating-rate notes are a fairly new instrument that arose out of the pressing capital needs of leading banks and a major oil company during the credit crunch of 1974 . . . . [T]he rate [is] increased a full percentage point above the prevailing rate on three-month Treasury notes [after a six-month lag at most and is] adjusted downward in times of falling interest." N.Y. Times, Feb. 1, 1978, at D2, col. 3.

It has also been suggested that indexation of savings accounts or small denomination government bonds would promote fairness because some savers, particularly small savers, are less capable than others of obtaining sophisticated financial assets that may provide insulation against high inflation. R. MUSGRAVE & P. MUSGRAVE, *supra* note 3, at 599; ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT, *supra* note 3, at 20; Kane, *Shortchanging the Small Saver: Federal Government Discrimination Against Small Savers During the Vietnam War*, 2 J.

Brazilian monetary correction has been the subject of American studies examining its application to wages,[6] realty, rental and

MONEY, CREDIT & BANKING 513 (1970). Indexation of government bonds and tax arrears might also be of importance in financing budgetary deficits in highly inflationary economies. Indexation in order to facilitate budgetary control appears to have been significant in Brazil.

See also Rutledge, *Indexing Financial Assets Doesn't Affect Inflation, But Speeds Adjustment,* MONEY MANAGER, January 3, 1977, at 5, 26-27. Rutledge, a senior consulting economist of the United States Department of the Treasury, suggests that indexation of government obligations may have an anti-inflationary effect in that, by index-linking government obligations, the government gives up its power to alter real payments on its debt by enlarging the money supply. Thus, one governmental incentive to tolerate inflation would be eliminated (because inflation would no longer increase governmental revenues by decreasing real payments on debt). This suggestion by Rutledge is insignificant with respect to Brazilian government deficit financing with indexed bonds, because the government retains discretion to alter the method by which the indexed adjustments are made. *See* text accompanying notes 64-90 *infra.*

A significant argument against indexing, especially when the inflation is relatively mild or is expected to be of short duration, is that the costs of a changeover may exceed the maximum value of any benefits.

Indexation should also be examined in terms of the efficiency and equity of taxation and the accuracy of financial reporting. Inflation-proofing the American tax system would revolve around two major issues: first, the question of whether it is desirable (because, for example, of the fiscal stabilization effects) to have the progressive rate structure push individuals into higher brackets although their real income remains the same, and, second, perhaps more importantly, since tax brackets can be adjusted regularly, the definition of income, including such questions as (1) whether a 5.47% annual return on a savings passbook, or the relevant portion of any other similar nominally-denominated return, should be considered taxable income when annual inflation is six percent, (2) whether an asset purchased for $100 and sold for $200 12 years later should establish any realization of a capital gain if six percent per annum inflation accounted for the entire increase in value, and (3) whether depreciation in historical dollars (whether on a straight-line, double-declining or sum-of-the-digits basis) is sensible when economic change is warping the measuring stick. *See generally* Kelley, Hall, Aronsohn & Hickman, *Indexing for Inflation,* 31 TAX LAW. 17 (1977); Petrei, *Inflation Adjustment Schemes Under the Personal Income Tax,* 22 INT'L MONETARY FUND STAFF PAPERS 539 (1975) (surveying linkage of tax laws with inflation in various countries); Note, *Inflation and the Federal Income Tax,* 82 YALE L.J. 716 (1973). *See also* S. DAVIDSON, C. STICKNEY & R. WEIL, INFLATION ACCOUNTING (1976) (discussing inflation's impact on income statements and balance sheets).

6. *See, e.g.,* Fishlow, *Indexing Brazilian Style: Inflation Without Tears?,* 1974 BROOKINGS PAPERS ON ECONOMIC ACTIVITY 261, 268, 276. Fishlow argues, *inter alia,* that through application of inflation formulas with a subjective component for adjusting wages, monetary correction of wages represented something close to government control of the real income of blue collar workers. Fishlow also examines aspects of the growth of Brazilian financial markets with indexation.

mortgage markets,[7] corporate and personal income taxation,[8] damage awards to tort victims,[9] and eminent domain compensation.[10] This article will examine the development of indexed financial instruments of the Brazilian government[11] and related public and private indexed instruments, and will note some basic economic and legal distinctions between relevant Brazilian and American institutions. Additionally, the Brazilian system will be compared to the doctrine of the constitutional role of the state in government and private finance emerging from the Gold Clause Decisions and later related decisions of the Supreme Court, and to the role of rules in the development of European capitalism.

In order to assess the legal significance of the institution, it is important to note that indexation of the government bond market has been a central aspect of modern Brazilian public finance and not a minor economic curiosity. In 1965, the dollar value of the government indexed bonds in circulation was $195 million; in 1975, the dollar value of the government indexed bonds in circulation

7. *See* Lefcoe, *Monetary Correction and Mortgage Lending in Brazil: Observations for the United States,* 21 STAN. L. REV. 106 (1968); Rosenn, *Controlled Rents and Uncontrolled Inflation: The Brazilian Dilemma,* 17 AM. J. COMP. L. 239 (1969).

8. *See* Rosenn, *Adjusting Taxation of Business Income for Inflation: Lessons from Brazil and Chile,* 13 TEX. INT'L L.J. 165 (1978); Rosenn, *Adaptation of the Brazilian Income Tax to Inflation,* 21 STAN. L. REV. 58 (1968).

9. *See* K. KARST & K. ROSENN, LAW AND DEVELOPMENT IN LATIN AMERICA 496-509 (1975).

10. *See id.* at 509-15; Rosenn, *Expropriation in Argentina and Brazil: Theory and Practice,* 15 VA. J. INT'L L. 277 (1975); Rosenn, *Expropriation, Inflation and Development,* 1972 WIS. L. REV. 845. Karst and Rosenn also discuss several aspects of Brazilian monetary correction and related Latin American institutions in their chapter entitled "Law and Inflation." K. KARST & K. ROSENN, *supra* note 9, at 421-573. Any American who works with Brazilian monetary correction must acknowledge a substantial debt to Keith Rosenn's collected works on Brazilian law (cited in this note and in notes 7, 8, 9 and 115); together they constitute the most comprehensive astute American study of Brazilian law. In addition, this article directly benefited from Professor Rosenn's knowledge of and insight into Brazilian law by his comments and critique of portions of a previous draft.

11. Some aspects of the Brazilian government's use of indexed bonds are briefly discussed in K. KARST & K. ROSENN, *supra* note 9, at 526-29; Ness, *Financial Markets Innovation as a Development Strategy: Initial Results From the Brazilian Experience,* ECON. DEV. & CULTURAL CHANGE, April 1974, at 453, 455-57. *See also* Baer & Beckerman, *Indexing in Brazil,* WORLD DEV., Oct.-Dec. 1974, at 35 (overview of several aspects of Brazilian indexing and an argument that it promoted savings and allocative efficiency).

rose to $6.6 billion, although they represented a smaller portion of the government's debt than in 1965.[12] Monetary correction of Brazilian government obligations was intended to facilitate government deficit financing; indexation of tax arrears was intended to eliminate the inflationary incentive to delay tax payments. That incentive arose from the taxpayers' capacity to borrow from the government at a negative real rate of interest. Despite somewhat frequent changes in the method by which the index has been calculated during the period when these two instruments have been used, the Brazilian government has been better able to place its debt obligations and to match its expenditures with its receipts. In addition, the adjustments in the value of the government bond index are the basis for changes in the value of indexed private loans. Growth in the volume of indexed private instruments has thus made the government index an important aspect of private finance.

The most significant aspect of Brazil's indexation of government bonds and private instruments examined in this article is neither its role in the creation of a viable government bond market in

12. *See* Table II at note 45 *infra*. The existence of a market facilitated by indexation for government debt instruments originally enabled some central bank open market operations in indexed bonds. However, open market operations were eventually implemented through purchases and sales of nonindexed bonds rather than indexed bonds. Brazilian monetary correction of tax arrears and governmental bonds and sales of nonindexed bonds may have had an indirect impact on inflation by enabling the government to use two traditional fiscal and monetary anti-inflation weapons: reduction of the budget deficit and open market operations. Indexation of some of the bonds does not, however, appear to have been necessary to the continued use of open market operations. Also, if the market was created by a general credit expansion, then one of the by-products of the expansion (open market operations) should not be viewed as an independently-created anti-inflationary instrument. *See generally* note 48 *infra*. Furthermore, these particular aspects of monetary correction (aiding tax collection and open market operations) would appear to be only marginally useful for nations that have both a well-developed market for government obligations and an effective tax collection system. It should be noted as a minor point that reduction of the budget deficit and open market operations are not entirely unrelated. Each has at least an indirect effect upon inflation by facilitating the elimination of unfinanced budgetary deficits. Unless countermeasures are taken, inflation has a deleterious effect upon the government bond market by discouraging long-term lending, and upon the effective collection of taxes by encouraging debtor status, including debtor status vis-a-vis the government. Accordingly, a collapse of either the government bond market or the tax collection system could, by affecting the budgetary deficit and the rate of inflation, have an impact upon the other. Additionally, the ability of the government to place bonds is partially a function of its capacity to raise taxes. Thus, a deteriorating capacity to raise taxes would have a deleterious effect on a government's ability to place its bonds.

Brazil, nor its role in making viable other financial institutions, nor its possible usefulness in eliminating distortions and economic risks in other economies, both developed and developing, suffering from inflation; instead, in the Brazilian financial system important and distinct legal norms can be seen, differing from those that some American lawyers might prescribe to those attempting to construct a modern financial system. The precise terms of some significant governmental financial "rules of the game" in the expanding Brazilian government indexed bond market are not predictable. This lack of predictability has nevertheless existed contemporaneously with the rapid expansion of the Brazilian financial system.

The fluid nature of the indexation rules and the obvious initial success of the Brazilian system—government bonds have been sold, tax procedures have been tightened, a mortgage market has been created, and private finance has been expanded—could stand as an implicit challenge to certain American legal and economic assumptions, and should provide the basis for renewed critical analysis of the proposition that fixed rules provide the necessary foundation for the development of certain types of financial systems. But to examine these points carefully, it is first necessary to examine the background and economic structure of the Brazilian indexation system.

II. Brazilian Indexation

A. *The Political-Economic Background*

The Brazilian military removed João Goulart's populist government at the end of March 1964, partly as a reaction to the nation's poor financial condition. During the first three months of 1964 inflation had run at an annual rate of 144 percent and, in March 1964, the government's budgetary deficit was eight percent of the gross national product[13] and could not be financed by government

13. J. Chacel, M. Simonsen & A. Wald, A Correção Monetária, 1 Investimentos Privados e Inflação: A Experiência Brasileira 92 (1970) [hereinafter cited as J. Chacel]. This book is an important, and perhaps the most comprehensive, historical description and economic analysis of Brazilian monetary correction. Chacel is research director of the Brazilian Economic Institute of the Getúlio Vargas Foundation, Simonsen is now the Brazilian Minister of Finance, and Wald is a professor of law.

The United States budgetary deficit for 1964 was 0.9% of the American gross national product. *See generally* Executive Office of the President, Office of Management and Budget, *supra* note 4, at 435. During the period from 1954

borrowings from the private sector. A few types of indexation existed in Brazil prior to 1964. There were semi-automatic adjustments for progressive tax brackets,[14] indexation of the capital base

through 1976, the average annual American deficit was one percent of the gross national product. The maximum deficit during these years was the 1976 deficit of 4.6% of the annual gross national product. *Id.* Additionally, an equivalent budgetary deficit in the United States would likely have less inflationary impact than in Brazil, because the Brazilian monetary supply is a significantly smaller percentage of Brazilian national income than the American supply is of American income. These figures account only for the federal deficit; often offsetting aggregate surpluses or aggravating aggregate deficits exist at the state and local level. *See* Baer, *The Inflation Controversy in Latin America: A Survey*, LATIN AM. RESEARCH REV., Spring 1967, at 3, 20. The most significant comparison, however, may not be the comparative size of the deficit but how much of its deficit the United States could borrow from the public. *See* EXECUTIVE OFFICE OF THE PRESIDENT, OFFICE OF MANAGEMENT AND BUDGET, *supra* note 4, at 435; note 48 *infra*. In 1964 no viable bond market existed in Brazil, however. From 1944 to 1961 the Brazilian internal public debt increased 100% in nominal terms; during that same period the general price index increased 1500%. In December 1963 the total Brazilian internal debt was only six percent of the Brazilian federal receipts in 1963 and only two percent of Brazil's gross national product for that year; the United States internal public debt was 225% of its 1963 receipts and 42% of its gross national product. BANCO INTERAMERICANO DE DESENVOLVIMENTO, ESCOLA INTERAMERICANA DE ADMINISTRAÇÃO PÚBLICA, 8 INSTRUMENTOS ADMINISTRATIVOS DE IMPLEMENTAÇÃO ECONÔMICA 4-6 (1967).

Brazil's fundamental economic difficulties of the 1950s and early 1960s resulted largely from the lack of four financial institutions: (1) an efficient tax collection mechanism, (2) a modern securities market, (3) significant access to a foreign funds market, and (4) significant financial intermediaries. The lack of these four institutions induced the Brazilian government and monetary authorities to issue excessive quantities of money. *See generally* Kafka, *The Brazilian Stabilization Program, 1964-66,* 75 J. POLIT. ECON. 596 (1967); Shaw, *Comment,* 75 J. POLIT. ECON. 631, 633 (1967).

14. Law No. 4,140 of Sept. 21, 1962; Law No. 3,898 of May 19, 1961. (The laws cited in this article are as presented in COLEÇÃO DAS LEIS. Quotations from Brazilian laws are my translations.) However, these adjustments were tied to changes in the minimum wage (which was a legislative product), not directly to changes in the price level. For example, an annual income 24 times the applicable minimum monthly wage was exempt from taxation. C. SHOUP, THE TAX SYSTEM OF BRAZIL 28-29 (1965). The minimum wage varies regionally in Brazil; the largest minimum wage, usually that of metropolitan Rio de Janeiro, served as the base for tax calculations. Tax brackets were for a time denominated in terms of the minimum wage. *See* J. CHACEL, *supra* note 13, at 36. However, pursuant to Law No. 4,506 of Nov. 30, 1964, the tax brackets were indexed. Nevertheless, indexed calculations based upon the minimum wage continued to be used in other contexts, *e.g.*, mortgage payments were in some instances adjusted according to changes in the minimum wage. Law No. 4,380 of Aug. 21, 1964; J. CHACEL, *supra* note 13, at 125. Not until 1975 was adjustment in terms of the minimum wage generally eliminated from Brazilian finance. Law No. 6,205 of April 29, 1975.

upon which the Brazilian excess profits tax was levied,[15] indexation of some rental agreements,[16] and indexation of certain financial operations of some public and semi-public institutions.[17]

Pursuant to a 1957 law authorizing the issuance of Brazilian Treasury obligations "in order to finance the nation's deficits and to combat inflation," it was contemplated that some Treasury paper would have a "guaranty clause against the eventual devaluation of [Brazilian] currency, in accord with indices to be released by the National Economic Council,"[18] but no use was made of this authority.[19] Shortly after removing the Goulart government in 1964, the military installed several of Brazil's leading economists in positions where they were expected to restructure the country's private and governmental financial system.[20] One part of

15. Law No. 4,242 of July 17, 1963; Art. 56, Law No. 3,470 of Nov. 28, 1958; Law No. 2,862 of Sept. 4, 1956; CONJUNTURA ECONÔMICA [CON. ECON.], January 1969, at 4. This adjustment for real value was viewed as a tax concession, not part of a general scheme of taxation on a real value, real income basis. Thus, the revaluation "profit" on fixed assets, a mere accounting entry, was taxed at a rate of ten percent. Indexation of fixed assets was voluntary under these tax provisions, which were in effect in various forms during the late 1950s and early 1960s. *See, e.g.,* Art. 57, Law No. 3,470 of Nov. 28, 1958. Thus, for tax purposes, a firm would revalue its assets only if its excess profits tax would have been reduced in an amount in excess of the ten percent revaluation tax. Few firms found the revaluation advantageous. Rosenn, *supra* note 8, 21 STAN. L. REV. at 81. Thus, the provision remains interesting from a historical perspective, although it is not of great practical significance.

The tax adjustment can be illustrated by the following example. Assume that a business purchased a machine on January 1, 1958 for Cr$3000 and that there was inflation of 25% during the next year. The excess profits tax might have been levied as of January 1, 1959, at rates varying from 20% to 50%, on profits in excess of 30% of capital. With respect to that machinery only, the excess profits tax would have been applicable, without indexing, to profits in excess of Cr$900. If the machinery had been revalued 25% to Cr$3750, then the excess profits would have been applicable to profits in excess of Cr$1125 only, instead of Cr$900. The revaluation "profit" would have been Cr$750, which would not have been real income but would represent the increased nominal value of a machine in the context of a devaluing currency. This "profit" would then have been taxed at Cr$75. Depreciation could not have been taken for tax purposes according to the corrected value of the asset.

16. J. CHACEL, *supra* note 13, at 55-57.

17. These operations were sometimes based on changes in the minimum wage. Decree No. 1,120 of June 1, 1962; Decrees Nos. 786 & 787 of Mar. 26, 1962; J. CHACEL, *supra* note 13, at 65.

18. Arts. 1 & 4, Law. No. 3,337 of Dec. 12, 1957 (textual quotations are from the law).

19. W. NESS, *supra* note 2, at 47.

20. R. CAMPOS & M. SIMONSEN, A NOVA ECONOMIA BRASILEIRA 41 (1974). These officials rejected certain traditional responses to inflation, such as normally-

this restructuring was monetary correction of government obligations and tax arrears.

B. *Law No. 4,357 of July 16, 1964*

Article 1 of Law No. 4,357 of July 16, 1964, authorized Brazil's Executive Branch to issue Treasury obligations, later called *Obrigações Reajustáveis do Tesouro Nacional* (ORTNs),[21] with varying maturities and a fixed rate of interest, calculated as a percentage of the adjusted principal amount.[22] The value of the principal was to be "periodically adjusted in accordance with the variations in the purchasing power of the national currency."[23] The Ministry of Finance was directed to announce new nominal values each quarter,[24] the public was authorized to use the bonds thirty days after their maturity for tax payments,[25] and the Minister of

---

prescribed austerity measures. They hoped to reduce the rate of inflation gradually and to reduce the misallocations of resources due to inflation more quickly. Indexation was to be a significant device for achieving the goal of reducing this misallocation. *See generally* Kafka, *supra* note 13, at 606-07.

21. Law No. 4,357 did not provide a specific name for these obligations. In Decree No. 54,252 of Sept. 3, 1964, which regulated aspects of the obligations, and in Law No. 4,621 of April 30, 1965, they were called *Obrigações Reajustáveis do Tesouro Nacional.* This nomenclature has become conventional.

22. The first clause of Art. 1 of Law No. 4,357 of July 16, 1964 provided:

> The Executive Branch is authorized to issue Treasury obligations until Cr$700,000,000,000 are in circulation, provided that the following conditions are observed . . . .
>
> (a) maturities shall vary from 3 to 20 years;
>
> (b) the minimum annual interest shall be 6 percent, calculated on the basis of the principal after it has been revalued;
>
> (c) the minimum face value of such Treasury obligations shall be Cr$10,000.

Some modifications were made later. Art. 67, Law No. 4,728 of Feb. 14, 1965 empowered the National Monetary Council to authorize omissions of ORTNs with shorter maturities. The interest rate provision was later changed to authorize only a *maximum* interest rate of 10 percent. Decree-Law No. 328 of July 20, 1967. New currency was later issued with a new *cruzeiro* equivalent to 1,000 old *cruzeiros.*

23. Art. 1, § 1 of Law No. 4,357 provided: "Pursuant to the provisions of Section 1 of Article 7 of this Law, the nominal value of the obligations shall be periodically adjusted in accordance with the variations in the purchasing power of the national currency." Art. 7, § 1 of Law No. 4,357 is quoted in note 31 *infra.*

24. Art. 1, § 2 of Law No. 4,357 provided: "The nominal value of each such Treasury obligation, as currently valued pursuant to the adjustment referred to in the previous section, shall be declared quarterly, by regulation of the Minister of Finance." Decree-Law No. 1,281 of July 24, 1973 amended this clause to provide for monthly adjustment for all ORTNs.

25. This provision was intended to increase public confidence in the eventual

Finance was given the requisite authority to place and redeem the bonds.[26] Finally, the nominal gain from the revaluation of the principal was exempted from taxation.[27] The law stated that allocations necessary to service the interest and to amortize principal payments would be included in the national budget.[28]

Article 7 of the law required that failure to pay tax arrears and other debts to the government during the quarter in which due would lead to readjustment of their nominal value.[29] As with the

payment of the ORTNs. J. CHACEL, *supra* note 13, at 111. Art. 1, § 4 of Law No. 4,357 provided: "The Treasury obligations may be used, at their adjusted current value as contemplated by Section 1, for payment of any Federal tax, after thirty days have elapsed subsequent to the bond's date of maturity."

26. Art. 1, § 6 of Law No. 4,357.

27. Art. 1, § 7 of Law No. 4,357 provided in part: "An increase in the nominal value of a bond, resulting from the current purchasing power adjustments made pursuant to Section 1, shall not constitute taxable income . . . ."

28. Art. 1, § 8 of Law No. 4,357.

29. Art. 7, Preamble, of Law No. 4,357 provided: "Tax arrears and other debts due the government, including any applicable penalties, resulting from noncollection on the date due, if not liquidated during the quarter in which they were due, shall have their value adjusted in accord with variations in the purchasing power of the national currency." This provision may be compared with amendments to the United States Internal Revenue Code in the 1970s that dealt with the interest penalty on tax arrears. The first amendment raised the penalty from six to nine percent. Act of Jan. 3, 1975, Pub. L. No. 93-625, § 7, 88 Stat. 2114 (codified at I.R.C. § 6621(a)). During the following session, Congress opted for a scheme similar to Brazilian monetary correction, mandating that the Secretary of the Treasury adjust the penalty for every type of arrearage or delayed refund to accord with changes in the banking prime lending rate:

> (a) In general—The rate of interest under sections 6601(a) [interest on underpayment, nonpayment, or extensions of time for payment, of tax], 6602 [interest on erroneous refund recoverable by suit], 6611(a) [interest on overpayments], 6332(c)(1) [failure to surrender property subject to tax levy], and 7426(g) [interest allowable in civil actions by persons other than taxpayers] of this title, and under section 2411(a) of title 28 [interest payable by United States on judgments for overpayment of tax] is 9 per cent per annum, or such adjusted rate as is established by the Secretary under subsection (b).
>
> (b) Adjustment of interest rate—The Secretary shall establish an adjusted rate of interest for the purpose of subsection (a) not later than October 15 of any year if the adjusted prime rate charged by banks during September of that year, rounded to the nearest full per cent, is at least a full percentage point more or less than the interest rate which is then in effect. Any such adjusted rate of interest shall be equal to the adjusted prime rate charged by banks, rounded to the nearest full per cent, and shall become effective on February 1 of the immediately succeeding year. An adjustment provided for under this subsection may not be made prior to

ORTNs, there was no detailed exposition on the means of calculating the value; the debts were required to "have their value adjusted in accord with variations in the purchasing power of the national currency."[30] Article 7 allocated administrative responsibility for the calculation of monetary correction of tax arrears and ORTNs, and mandated that coefficients of monetary correction be published quarterly in the Diário Oficial.[31] If collection of a tax payment was suspended by judicial or administrative action, then the revaluation would nevertheless be necessary if payment was eventually required, unless the amount in question had been appropriately deposited in cash, in which case any required return of the sum deposited would be subject to revaluation.[32] Finally, article 7 provided that all then-existing percentages and interest penalties that were due to the government because of any delay in making a payment would be assessed as a percentage of the new, revalued debt.[33]

---

the expiration of 23 months following the date of any preceding adjustment under the subsection which changes the rate of interest.

(c) Definition of prime rate—For purposes of subsection (b), the term "adjusted prime rate charged by banks" means 90 per cent of the average predominant prime rate quoted by commercial banks to large businesses, as determined by the Board of Governors of the Federal Reserve System.

Act of Oct. 4, 1976, Pub. L. No. 94-455, § 1906(b)(13)(A), 90 Stat. 1834 (codified at I.R.C. § 6621).

30. Art. 7, Preamble, Law No. 4,357, *quoted in* note 29 *supra.*

31. Art. 7, § 1 of Law No. 4,357 provided:

The National Economic council shall publish in the Federal Register [Diário Oficial], during the second month of each quarter, a table of monetary correction coefficients, which shall become effective during the following quarter. The monetary correction contemplated by this article shall be based upon the table that is in effect on the date in which the tax (or other arrear) is liquidated.

See also Law No. 4,602 of March 18, 1965. This function was eventually transferred to the Ministry of Planning and Coordination and later to the President's Secretariat of Planning in 1974. Decree-Law No. 1,281 of July 24, 1973; Art. 7, Law No. 5,334 of Oct. 12, 1967; Arts. 199, 209, Decree-Law No. 200 of Feb. 25, 1967; *Correção monetária das O.R.T.N.—formas de cálculo*, CON. ECON., December 1974, at 92.

32. Art. 7, § 2 of Law No. 4,357 provided: "The adjustment contemplated by this section shall be applied to debts whose collection is suspended by administrative or judicial action. However, such adjustment shall not be applied if the debtor has deposited, in currency, the sum in question."

Art. 7, § 3 of Law No. 4,357 provided in part: "When a deposit is made pursuant to the previous section, any sum that must be returned . . . shall be subject to monetary correction."

33. Art. 7, § 6 of Law No. 4,357 provided: "The penalties and interest that

A brief discussion of the economic setting of Brazilian indexation is now necessary in order to assess its legal implications. If Law No. 4,357 had been given little or no practical use—such as was given the 1957 indexation authorization—little that is worthwhile could be discussed about Brazilian indexation as a legal institution. As shall be seen, however, the Brazilian indexation system—with its frequent rule changes—has become the foundation of key aspects of modern Brazilian finance.

1. Indexation of Government Bonds

The general purpose of monetary correction may be inferred from the face of the statute and the relevant financial background. Prior to 1964, the Brazilian Treasury had only been sporadically successful in placing its obligations,[34] principally because obligations such as those available in 1962 bore only six or seven percent interest[35] when the rate of inflation was considerably higher, and the public's confidence in the government's promise to repay was low. Most pre-1964 borrowing was accomplished by compulsory loans,[36] yet significant unfinanced budgetary deficits remained. Because the pre-1964 market would not justify expectations of a spontaneous market for fixed-interest public debt with ordinary terms, the government apparently intended that the promise of a positive return would make possible a market for Brazilian public debt, and that such a market would permit financing of the budg-

---

are due the government because of delay in payment and that, as contemplated in currently effective legislation, are to be calculated in terms of percentages, shall have such percentages applied to the corrected amount." Law No, 4,357 also changed several aspects of the excess profits tax. *See* note 15 & accompanying text *supra.* A discussion of these changes may be found in Rosenn, *supra* note 8, 21 STAN. L. REV. 58.

34. *As operações de open-market no Brasil,* CON. ECON., January 1973, at 56, 57. In 1963 Brazil's internal public debt amounted to 0.5% of its gross national product; in 1963 the American internal public debt amounted to 42% of the gross national product. Rosenn, *supra* note 8, 21 STAN. L. REV. at 95.

35. Law No. 4,069 of June 11, 1962 (which unified the Brazilian Federal debt into 7% bonds); Law No. 2,977 of Nov. 28, 1956. *See generally* 2 MINISTÉRIO DO PLANEJAMENTO E COORDENAÇÃO ECONÔMICA, PLANO DECENAL DE DESENVOLVIMENTO ECONÔMICO E SOCIAL [hereinafter cited as PLANO DECENAL], 2 ASPECTOS MACROECONÔMICOS, POLÍTICA MONETÁRIA E MERCADO DE CAPITAIS (VERSÃO PRELIMINAR) 49 (1967). Some government instrumentalities issued obligations—generally authorized only for a specific purpose—with a higher nominal interest rate.

36. J. CHACEL, *supra* note 13, at 282. Arts. 72 and 73 of Law No. 4,242 of July 16, 1963, are examples of authority for compulsory loans to the government.

etary deficit by borrowing.[37]

Nevertheless, much of the early subscription to the ORTNs was involuntary. Indeed, 73 percent of the ORTNs placed in 1964 were either involuntary subscriptions or alternatives to taxation. Furthermore, although by 1966 only 17 percent of the subscriptions were involuntary or alternatives to taxation and although by 1974 this had fallen to 3 percent,[38] various Brazilian governmental instrumentalities, commercial banks (which were permitted to hold a portion of their reserves as ORTNs), and insurance companies (which were required to invest a portion of their reserves in ORTNs) have continued to hold a very large portion of

37. If the Brazilian government had issued bonds with fixed, nonindexed interest rates that were sufficiently higher than anticipated rates of inflation, then it presumably could have successfully placed those fixed interest bonds. At a sufficiently high fixed annual interest rate, investors would likely have been willing to purchase an amount of fixed interest bonds equal to the amount of the indexed bonds that were in fact sold. If the potential bondbuyers had expectations of high inflation and a high aversion to the risks of unexpected increases in inflation (which could be caused by government action), then the government should have been capable of issuing indexed bonds such that it incurred a lowered combination of expected real interest payment and risk from unexpected adverse changes in the price level than the expected real interest and risk that the government would have incurred by placing fixed interest bonds. The new government may also have had lower inflationary expectations than potential bondbuyers, bondbuyers may have been highly wary of inflationary risks, and index-linking the bonds may have been intended to lead to an increased sense by bondbuyers, who may have otherwise been reluctant to lend to the government, that government action, principally through implementation of fiscal and monetary policy, was likely not to affect the value of government obligations significantly. *Cf.* Liviatan & Levhari, *supra* note 5 (arguing that many private borrowers would prefer a nonindexed obligation—even if the expected real payments on the nonindexed obligations are slightly higher than those of the indexed obligations—as a hedge against an unexpected deterioration of the value of their non-indexed monetary assets); Rutledge, *supra* note 5 (arguing that bondbuyers may consider themselves protected from government-induced inflation if government bonds are indexed).

38. M. SILVA, A DÍVIDA DO SETOR PÚBLICO BRASILEIRO 58 (1976). The voluntary subscriptions in these figures include bonds held by various governmental entities and by commercial banks as an alternative to cash reserve requirements.

Law No. 4,621 of April 30, 1965, required, *inter alia,* certain public employees earning salaries above a specified amount to subscribe to ORTNs in percentages based upon their total governmental salary. Individuals were permitted a deduction from gross income of a percentage of sums applied to nontransferable ORTNs. Such nontransferable ORTNs could be converted to transferable ORTNs, but the individual's taxable income would then be appropriately adjusted. Art. 2, Decree-Law No. 1,338 of July 23, 1974; Art. 56, Law No. 4,728 of July 14, 1965; Art. 14, Law No. 4,357 of July 16, 1964.

the ORTNs issued.[39] Accordingly, the market for ORTNs has remained less than fully spontaneous.

The induced expansion of placement of government debt during a period of general credit expansion[40] allowed a major portion of the government's deficit to be substantially financed by public and quasi-public borrowing[41] instead of by printing money or borrowing

39. In 1977, 25% of the ORTNs were held by commercial banks as an alternative to cash reserves, 18% were held by the Central Bank, 13% were held by the National Housing Bank, and 11% were held by other governmental institutions; at least 67% of the ORTNs were held either pursuant to regulation or by government-controlled entities. BANCO CENTRAL DO BRASIL, ANNUAL REPORT 1977, BOLETIM, April 1978, at 120-21 (Eng. ed.) [hereinafter cited as ANNUAL REPORT 1977]. *See also* ISTO É, July 12, 1978, at 88.

40. For example, the following chart shows the expansion in circulation of the bill of exchange (*letra de câmbio*), in millions of *cruzeiros*:

Year	Bills of exchange in circulation
1966	769
1967	1,490
1968	3,462
1969	4,252
1970	6,092
1971	11,986
1972	18,622
1973	34,039
1974	42,397

BANCO CENTRAL DO BRASIL, BOLETIM, June 1977, at 114-15. *See* Table II, at note 45, *infra* (statistics of the volume of ORTNs in circulation and the official Brazilian exchange rate for the dollar).

This comparison of the volume of bills of exchange and ORTNs is not a valid comparison of all nonindexed financial assets with all indexed financial assets; the comparison is only used to illustrate the simultaneous rapid growth of one nonindexed financial instrument. Although a mix of financial assets should attract more savings, the significance of the attraction of the indexation feature cannot be determined from the data concerning the changing volume of indexed and nonindexed assets in circulation, because the information available neither reveals what portion of the *cruzeiros* placed in ORTNs (and other indexed instruments) would have otherwise been placed in nonfinancial assets nor reveals what portion represented a shift from nonindexed to indexed financial assets.

41. BANCO CENTRAL DO BRASIL, RELATÓRIO ANUAL 1975, BOLETIM, March 1976, at 145-79 [hereinafter cited as REL. AN. 1975]; *As operações de open-market no Brasil, supra* note 34, at 56, 58.

Official statistics of Brazilian inflation may be found in the following table.

TABLE I

BRAZILIAN TREASURY FINANCIAL STATISTICS (in millions of *cruzeiros*)

Year	Receipts	Expenses	Deficit (surplus)	Government Financing		Gross Domestic Product (GDP)	Monetary authorities purchases from (sales to) government (% GDP)	Government non-financing receipts (% GDP)	Annual percentage increase in wholesale price index
				Debt bought (sold) by monetary authorities	Debt bought (sold) by public				
1947	13.9	13.4	(0.5)	—	—	165	(0.3)	8.4	8.9
1948	15.7	15.7	0	—	—	195	0	8.1	6.9
1949	17.9	20.7	2.8	—	—	230	1.2	7.8	4.6
1950	20.8	24.0	3.2	2.7	0.5	272	1.0	7.6	2.5
1951	29.2	26.8	(2.4)	(2.6)	0.2	323	(0.8)	9.0	21.1
1952	32.9	30.4	(2.5)	(2.1)	(0.4)	397	(0.5)	8.3	12.6
1953	40.9	51.6	10.7	9.8	0.9	470	2.1	8.7	15.7
1954	50.3	54.3	4.0	6.5	(2.5)	627	1.0	8.0	24.5
1955	59.2	64.9	5.7	5.7	0	783	0.7	7.6	19.7
1956	74.5	98.4	23.9	23.7	0.2	996	2.4	7.5	21.7
1957	96.9	138.1	41.2	41.1	0	1,218	3.4	8.0	15.0
1958	131.6	162.3	30.7	21.3	9.4	1,458	1.5	9.0	14.2
1959	180.9	221.4	40.5	31.6	8.9	1,990	1.6	9.1	42.8
1960	247.4	324.0	76.5	69.4	7.2	2,756	2.5	9.0	31.3
1961	371.2	508.7	137.5	136.0	1.5	4,052	3.4	9.1	40.5
1962	565.6	846.5	280.9	246.9	34.0	6.601	3.7	8.7	50.2
1963	1,051.2	1,555.9	504.7	426.4	78.3	11,929	3.6	8.8	76.0
1964	2,129.0	2,857.2	728.2	736.4	(8.2)	23,056	3.2	9.2	80.9
1965	3,906.7	4,499.6	592.9	269.7	323.2	38,818	0.7	10.1	54.0
1966	5,909.8	6,496.4	586.6	(190.4)	606.3	53,724	(0.6)	11.0	41.1
1967	6,814.1	8,038.8	1,224.7	699.0	525.7	71,486	1.0	9.5	21.8
1968	10,275.4	11,502.1	1,226.7	1,078.9	147.8	99,880	1.1	10.3	27.7
1969	13,953.1	14,708.9	755.8	(1,025.6)	1,781.4	133,117	(1.3)	10.5	19.1
1970	19,193.8	19,932.1	738.3	(832.5)	1,570.8	174,624	(0.5)	11.0	19.3
1971	26,980.3	27,652.6	672.3	(3,363.8)	4,036.1	223,996	(1.5)	12.0	21.5
1972	37,738.3	38,254.4	516.1	(7,766.4)	8,282.5	302,323	(2.6)	12.5	17.7
1973	52,863.2	52,568.1	(295.1)	(6,015.8)	5,720.7	477,163	(1.2)	11.1	15.4
1974	76,810.1	72,927.7	(3,882.4)	(7,235.3)	3,352.9	676,617	(0.5)	11.4	29.1
1975	95,446.8	95,372.9	(73.4)	(16,289.5)	16,216.1	895,841	(1.8)	10.7	27.8

Sources: INTERNATIONAL FINANCIAL STATISTICS 74 (April 1975); *Síntese estatística*, CON. ECON., September 1973, at 223, 224; *Estatísticas Básicas*, CON. ECON., November 1972 (special supplement). Several of the later years' GDP statistics are estimates. Official GDP statistics apparently have been calculated on a different basis from year to year, which accounts for the large jump from 1972 to 1973 in the above chart. *Compare* INTERNATIONAL FINANCIAL STATISTICS 74 (April 1975) *and* REL. AN. 1975, *supra*, at 24 *with Síntese estatística*, CON. ECON., September 1973, at 223, 224. Statistics with a consistent basis of calculation are not readily available. *See also* FUNDAÇÃO BRASILEIRA DE GEOGRAFIA E ESTATÍSTICA, ANUÁRIO ESTATÍSTICO DO BRASIL 1975, at 641 (1976). Economic data generally cannot be generated to the degree of accuracy (six significant digits) presented in this table. *See, e.g.*, O. MORGENSTERN, ON THE ACCURACY OF ECONOMIC OBSERVATIONS 8-12 (2d ed. 1963).

Some independent estimates differ from those above; for most years the independent estimates are higher. *See, e.g.*, W. NESS, *supra* note 2, at 42. Considerable Federal receipts and expenditures exist that ordinarily are not part of the official budget. M. SILVA, *supra* note 38, at 85-89; Ellis, *Corrective Inflation in Brazil, 1964-1966*, in THE ECONOMY OF BRAZIL 177, 185-86 (H. Ellis ed. 1969). They are ignored here, but would have to be accounted for in any extended economic analysis. Additionally, the open market statistics provided by the *Banco Central do Brasil* should be noted. *See* Table II at note 45 *infra*. Thus, during the few years prior to introduction of the ORTN, government budgetary expenditures that were not covered by either tax receipts or public borrowing approximated 3.5% of the gross domestic product. After the introduction of the ORTN this percentage declined markedly.

A declining rate of inflation (which in part may have been caused by a smaller government deficit), or an expanding economy, should ordinarily have led to greater lending of all kinds and specifically greater lending, or willingness to lend, to the government. As a general example, the volume in circulation of non-indexed bills of exchange expanded 1600% from 1966 to 1974 (from $350 million to $5.7 billion); during the same period ORTNs increased approximately 600% (from $637 million to $4.4 billion). *See* note 40 *supra*. Perhaps even more importantly, the simple fact that the new government paid its first indexed bond obligations, as revalued, may have been significant in establishing a viable government bond market. For many years prior to 1964, the Brazilian government was viewed as a poor credit risk on its compulsory loans, *see* K. KARST & K. ROSENN, *supra* note 9, at 527, which were similar to the compulsory subscriptions to ORTNs. The Brazilian taxpayer generally considered these compulsory loans to be disguised tax payments because of the government's occasional poor repayment performance and the low real yield caused by inflation. C. SHOUP, *supra* note 14, at 35; PLANO DECENAL, *supra* note 35, 1 ASPECTOS MACROECONÔMICOS, POLÍTICA TRIBUTÁRIA (VERSÃO PRELIMINAR) 18 (1967); *id.*, 2 ASPECTOS MACROECONÔMICOS, POLÍTICA MONETÁRIA E MERCADO DE CAPITAIS (VERSÃO PRELIMINAR) 48 (1967).

As late as 1966, a Brazilian Supreme Court decision expressed the opinion that a pension would be better secured if payments were to be received directly from the defendant railroad than if payments were to be received from a fund of Brazilian government bonds. Rêde Ferroviária Federal S.A. v. Pampillon, 38 R.T.J. 215, 216 (Sup. Trib. Fed. 1966) (opinion of Minister Gonçalves de Oliveira); *translated in part in* K. KARST & K. ROSENN, *supra* note 9, at 497-98. *See*

from the Brazilian central banking authorities.[42] Because holdings by governmental instrumentalities and holdings as alternatives to cash pursuant to various government regulations have been a very significant portion of the public and quasi-public holdings of the ORTNs, much of the deficit has been effectively financed by regulatory requirements.

In 1968, the increased distribution of government obligations permitted some central banking open market operations, which were initially undertaken through the purchase and sale of ORTNs. The short-term *Letra de Tesouro Nacional* (LTN), which was not indexed, was subsequently authorized[43] and issued expressly for the purpose of developing the open market.[44] The uncertainties of future inflation were not as signifcant for short-term instruments, and LTN placement has become roughly comparable to that of the ORTNs.[45] In 1972, the Brazilian central bank dis-

also BANCO INTERAMERICANO DE DESENVOLVIMENTO, *supra* note 13, at 34 (outlining the perceived need for public confidence in eventual repayment by the government of its obligations).

Large compulsory bond sales of 1965 and 1966 may have been necessary to create a bond market. Since the Brazilian public may have had little confidence in eventual full payment in real terms on these compulsory sales, there was little immediate difference between the compulsory bond sales and an additional tax. The eventual repayment on these compulsory bond sales should have encouraged confidence in the Brazilian government's ability and willingness to repay, perhaps facilitating future expansion of a voluntary bond market. *But see* text accompanying notes 66-90 *infra* (suggesting that the government's frequent changes in the means of calculating the index might undermine public confidence in the ORTNs). Moreover, a government bondbuyer's security is largely a function of that government's capacity to raise taxes, and, as the discussion at note 54 *infra* indicates, the increased capacity in the 1960s of the Brazilian government to raise taxes was not due solely to monetary correction. Finally, and perhaps most importantly, expansion of many Brazilian financial institutions, many of which are required or induced to hold ORTNs, has led to their holding more government bonds. Similarly, the expanded resources of government instrumentalities have enabled them to hold more ORTNs.

42. *But see* note 48 *infra.*

43. Decree-Law No. 1,079 of Jan. 29, 1970; *As operações de open-market no Brasil, supra* note 34, at 56, 57; *cf.* Arts. 22, 28(m), Decree-Law No. 1,338 of July 23, 1974 (dealing with subsequent treatment of the LTNs). Originally the discounted gain was untaxed; pursuant to Decree-Law No. 1,338 the gain was, beginning in 1974, taxed. *See also* Central Bank of Brazil, Res. No. 150 of July 22, 1970.

44. BANCO CENTRAL DO BRASIL, RELATÓRIO ANUAL 1972, BOLETIM, March 1973, at 134 [hereinafted cited as REL. AN. 1972].

45. As is shown in the following table:

TABLE II

OPEN MARKET STATISTICS

Year	ORTNs in circulation (total)	ORTNs held by Banco Central do Brasil	LTNs in circulation (total)	LTNs held by Banco Central do Brasil	Other Federal debt instruments	Annual percentage increase in wholesale price index	*Cruzeiro*-dollar official exchange rate
1964	41	—	—	—	32	80.9	1.83
1965	430	—	—	—	33	54.0	2.20
1966	1,401	73	—	—	33	41.1	2.20
1967	2,482	102	—	—	38	21.8	3.22
1968	3,491	29	—	—	44	27.7	3.83
1969	5,881	58	—	—	—	19.1	4.35
1970	9,412	23	699	204	—	19.3	4.95
1971	11,565	54	3,880	1,810	—	21.5	5.64
1972	15,975	82	10,204	2,150	—	17.7	6.22
1973	20,944	140	17,400	4,788	—	15.4	6.22
1974	32,969	32	14,801	396	—	29.1	7.44
1975	60,112	2,422	37,400	15,264	—	27.8	9.07

Figures other than those of the last two columns are in millions of *cruzeiros*.

Sources: REL. AN. 1975, *supra* note 41, at 163-65, 174; F. PICK, 1975-76 CURRENCY YEAR BOOK 100 (1976); Ferreira, *Administração da Dívida Pública e a Política Monetária no Brasil*, in POLÍTICA MONETÁRIA E DÍVIDA PÚBLICA 297 (Instituto Brasileiro de Mercado de Capitais ed. 1974); *Estatísticas Básicas*, CON. ECON., March 1976, at 80, 114.

continued use of the indexed ORTN for open market operations,[46] and thereafter employed the LTN for use in open market operations.[47] Accordingly, the primary direct success of the ORTN has been in the financing of budgetary deficits of the Brazilian Federal government[48] and the creation of an intragovernmental debt instrument in an inflationary economy.

2. Indexation of Tax Arrears

Article 7 of Law No. 4,357 indexed tax arrears, including arrears as of the effective date of the law. The retroactive indexation of tax arrears met with criticism[49] and was subsequently eliminated.[50] Prior to 1964, delay of tax payment was often profitable because penalties and interest were small in relation to inflation. From 1962 until the new law became effective, the penalty for nonpayment was ten percent for each half year of delay, with an additional monthly interest charge of one percent.[51] Thus, when prices

46. REL. AN. 1972, *supra* note 44, at 133.

47. REL. AN. 1975, *supra* note 41, at 80; BANCO CENTRAL DO BRASIL, RELATÓRIO ANUAL 1974, BOLETIM, March 1975, at 78, 167, 174-76 [hereinafter cited as REL. AN. 1974].

48. Although financing budgetary deficits by borrowing from the private sector instead of printing money or borrowing from the central bank could lead to a reduction in inflation, the ultimate effect of such a governmental capacity to match total expenditures with total receipts and to engage in open market operations remains unknown. When on the verge of pulling cash out of the private sector by marketing viable bonds without increasing government expenditures or lowering taxes, the government may take steps to alleviate the deleterious effect on private investment and consumption that such a cash drain might have. The money supply might be expanded by altering the central bank discount rate or the bank reserve ratio. Those steps could produce the money that is used to purchase the indexed government bonds. Such measures would ordinarily have a deleterious effect on inflation. *See* R. MUSGRAVE & P. MUSGRAVE, *supra* note 3, at 543. The indexation of Brazilian government bonds apparently gave Brazil two fundamental tools of modern fiscal and monetary policy: (1) the capacity to finance budgetary deficits by borrowing from the private sector and (2) the potential to engage in open market operations. This is secondary to this article's concern with rule changes; furthermore, the way in which these fiscal and monetary tools were used in the past dozen years is an economic and historical matter far beyond the scope of this article.

49. J. CHACEL, *supra* note 13, at 106-07; B. MORAES, CORREÇÃO MONETÁRIA DE DÉBITOS FISCAIS (1965) (arguing that aspects of the law were unconstitutional). *See also* Gomes de Sousa, *Inconstitucionalidade da Correção Monetária de Débitos Fiscais,* 113 REVISTA DE DIREITO ADMINISTRATIVO 7, 17 (1973).

50. Art. 15, Law No. 4,862 of Nov. 29, 1965.

51. Rosenn, *supra* note 8, 21 STAN. L. REV. at 70. There were additional penalties for tax fraud. *Id.* at 70-71 n.59.

were rising at approximately an 80 percent annual rate in 1963, the full annual cost for nonpayment of taxes was substantially less than the rate of inflation. At the same time, the Banco do Brasil issued short-term debt instruments that financed foreign trade; they carried an annual return of approximately 55 percent.[52] Ordinary corporate planning during those years involved financing the enterprise through delay in tax payment.[53] Monetary correction of tax arrears may have increased tax revenues, by destroying much of the incentive to delay tax payment in an economy subject to chronic inflation.[54]

C. *Other Indexed Instruments*

After the July 1964 authorization to issue ORTNs, laws were promulgated permitting indexation of various instruments used by private parties and local governments, with the adjustments tied to the change in nominal value of the ORTN.[55] These instruments

52. R. CAMPOS & M. SIMONSEN, *supra* note 20, at 121; J. CHACEL, *supra* note 13, at 36. Similarly, state companies offered rates of return that were much greater than the penalty rates for delaying tax payments. *Id.*

53. Bulhões, *Financial Recuperation for Economic Expansion,* in THE ECONOMY OF BRAZIL 162 (Ellis ed. 1969); B. MORAES, *supra* note 49, at 14, 19.

54. Government receipts as a percentage of the gross domestic product increased somewhat during the years after the introduction of monetary correction for tax arrears. *See* note 41 *supra.* Use of this small increase as a measure might underestimate any increased effectiveness of government collection due to indexation because tax credits and deductions are extensively used as incentives for specific investments (including investment in ORTNs). *See, e.g.,* Decree-Law No. 1,388 of July 23, 1974. However, several factors other than monetary correction appear to have been important in making the tax system effective in post-1964 Brazil. First, legislation established criminal penalties for tax fraud. Law No. 4,729 of July 14, 1965. Second, administrative efforts were made to improve the efficiency of the tax collection system. *See* C. SHOUP, *supra* note 14, at 27 (discussing the weakness of pre-1964 tax administration); Steiner, *Legal Education and Socio-Economic Change: Brazilian Perspectives,* 18 AM. J. COMP. L. 39, 53 (1971). Third, the requirement that taxes be paid was widely publicized. *Id.* For example, Brazilian television viewers were inundated in April 1976 with government commercials that showed a businessman completing a tax form and then cut to national development scenes of agricultural machinery reaping, an oil platform drilling, and a factory producing.

55. In addition, some significant indexation features of the Brazilian tax system, such as the adjustments to eliminate illusory inflationary gains from the nominal change in a business' financial position, are based on the adjustments to the ORTN. J. BULHÕES PEDREIRA & M. RIBEIRO DA CRUZ, MANUAL DA CORREÇÃO MONETÁRIA DAS DEMONSTRAÇÕES FINANCEIRAS 28 (1978).

included corporate bonds,[56] certain types of insurance,[57] bank certificates of deposit,[58] real estate letters,[59] housing rentals,[60] certain long-term loans,[61] certain mortgages,[62] and state and municipal bonds.[63] In June 1977 authority to use any index other than one based upon the nominal variations in the ORTN was withdrawn for all but a few financial obligations.[64] By the terms of the June 1977 statute, previous provisions authorizing the use of another index were voided; the ORTN index was immediately substituted for any other index unless the transaction fell into one of the statutory exceptions.[65] Thus, the ORTN index has become more than the basis for indexing government bonds; it has become the hub of Brazil's financial system.

D. *The Index*

Law No. 4,357 provided that the ORTNs would have their value adjusted "in accordance with the variations in the purchasing power of the national currency"[66] through publication in the Diário Oficial of a table of monetary correction coefficients.[67] The law did not indicate the method by which the table of coefficients would be calculated; it only indicated which governmental body would establish the indices.[68] The method of calculation has been altered several times by the government. These changes have been applied

56. Law No. 4,728 of July 14, 1965.

57. Law No. 5,488 of Aug. 27, 1968; Decree-Law No. 73 of Nov. 21, 1966; *see* J. CHACEL, *supra* note 13, at 260.

58. Law No. 4,728 of July 14, 1965.

59. *Id.*, art. 45, § 6.

60. Law No. 6,146 of Nov. 29, 1974.

61. Law No. 4,728 of July 14, 1965.

62. Law No. 4,380 of Aug. 21, 1964, *modified by* Art. 26, Law No. 4,728 of July 14, 1965.

63. CONSTITUIÇÃO art. 69, § 2 (Brazil 1967), which was left unaltered by the 1969 Constitution, authorized the Brazilian Senate to regulate the issuance of state and municipal bonds. *See also* INSTITUTO BRASILEIRO DE MERCADO DE CAPITAIS, AN APPROACH TO CAPITAL MARKETS IN BRAZIL 86-88, 109 (1973); M. SILVA, *supra* note 38, at 69-75 (discussing Brazilian state and municipal bonds).

64. Law No. 6,423 of June 17, 1977. These obligations included salary and social security adjustments, certain operations of financial institutions, and contracts for the future provision of goods and services.

65. *Id. See also* Jornal do Brasil, May 5, 1977, at 25, cols. 1-2 (discussing proposal of the law).

66. Art. 1, § 1, Law No. 4,357 of July 16, 1964, *quoted in* note 23 *supra.*

67. Art. 7, § 1, Law No. 4,357 of June 16, 1964, *quoted in* note 31 *supra.*

68. *Id.*

both to the ORTNs already in circulation and to private obligations that had been tied to the nominal value of the ORTN. Because the changes were applied to indexed private obligations and the substantial indexed debts due to the government (for tax arrears and government loans) as well as to the ORTNs, the primary issue raised is not whether the government as a distinct entity realized gains from its policy. Indeed, because the changes in the index generally benefited indexed debtors, if the aggregate debt due to the government exceeded the aggregate bond and other debt owed by the government at the time of an index change, then the government may have actually lost revenue by redefining the rules of indexation. And, to the extent that the reordering of the index affected private obligations, the government's revenues were not directly affected at all. Instead, the point to be recognized through the following analysis is that intermittent changes in the rules of Brazilian indexation of financial obligations have coexisted with the system's rapid growth.

The monetary correction coefficients were originally based upon the change in the average wholesale prices in one quarter of the year compared to prices in the previous quarter, with a delay of an additional quarter until the coefficients would become effective.[69]

69. Later, in September 1965, some ORTNs were adjusted monthly; by October 1973 all ORTNs were adjusted monthly. Decree-Law No. 1,281 of July 24, 1973; Ministry of Finance, Reg. No. 211 of Aug. 15, 1973; *Correção monetária das O.R.T.N.—formas de cálculo*, *supra* note 31, at 92.

The basic index models take a fixed basket of goods and measure price changes over time of purchases of the same basket of goods. One price index, the Laspeyres model, measures price changes as a function of the goods actually purchased during the base period. Another index, the Paasche model, uses the quantities actually purchased in the final period in order to weight the index. Fisher's "ideal" model takes the average of each. *See* C. SHOUP, PUBLIC FINANCE 580 (1969). A fundamental aspect of inflation indices is that the actual quantities purchased, which must be accounted for in order to weight the index with the more heavily purchased items, ordinarily vary with price changes. Thus, adjustments to purchasing habits (buying less of the more expensive goods) may not be reflected in the actual changes in the index numbers. As seen below, the modifications to the Brazilian index take this into account. The Laspeyres index will adequately indicate the price of a given market basket in a subsequent period. It does not, however, necessarily indicate what increase in nominal income is necessary to obtain the same standard of living or productive capacity. When some prices rise faster than others, the purchaser will discover that substitution of goods with prices rising more quickly for goods with prices rising less rapidly will enable the same standard of living to be reached without an increase in expenditure as great as indicated in the Laspeyres formula. If an index is to be used to compensate losses in standards of living due to inflation, then the problem of overcompensa-

Thus, the adjustment scheduled to take effect in July was based on average wholesale prices of January, February and March, as compared to the average wholesale prices of October, November

---

tion becomes significant. (The Paasche type index would analogously lead to undercompensation. Some theoretical responses to the problem, such as Fisher's "ideal," involve combinations of the two indices.) *See generally* C. SHOUP, *supra*, at 580; W. WALLACE, MEASURING PRICE CHANGES 16-36 (2d ed. 1972).

In the American economy, due to the mix of price changes, use of the Laspeyres formula yields a result estimated to be within 0.1% of an index reflecting actual substitutions of goods. Triplett, *Measuring Prices—and Wages*, 67 PROC. AM. ECON. A. 135, 136 (1977). For a general discussion of the practical use of price indices in the United States, see W. WALLACE, *supra*, at 37-49. The impression created is that the dispersion of price changes in Brazil has been greater than in the United States. It is thus possible that use of the Laspeyres index for compensation in Brazil would have led to serious discrepancies. Instead of using a fixed weight assumption, the Brazilian index is based on the tendency of purchasers to reduce the quantities purchased of goods with rising prices and to increase the quantities purchased of goods with falling or less rapidly increasing prices. Quantity is measured in the base period and updated at various times. During the intervals before an update in quantity weights, the index is constructed on the assumption that relative quantity is a function of the relative change in price and that there is unitary elasticity; that is, it is assumed that a fixed percentage of national income will be allocated to each sector until the weights for each sector are updated. J. CHACEL, *supra* note 13, at 310; *Índices de Preços por Atacado—novas ponderações*, CON. ECON., February 1976, at 277; *Sumário*, REVISTA BRASILEIRA DE ECONOMIA, March 1961, at 31.

TABLE III

ILLUSTRATION OF THE LASPEYRES AND THE MODIFIED INDEX FORMULAS

Let: $I_{i,i-1}$ = The price-level in time i as a multiple of the price-level in time $i-1$;

$V_{j,i}$ = The total value of all sales of good j in time i;

$p_{j,i}$ = The price of good j in time i;

$q_{j,i}$ = The quantity of good j sold in time i; and

o = The initial time period.

Then:

Standard Laspeyres

$$I_{i,i-1} = \frac{\sum_{j=1}^{n} V_{j,i}}{\sum_{j=1}^{n} V_{j,j-1}}$$

Unitary elasticity

$$I_{i,i-1} = \frac{\sum_{j=1}^{n} V_{j,o} \frac{p_{j,i}}{p_{j,i-1}}}{\sum_{j=1}^{n} V_{j,o}}$$

and December of the previous year.[70] A three-month moving average, also with a three-month delay, was adopted in October 1969. In May 1976 when a decrease in the rate of inflation was expected,

Since $V_{j,i} = p_{j,i}\ q_{j,i}$ the following transformation can be made:

$$I_{i,i-1} = \frac{\sum_{j=1}^{n} p_{j,i}\ q_{j,i}}{\sum_{j=1}^{n} p_{j,i-1,}\ q_{j,i-1}} \qquad I_{i,i-1} = \frac{\sum_{j=1}^{n} p_{j,o}\ q_{j,o}\ \frac{p_{j,i}}{p_{j,i-i}}}{\sum_{j=1}^{n} p_{j,o}\ q_{j,o}}$$

(for each different j, $q_{j,i} = q_{j,i-1}$).

This modification can be illustrated as follows:

> Assume an economy with three sectors, each of which produces 100 items during the initial period, t_o. Each item in each sector sells for \$10 during t_o. During t_o each sector has an equal market share. By the end of the next time period, t_1, the first good, a, triples in price; the second good, b, doubles in price; and the third good, c, has a constant price. By the end of the final period, t_2, the price of a, p_a, again triples, p_b again doubles and p_c again remains constant.

Then, substituting the assumed prices and quantities:

$$I_{1,o} = \frac{(\$30 \times 100)+(\$20 \times 100)+(\$10 \times 100)}{(\$10 \times 100)+(\$10 \times 100)+(\$10 \times 100)} = 2$$

$$I_{1,o} = \frac{(\$1000 \times 3)+(\$1000 \times 2)+(\$1000 \times 1)}{(\$10 \times 100)+(\$10 \times 100)+(\$10 \times 100)} = 2$$

$$I_{2,1} = \frac{(\$90 \times 100)+(\$40 \times 100)+(\$10 \times 100)}{(\$30 \times 100)+(\$20 \times 100)+(\$10 \times 100)} = 2.33\ldots$$

$$I_{2,1} = \frac{(\$1000 \times 3)+(\$1000 \times 2)+(\$1000 \times 1)}{(\$10 \times 100)+(\$10 \times 100)+(\$10 \times 100)} = 2$$

Since $I_{i,i-2} = I_{i,i-1}\ I_{i-1,i-2}$ for both the standard Laspeyres and unitary elasticity assumptions:

$$I_{2,o} = 4.66$$

$$I_{2,o} = 4$$

70. *Correção monetária-tema de interesse internacional,* CON. ECON., May 1974, at 110, 111. Indices other than the wholesale price index, such as the implicit gross national product deflator or the consumer price index, might have theoretically been as appropriate as, or perhaps superior to, the wholesale price index as a means of carrying out the mandate of Law No. 4,357, to make adjustments "in accordance with the purchasing power of the national currency." However, greater technical inadequacies in Brazil, associated with such alternative measures in acquiring the information in a timely manner, led to use of the wholesale price index.

the indexed calculation was altered in such a manner that delay would be only one month instead of three. This change effectively decreased the monetary correction adjustment as the rate of inflation decreased.[71]

In October 1969 price changes in exports were eliminated from the index. A large price rise in a primary export would have provided a substantial boost to the pre-October 1969 price index; bondholders would have paid for this price increase, although they did not in the aggregate buy these more costly exported goods in the same proportion that the goods were produced. The changes in the wholesale price index relating to exported items actually overcompensated for the "variation in the purchasing power of the national currency," the standard provided by Law No. 4,357 for the ORTN index (as long as the weighted average price of exported items rose more quickly than that for domestic items). Since the government was paying its domestic creditors more than they needed to regain their former purchasing power, the index was appropriately weighted to offset the effect of that portion of an item that was exported.[72]

---

71. *Correção Monetária e Realimentação Inflacionária*, CON. ECON., June 1976, at 88, 92-93.

Thus, originally the revaluation to be applied to an ORTN, effective in month i, was based upon price changes from the three-month period ending six months previous to month i to the three-month period beginning six months previous to month i; it could be represented as:

$$I_i = \frac{p_{i-4} + p_{i-5} + p_{i-6}}{p_{i-7} + p_{i-8} + p_{i-9}}$$

where p_{i-4} is the wholesale price level 4 months prior to month i, and I_i equals the government's inflation coefficient for the ORTN in month i.

Later, this formula was modified to a monthly moving average:

$$I_i = \frac{p_{i-4} + p_{i-5} + p_{i-6}}{p_{i-5} + p_{i-6} + p_{i-7}}$$

Finally, in May 1976 the effective date of this moving average was compressed to:

$$I_i = \frac{p_{i-2} + p_{i-3} + p_{i-4}}{p_{i-3} + p_{i-4} + p_{i-5}}$$

For the effect of weighted government inflationary expectations, see notes 75 & 78 *infra*.

72. *Inflação, Correção Monetária e Índices de Preços*, CON. ECON., September

The method by which the Brazilian government introduced the expected rate of inflation into the ORTN adjustment is the best indication that the successful operation of the indexation system has not been characterized by Weberian calculability.[73] In December 1972 the rate of inflation in Brazil decreased, and the index, which had been entirely based upon previous inflation, was modified by the government so that a government estimate of the expected rate of inflation for the ensuing year would receive nearly equal weight with past inflation.[74] For some time the precise formula indicating the weight of past and expected inflation apparently was not publicly revealed.[75] Thus, buyers and sellers of indexed bonds and other instruments tied to the ORTN bought and sold while accepting the risks of government recalculation. At the end of 1973, when the government's goal was to have a monetary correction index of approximately the same percentage as its goal for inflation for that year (no more than twelve percent), it abandoned this weighted formula (which would have resulted in monetary correction of 14.3 percent) and adjusted the index to 12.8 percent. The long-run distortions were alleviated by compensating

1975, at 91, 92; *Correção monetária das O.R.T.N.—formas de cálculo*, *supra* note 31, at 92, 95. In August 1969, a frost destroyed coffee trees in southern Brazil and the price of coffee to be sold for export was expected to rise substantially. Coffee, a substantial product of the Brazilian economy, had a heavy weight in the wholesale price-index. This provided the motive for weighting the index to eliminate price changes of that portion of a domestic product that was exported. J. CHACEL, *supra* note 13, at 310n*.

73. *See* text accompanying notes 91-94 *infra*.

74. W. NESS, *supra* note 2, at 42.

75. *Id.*; *Correção monetária das O.R.T.N.—formas de cálculo*, *supra* note 31, at 92, 95.

As eventually disclosed, the revaluation used from December 1972 until the end of 1973 could be represented by the following formula:

$$I_i = .6 \frac{p_{i-4} + p_{i-5} + p_{i-6}}{p_{i-7} + p_{i-8} + p_{i-9}} + .4 \quad GR_i$$

where I_i is the government's inflation coefficient for the ORTN in month i, p_{i-4} is the wholesale price index four months prior to month i, and GR_i is the government's estimate of residual inflation in month i. In one sense, this legal aspect of Brazilian monetary correction is quite similar to modern central banking operations. Those operations cannot be effectively undertaken if their nature and planned effects are publicly known. Accordingly, the specific nature of such operations, which have an effect similar to Brazilian index changes, are often not immediately announced.

upward revisions in the index during the first quarter of 1974.[76]

In March 1974, when the rate of inflation began to accelerate, the government estimate was eliminated as a component of the index.[77] Inclusion of a realistic estimate would have increased the applicable monetary correction due bondholders. In May 1976, however, when inflation was again expected to decelerate, a weighted rate of expected inflation was once again included in the index.[78]

A decision was made in 1975 to eliminate what were viewed as inflationary accidents from the monetary correction index. Although specific criteria were not announced for determining whether a price rise was fortuitous, the term included price increases due to seasonal fluctuations, droughts and frosts, and price-rises in oil mandated by the Organization of Petroleum Exporting Countries.[79] The effect appears to have been substantial. In August 1975, the index rose 2.85 percent before and 1.37 after being cleansed of inflationary accidents.[80] The domestic wholesale price index, the previously-used basis for ORTN adjustments, rose 13 percent during the final six months of 1975; when inflationary accidents were eliminated it rose 11.1 percent.[81] Perhaps because a 4 percent per annum limit on the total percentage variation due to such changes was promised[82] and because the technical literature provided support for the macroecomonic desirability of the elimination of price increases in imports from some aspects of national indexation plans, there was only some criticism that the government would have greater difficulty in placing its bonds.[83]

---

76. W. NESS, *supra* note 2, at 42-43.

77. *Correção monetária das O.R.T.N.—formas de cálculo, supra* note 31, at 92, 95.

78. *Correção Monetária e Realimentação Inflacionária, supra* note 71, at 88, 93-94. Beginning in May 1976 the full formula for indexation of the ORTN could be represented as:

$$I_i = .8 \frac{p_{i-2} + p_{i-3} + p_{i-4}}{p_{i-3} + p_{i-4} + p_{i-5}} + .2\ GR_i$$

79. REL. AN. 1975, *supra* note 41, at 45; *Inflação, Correção Monetária e Índices de Preços, supra* note 72, at 91, 93.

80. *Id.* at 93.

81. REL. AN. 1975, *supra* note 41, at 45.

82. Wall St. J., Oct. 20, 1975, at 6, col. 2.

83. *Inflação, Correção Monetária e Índices de Preços, supra* note 72, at 93; *Os Novos Rumos de Correção Monetária,* CON. ECON., November 1975, at 102, 104; *cf.* B. ACKERMAN, PRIVATE PROPERTY AND THE CONSTITUTION 67 (1977) (under a

A rise in an import's price is in effect an external "tax", which lowers the entire nation's standard of living. It is arguable from the standpoint of both fairness and efficiency that no single group should bear the burden of this national tax. The point, however, is that reliance by Brazilian holders of ORTNs on a rigid system of indexation was unreasonable by 1975, after several index formula changes. ORTNs were by then generally sold to a regulated market or to those who apparently accepted the larger macroeconomic standards of the index.

In mid-1976 the index was directly dampened; only 80 percent of that part of the wholesale price index that exceeded a fifteen percent annual rise in prices would be figured into the ORTN index. Because full indexation was at that time viewed as an unjustified inflationary accelerator,[84] new issues of ORTNs through public sales were generally discontinued. Only certain compulsory and regulated sales, sales under special circumstances, and sales upon redemption of maturing ORTNs were made for several years thereafter.[85]

---

utilitarian model of behavior, "[p]roperty owners [that have had property taken] will, as good citizens, suffer their loss without a sense of grievance only if they have reason to believe that the new regulation is in fact justified by a net increase in the general utility.").

84. BANCO CENTRAL DO BRASIL, REL. AN. 1976, BOLETIM, April 1976, at 137-38 [hereinafter cited as REL. AN. 1976]; *Correção Monetária e Realimentação Inflacionária*, *supra* note 71, at 88, 94. Since previous changes had generally limited increases in the index and may have been caused by a sense that the index was a strong transmitter of inflationary pressures, the mid-1976 dampening of the index may have represented an institutionalization of one of the previous motives for index changes.

85. REL. AN. 1976, *supra* note 84, at 137. It is difficult to assess with precision the government's reason for this constriction of new issues of ORTNs. Following the various alterations in the calculation of monetary correction, officials may have believed that there would have been difficulty marketing the obligation at its established rate (the indexed adjustment plus four percent of the revalued amount for two-year bonds, six percent for five-year bonds) and found it easier to use the LTN (which was auctioned at the market's nominal rate) than to either change the method of calculating the index or raise the effective rate of interest. Later, in mid-1978, the Ministry of Finance announced that ORTNs would be issued at a higher rate of interest: six percent for two-year bonds, eight percent for five-year bonds. It was unclear whether this was a prelude to more general use of the ORTN after the partial closing of the market, since too many intervening factors were involved. It is also difficult to determine whether the increased rate was intended to compensate for the risk of possibly unfavorable subsequent changes in the index calculation or to compensate for the disadvantageous indexation formula, which, as announced by the Ministry of Finance in mid-1976, eliminated twenty percent of the inflation above a fifteen percent an-

The financial community's perception of the Brazilian government's discretion to alter the basis of calculating the ORTN index affects not only the value of the ORTN but also the value of all obligations tied to ORTN adjustments. Several leading commentators, including the present Minister of Finance, stated that during the 1960s some lenders avoided long-term loans, including those with monetary correction, because of the "instability of the rules of the game. Some sensed the risk that in the long-term the rules of monetary correction would change before the redemption of a long-term obligation."[86] More recently, a leading newspaper commented on the government's flexibility in using the ORTN index, stating that "the government can alter the formula for calculating the ORTNs whenever it finds such an alteration to be opportune."[87]

---

nual rate. The increased rate was intended to cause those who were redeeming ORTNs to purchase new issues, because many had increasingly redeemed the ORTNs for cash and used the proceeds for something they apparently found to be more attractive than another ORTN. Jornal do Brasil, July 8, 1978, at 19, cols. 1-2; Veja, June 14, 1978, at 102-04.

An economic study of the impact of index changes on the ORTNs' valuation in the secondary market and on the volume of indexed assets would each be useful. Care would have to be taken to separate the effect of index changes from the effects of other variables. After an index alteration, market conditions could have independently changed, and different government actions concerning the placement of ORTNs, *e.g.*, the mid-1976 restriction of new ORTN issues, could have affected the market for indexed assets. Similarly, central banking activities and independent changes in the market for other financial assets could have affected the volume and valuation of ORTNs and other indexed assets. W. NESS, *supra* note 2, provides a place to begin such a study, with the data presented in his appendices.

86. J. CHACEL, *supra* note 13, at 115.

87. Jornal do Brasil, May 13, 1977, at 18, col. 2. However, a perception that increased risks in holding ORTNs exist due to the government's discretion to alter the index will not *necessarily* lead to decreased holding of ORTNs, because the substitution effect and "risk" elasticity are unknown. For example, assume an investor has $100 and the option of holding only two assets: (1) relatively low-risk, low-income ORTNs and (2) high-risk, potentially high-income stock. Also, assume that the investor will not consume this $100 under any normal circumstances. One of the important factors in the investor's choice of how to allocate resources is the trade-off of income for risk. Assume this trade-off is initially optimized by holding $50 of stock and $50 of ORTNs. If the investor is extremely highly adverse to further risks of a diminishing value of the original investment, even if a drop in income must be the price of avoidance, then an increased probability of changes in the index might lead the investor to sell some of the high-risk, generally high-income stock, and buy more of the still lower-risk ORTNs. However, this would appear to be an unusual situation. For a general

Although such rule changes might have had some adverse effect on the capacity of the government to place the bonds, they did not initially seriously undermine the market as a whole. The Brazilian financial public, which largely consists of government instrumentalities and regulated purchasers, apparently expects that the government will make changes that have a technical justification. It is the resilience of this partly voluntary but largely regulated market that implicitly challenges both the universal necessity of Weber's description of the emergence of European capitalism and certain American utilitarian assumptions. Brazilian indexation represents an effort to establish particular legal aspects of the mixed economy directly. If the Brazilian financial markets were not so closely regulated, those markets would provide empirical support for the argument that the potential deleterious effect that rule changes could have on productivity should be viewed as only one of the nondispositive factors to be weighed when choosing between the adoption of a retroactive rule change and the remaining alternatives: "grandfathering" the beneficiaries under old rules, delaying the effective date of the rule change, or compensating

---

portfolio analysis of indexed and nonindexed assets, see W. NESS, *supra* note 2, at 63-72. This theoretical anomaly is analogous to the rare substitution and elasticity effects that the English economist Sir Robert Giffen noticed when studying the 1845 Irish potato famine (or, as it is sometimes attributed, when studying 19th century bread purchases by English workers). The price increases in potatoes (or bread) so adversely affected the total effective income of many families that they bought more potatoes (or bread) and less meat in order to survive. P. SAMUELSON, ECONOMICS 437 n.6 (10th ed. 1976); D. WATSON & M. HOLMAN, PRICE THEORY AND ITS USES 21, 106-07 (4th ed. 1977). Additionally, some investors might hedge against the risks of rules changes for indexed assets by acquiring indexed liabilities.

Fishlow, *supra* note 6, at 268, after discussing the variations in the indices of monetary correction that have been applied to wages, concluded that "[i]n practice, then, Brazilian wage policy has proven virtually completely discretionary." He then suggested that other aspects of the monetary correction system are similarly discretionary. Fishlow's conclusions with respect to the subjective content of Brazilian wage monetary correction would appear to be partially applicable to the government's policy concerning yields on ORTNs and other similarly indexed obligations. With respect to the purchasing power guarantee of Law No. 4,357, an element of legal and practical discretion remains in both the definition of wholesale price inflation and the manner in which this definition of inflation will be applied to the indexed obligations of the Brazilian Treasury and similarly indexed items through the monetary correction indices. Actual application of this discretion to the ORTNs, the value of which is also the basis for readjusting many private obligations and debts due to the government (such as mortgages), appears to have been significantly less than to wages.

those who would be damaged by their adoption.

The fact that prices in the Brazilian economy are subject to substantial price controls is also noteworthy,[88] because decisions by government officials in connection with prices eventually affect the wholesale price index, which in turn becomes a component of the monetary correction index that determines in part what the government will pay to holders of its indexed bonds. Thus, a hypothetical investor, whose standard of living or capacity to continue business operations at the same level depends upon the income from ORTNs, might have the return on the bonds based upon the price of a market-basket of goods whose prices were government controlled. If shortages develop in the long-run for such goods,[89] to the extent that they are not available in the regular market at the government-controlled prices, then the hypothetical investor's standard of living or capacity to obtain business resources would be reduced.

Fixed, formal rules apparently could have been easily established for indexation; a single index method could have been applied to a government bond until it matured. If changes and improvements were made in the index, they could have been applied only to bonds that were subsequently issued. Private parties that expected special difficulties in repaying their loans if inflation ran at an exceptionally high rate could have bargained to dampen the index applicable to their repayments if the government index rose a specified nominal amount. For example, they might have negotiated a 50 percent limitation on the indexation of principal. Alternatively, they might have negotiated a clause that would have required that any correction of more than 50 percent in the government index be halved when applied to their private contract. For example, government-recorded inflation of 100 percent would have led to a private adjustment of only 75 percent. This bargained-for transfer of inflationary risks to the lender would presumably have been compensated by higher real interest payments

88. *Correção Monetária e Realimentação Inflacionária*, *supra* note 71, at 88, 93.

89. Price controls of goods in a competitive market in the long-term generally result in shortages, and the Brazilian experience provides no general exception. Baer, *supra* note 13, at 5-6, 15. But, if the industrialization process led to the establishment of concentrated industries (as it may have in Brazil), lower prices due to government controls could have induced higher production, although non-competitive behavior might have appeared in other aspects of production, such as quality-level or customer service.

when the index was under 50 percent.[90] Under the prevailing Brazilian system of a mutable index, however, the situation is reversed. Buyers of indexed assets may be paid to take the risk that the rules of the index calculation would change adversely. But this is qualitatively different from calculable law, which would establish rules allowing one to convey all of that risk in private transactions and to reasonably expect fixed terms in transactions with the government. Under the prevailing Brazilian system, the risk of a prospective change of rules is not transferable, although compensable.

The ease with which formal rules could have been used and the obvious failure to do so, coupled with the creation in less than two decades of a substantial and sophisticated financial system, leads to the conclusion that Brazilian attitudes toward law, and the government's economic and legal role in society, differ significantly from one strand of American norms. Although the rough calculability of law, which would substantially allow economic risks to be transferred, is a significant factor in the kind of legal system a lawyer operating under some assumptions of one strand of American legal thought might prescribe, it has not been rigidly used in the system Brazil has built after 1964.

III. Traditional Concepts and Brazilian Monetary Correction

A. *Brazilian Financial Markets, Utilitarian Finance, and Weberian Calculability*

Formal legal rules, according to a view that is often associated with the sociological work of Max Weber, fostered the development of market capitalism and, especially, financial markets in Europe. Weber emphasized that the rational operation of industrial capitalism required not only the technology of production, but also the dependability of a calculable legal system.[91] In Europe this calcula-

90. The mid-1976 elimination from the index of twenty percent of the inflation above a fifteen percent annual rate may have represented a governmental effort to mandate such a system. After mid-1976, purchasers of ORTNs and private lenders that had payments adjusted according to the ORTNs' nominal value could only transfer a portion of the risks of inflation. This was compensated for in some subsequent financings by a higher real interest rate when there was lower inflation. *See* notes 84, 85 & accompanying text *supra*.

91. Weber stated that "[t]he capitalistic form of industrial organization, if it is to operate rationally, must be able to depend upon calculable adjudication and administration." M. Weber, General Economic History 277 (1950). "Capitalism," he said, "requires law which can be counted upon, like a machine

ble law emerged with capitalism as part of a "rationalization" process that was reinforced by religious and cultural thought.[92] Developing capitalism fostered the further adoption of formal law:

> To the extent that [the development of modern capitalism in Europe has] contributed to the formation of the specifically modern features of present-day occidental law, the direction in which [it] worked has been by and large the following: To those who had interests in the commodity market, the rationalization and systematization of the law in general and . . . the increasing calculability of the functioning of the legal process in particular, constituted one of the most important conditions for the existence of economic enterprise [in order that it] function with stability; [this is] especially [so] with capitalistic enterprise, which cannot do without legal security.[93]

This quotation displays some of the complexity in Weber's thought. Calculable law, capitalism, bureaucratic administration and certain strands of religious thought were part of a general "rationalization" process. However, nascent European capitalism (and, presumably, the other elements of the process) further propelled and reinforced the development of calculable law.[94] Simi-

---

. . . ." *Id.* at 342-43. Similarly, "modern rationalistic capitalism has need, not only of the technical means of production, but of a calculable legal system and of administration in terms of formal rules." M. WEBER, THE PROTESTANT ETHIC AND THE SPIRIT OF CAPITALISM 25 (1958). *See also* 1 M. WEBER, *supra* note 1, at 337; 2 *id.* at 883.

92. *See, e.g.*, M. WEBER, THE PROTESTANT ETHIC AND THE SPIRIT OF CAPITALISM 25-31, 133 (1958). *See also* H. PIRENNE, ECONOMIC AND SOCIAL HISTORY OF MEDIEVAL EUROPE 27-28 (I. Clegg trans. 1937). Weber's thoughts on the development of European capitalism in a preexisting framework of formal law are scattered throughout his work. His thoughts are summarized in detail and synthesized with the growing body of developmental legal literature in Trubek, *Max Weber on Law and the Rise of Capitalism*, 1972 WIS. L. REV. 720. *See also* Trubek, *Toward a Social Theory of Law: An Essay on the Study of Law and Development*, 82 YALE L.J. 1, 11-16 (1972). Similar ideas are discussed in terms of legal security in K. KARST & K. ROSENN, *supra* note 9, at 629-49.

93. 2 M. WEBER, *supra* note 1, at 883; *see* Llewellyn, *What Price Contract?—An Essay in Perspective*, 40 YALE L.J. 704, 721 (1931). Llewellyn wrote: "Whatever the need for legal enforcement of contract in current dealings, then, its place in an *investment* structure is obvious. It is essential to any approach to a market for capital, to any machinery for mobilizing funds or diversifying investments."

94. Weber is, however, often associated with the view that religion and culture substantially created the cultural climate that enabled the development of calculable law and capitalist enterprise. *Cf.* R. BENDIX, MAX WEBER: AN INTELLECTUAL PORTRAIT 50 n.2 (1977) (arguing that Weber did not advance the thesis that

larly, traditional utilitarian thought assumes that capitalism's productivity is ordinarily best encouraged when rules are formally declared and stabilized, because fluid rules undermine productivity.[95] Thus, Weber's work, from a historical and descriptive perspective, and utilitarianism, from a normative and prescriptive perspective, deal with similar matters.

Although utilitarian considerations of predictability are not the only important value in our legal system, rule changes have, and are widely perceived as having, some important costs. The changes increase uncertainty, thus dampening some long-run economic activity of those who are adverse to risk. Disaffection from the economic-political system also increases.[96] These ideas are important to our thinking about law, finance, and rule changes. The fact that these aspects may not always be articulated, may not always be central or, when articulated, may be viewed as insufficient to overcome a competing consideration, does not undermine their importance. In addition, unmitigated rules changes have another, nonutilitarian cost because they place burdens on some elements of society for the benefit of others. According to one important philosophical viewpoint, this is unjust even if it appears that the burdens on some do not outweigh the benefits conferred on others.[97]

---

religious ethics significantly explained, as contrasted with reinforced, capitalism's development, a thesis with which he is, however, generally associated). A differing viewpoint is that, in seriatim, capitalist enterprise emerged, dominated the political relations of its society and then imposed upon that society the legal structure most useful to it. *See, e.g.*, M. TIGAR & M. LEVY, LAW AND THE RISE OF CAPITALISM at xv, 4, 272-73, 279 (1977); M. DOBB, STUDIES IN THE DEVELOPMENT OF CAPITALISM 9 n.1 (1947).

95. *See, e.g.*, Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law*, 80 HARV. L. REV. 1165, 1214 (1967).

96. *See* B. ACKERMAN, *supra* note 83, at 42, 44-49, 64-70 (arguing, however, that United States "takings" decisions do not generally arise from utilitarian thought and their results are not consistent with utilitarianism); Michelman, *supra* note 95, at 1226-29. *See also* Ehrlich & Posner, *An Economic Analysis of Legal Rulemaking*, 3 J. LEGAL STUD. 257 (1974); Hirsch, *Reducing Law's Uncertainty and Complexity*, 21 U.C.L.A. L. REV. 1233 (1974).

97. *See, e.g.*, B. ACKERMAN, *supra* note 83, at 71-87.

One of the more telling statements that can be made in the context of important aspect of our legal culture is the charge of changing the rules in the middle of the game. Whether this arises from an implicit utilitarian sense that organized activity requires generally static rules, or from assumptions of fairness, is uncertain. But the general aversion to rapid and important rule changes, absent convincing counterweights, is quite apparent. One commentator has hypothesized

Both of the Weberian tenets expressed in the quotation—the need for pre-existing formal rules and the effect of the market in creating such rules—are apparently absent in the monetary correction legal process (but, as shall be suggested, perhaps not in the result) of Brazilian government bonds and related institutions. Unpredictable inflation severely undermines the economic calculability of nominal transactions. Although courts continue to enforce the nominal obligations, neither the borrower nor the lender is able to calculate the ultimate value of repayment at the time the loan is made. The legal obligation is of course clear—the nominal sum will be paid on a specified date. The creditor suffers if inflation exceeds expectations; the debtor suffers if inflation falls short of expectations. Brazilian indexation may have induced lending in an inflationary economy by removing much of the risk of variation from inflationary expectations, thus increasing economic calculability. If public law had placed no impediments on indexed transactions, then private contract law could have removed such economic risks, assuming that an adequate index were available and that transaction costs were not otherwise excessive. If such risks were removed, private parties and government bondbuyers could have bargained in a framework with both legal (Weberian) and economic calculability despite the outside inflationary storms.

The Brazilian statute as applied, however, has not established a formal legal rule of indexation. Government bondbuyers, and the parties to private indexed transactions in Brazil, cannot be certain of the real value of the contract because the rules for calculating the index may be altered several times before payment becomes due. Likewise, the second aspect of the Weberian process—a developing market influences the adoption of formal rules—is not present.[98] Although the government bond market has deepened and

that legal risks might not present problems concerning efficiency and demoralization costs that are substantially different from those presented by economic and social risks. Thus, in a mixed economy, optimal efficiency might be attained by rewarding those who correctly predict legal change and successfully act upon their predictions. Graetz, *Legal Transitions: The Case of Retroactivity in Tax Revision*, 126 U. PA. L. REV. 47, 64-66, 78 (1977). This hypothesis implicitly challenges both the necessity of the Weberian historical description and the accuracy of some traditional utilitarian assumptions.

98. Private parties obviously might contract at a different interest rate than they otherwise would in order to reimburse one side for the risks of such changes. Similarly, unless required to do so by government regulation, government bondbuyers might not buy the bonds because of such risks unless paid a higher rate of interest. The more fundamental point is that although one may be compen-

indexation has spread to other Brazilian financial sectors, the method of choosing an index has not become more formal.

Nevertheless, the apparent primary objective of Brazil's indexation of bonds and tax arrears, creating a viable market for bonds and partly eliminating disincentives to tax payment, has been accomplished without formal, calculable rules. The most likely explanation is that much of the placement of the ORTNs is to governmental instrumentalities and a regulated market.[99] Two further hypotheses are available. First, the total economic and legal risk may have been lowered, although the legal uncertainties may have increased.[100] Second, the set of assumptions within which

---

sated for taking the risks, these risks cannot be easily conveyed, without sophisticated trading in futures contracts for indexed obligations. Such trading, if it were to be attempted, might violate the intent and terms of Law No. 6,423, *see* text accompanying notes 64-65 *supra*, which appears to have had the purpose of limiting private parties to use of the government's ORTN index for most indexed obligations.

One clear exposition on the use of contract to convey the risks of economic change in sales of commodities follows:

> A prospective seller, who owns a thousand bushels of wheat, is necessarily subject to the risk that, before he sells, the market value of the wheat will decline, and he will receive less for it than it is now worth. A prospective buyer, who requires a thousand bushels of wheat, is correspondingly subject to the risk that before he buys the market will go up, and the wheat will cost him more than he would now have to pay. When the two agree upon a contract for the sale of the wheat at a price of one dollar per bushel, these risks are exchanged. It is now the seller who assumes the risk that the market will rise, and that he will have lost a profit; the buyer who assumes the risk that the market will go down, and the bargain prove to be a bad one. If the contract is for future delivery, the situation is the same, except that the seller doubtless feels more acutely the hardship of delivering wheat at one dollar, when its value has risen to one dollar and fifty cents, or the buyer regrets more poignantly his bad judgment if the market has fallen to fifty cents.

Prosser, *Open Price Contracts for Sale of Goods*, 16 MINN. L. REV. 733, 733 (1932), *quoted in* J. WHITE & R. SUMMERS, UNIFORM COMMERCIAL CODE 98 (1972) [hereinafter cited as WHITE & SUMMERS].

99. *See* Table I at note 41 *supra* and Table II at note 45 *supra*.

100. Again, care must be taken to distinguish economic risks from legal risks. In this situation the distinction can be illustrated by comparing relevant aspects of the American government bond market with the Brazilian market. There is no significant legal risk that the United States would pay five percent on its seven percent bonds; however, although the legal risk is nonexistent, the economic risk is considerable. The real value of the bond and its coupons cannot be predicted with reliability, because of the substantial economic risks of unexpected price changes. Furthermore, in the United States the value of government bonds can be substantially affected by government policy, principally through changes in

Brazilian law and finance operate may have enabled the development of an institution whereby government bondbuyers that do not buy as a result of regulatory requirements (and parties to private indexed agreements) are willing to accept that the government will alter the index when there is either a technical or a national developmental justification for doing so. This is partially a reflection of modern law. Government action has increasingly been seen as having important macroeconomic effects that have justified indirect, and sometimes direct, measures that affect and sometimes reorder public and private obligations. In this sense, Brazilian monetary correction may only be a direct means of accomplishing objectives that other financial systems accomplish indirectly.[101] Thus, adjustments to the Brazilian indexation formula may be viewed as a substitute for, or, to some extent, an

tax rules and central banking actions that are designed to affect interest rates. A United States government bond's real value is established by general price-level changes, tax policy changes, and central banking actions; a Brazilian government bond's value is influenced by these factors as well as by changes in the ORTN index. The effect may be the same; the formal distinction may be of little practical consequence beyond a comparison of attitudes and legal culture.

101. Although central banking authorities do not control the value of financial obligations directly, they can significantly influence the value of short-term obligations indirectly by dealing in government securities, setting commercial bank reserve ratios, and setting discount policies. *See, e.g.*, Federal Reserve Act of 1913, §§ 12a, 13, 13a, 19, 12 U.S.C. §§ 263, 343-359, 372, 461 & 464-466 (1976) (authorizing various units of the Federal Reserve System to undertake open market operations, to make certain discounts, and to fix member bank reserve requirements); BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM, THE FEDERAL RESERVE SYSTEM: PURPOSES AND FUNCTIONS 49-83 (6th ed. 1974). These instruments can strongly affect the short-term rates of interest, and thus change the present value of outstanding short-term private and public obligations.

Although the potential effect that monetary policy can have on the value of outstanding financial obligations is great, monetary policy can generally be effected without large actual percentage changes in the value of short-term obligations. Thus the risk involved may easily be borne by those committing themselves to such instruments. This is similar to the risks involved in Brazilian monetary correction, whose variances may be small enough to be easily discounted in the value of a financial asset. One further comparison may be noteworthy: While the authorities promulgating the Brazilian index adjustments have articulated a specific technical or macroeconomic rationale when making an adjustment, central banking actions in modern capitalist systems are generally presumed to have an appropriate technical or macroeconomic rationale without any such articulation. Additionally, just as some index adjustments are not immediately announced, specific central banking actions are generally not announced until they have been implemented, although observers can often quickly discern actions being taken. *See, e.g., id.* at 58; N.Y. Times, June 19, 1978, at D4, cols. 5-6.

addition to, traditional instruments for fiscal and monetary control that are not yet fully available in Brazil.[102]

In a sense, the legal structure of the United States government bond market and the Brazilian government bond market appear similar. The value of the respective government's obligation is subject to significant fluctuation over the life of that security. Informed buyers of either government's securities know that a substantial portion of that fluctuation will result from government action. In the United States, open market purchases or sales of United States securities by the Federal Reserve Banks will, by affecting the aggregate supply and demand for government securities, have a substantial though *indirect* impact on the trading value of government securities. In Brazil, the indirect action of the intermittent open market operations are supplemented by changes in the basis for calculating the monetary correction index, which have a substantial *direct* impact on the trading value of the security.

More general parallels between United States and Brazilian financial markets can be drawn. Holders of financial assets other than government bonds should know that the value of these assets will fluctuate significantly over the life of the asset; some of this fluctuation will be due to government action. For example, in the United States, Federal Reserve operations in government securities have an indirect but noticeable effect on the value of mortgage obligations, because funds generally flow freely from one financial asset to another and changing trading levels in government securities will affect the value of competing financial obligations. In Brazil, in addition to this indirect effect of government action, there is a direct effect from changes in the ORTN index to which private loans are tied.

The similarities and differences of autonomy and government control of private financial markets can be illustrated by a quick sketch of the modern Brazilian mortgage market. A homebuyer decides to finance the building of a family home; a bank autonomously investigates credit background and agrees to advance the funds. An indexed mortgage is executed, with payments adjusted in accordance with the change in the ORTNs' nominal value. Thereafter, the government directly regulates the precise value of mortgage payments: Payments will be adjusted roughly in terms

102. *Cf.* BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM, *supra* note 101, at 51 ("Open market operations of the scale and frequency needed to carry out U.S. monetary policy could not be undertaken without a large and active market for [U.S. government] securities.").

of inflation, but their exact real value will be decided with the aggregate economic impact in mind. Indeed, special adjustments, beyond the general adjustments in valuing the ORTN, have been made in the correction applicable to mortgage payments in order to reduce the social tensions that could arise when economic conditions made mortgage payments by homeowners difficult.[103]

Some of the subtle distinctions between the legal structure of the American and Brazilian financial markets can be appreciated at this point. In Brazil, the basis for the index is directly adjusted by the government for developmental and macroeconomic reasons. In the United States, the Federal Reserve System purchases or sells government bonds (and sets the interest rate at which it discounts commercial and agricultural paper) in order to foster economic stabilization and expansion. In addition to these macroeconomic effects, open market purchases and sales will usually have the rapid and significant secondary effect of a change in the market

103. J. CHACEL, *supra* note 13, at 306-07. Additionally, the bank's mortgage funds likely come from loans from the Brazilian National Housing Bank (*Banco Nacional de Habitação* (BNH)), indexed savings accounts, or sales of indexed real estate letters (*letras imobiliárias*). The BNH receives a large part of its funds from social security payroll deductions, which it invests (often in ORTNs) as trustee for the worker, who may have been the same homebuyer borrowing from the bank. *See generally id.* at 123-31, 305-07; L. KAMPEL & M. MIRANDA DO VALLE, SISTEMA FINANCEIRO DE HABITAÇÃO 17, 55-69 (1974).

The Brazilian mortgage market appears to parallel certain recent developments in the American mortgage market. In California, variable interest rate mortgages may be made by savings and loan associations. CAL. CIV. CODE § 1916.5 (West Supp. 1978). The rates for such mortgages vary with the weighted average cost to California banks of savings, borrowings, and Federal Home Loan Bank advances. 10 CAL. ADM. CODE § 240.2(a) (1976). The unweighted cost of savings is substantially determined by maximum interest rates set by regulatory authorities, and the unweighted cost of Federal Home Loan Bank advances is directly determined by a regulatory authority. Thus, to a large extent, the variable rate paid by homeowners is indirectly partly determined by regulatory authorities, although market forces play a very significant role in the weighted average. For example, if regulatory officials raised the rate on advances, banks might seek to obtain more funds, if available, at a lower market rate of interest. Thus regulatory action that might indirectly raise the variable rate might in the final analysis have little or no effect. By pooling mortgage obligations and selling shares in the pool to the public, California savings and loan associations have completed the structural analogue to the Brazilian mortgage market by providing individual savers with the opportunity to obtain variable rates. *See* Home Savings and Loan Association, Amendment No. 1 to Form S-11 Registration Statement [No. 2-60881] Under the Securities Act of 1933 (as filed with the Securities and Exchange Commission on March 27, 1978) (registering $100,029,343.56 of Mortgage-Backed Certificates, First Series, Variable Pass-Through Rate).

value of outstanding government bonds in response to the open market purchases and sales.[104] (The voluntary pegging of American commercial loans to the prime rate also is a structure similar to Brazilian indexation of commercial loans, because the prime rate is largely influenced by the Federal Reserve discount rate and open market operations.) However, and here we have a key distinction, the United States government has acted through the Federal Reserve as every other investor could, by buying and selling government securities (or determining the interest rate of its own lending on commercial and agricultural paper). No buyer of government bonds could reasonably expect to be protected from unexpected large sales of government bonds by such entities as insurance companies and mutual funds. Government open market activity mirrors ordinary market action. This provides a partial explanation of the widespread acceptance of the American indirect adjustment of bond values. Market action by the government is quickly accepted as legitimate, but a more direct revaluation of American government bonds would appear as illegitimate even if its financial effect were the same. In utilitarian terms, the direct revaluation creates greater disincentives to investment and greater demoralization costs.[105] Thus in the United States, macroeconomic policy is implemented (in part) through ordinary market measures, and the indirect effect on the bond's market value, though roughly predictable, is secondary to macroeconomic goals, *i.e.*, the effect on the bond's value is not the means to reach the macroeconomic goal. In Brazil, actions are taken directly through regulatory changes in the ORTN index, and the direct effect on the bond's value is the means of reaching the desired secondary macroeconomic effect. One suspects that these distinctions are not accidental, but are the result of different assumptions and habits of legal thinking.

This is not to say that indirection in effecting macroeconomic policies, if used in Brazil, would necessarily lead to less disinvestment and disaffection costs than the more direct methods some-

104. These changes in value due to open market operations are often anticipated and discounted before they occur. This fact, however, does not change any relevant aspect of the comparative analysis.

105. *Cf.* B. ACKERMAN, *supra* note 83, at 147-48 (indirect "takings" that influence but do not directly control a market are more likely to avoid a requirement of "just compensation" under the fifth amendment and similar state constitutional provisions than would direct actions that have an equivalent economic effect).

times used there in recent years. The apparent acceptance of policy implementation in the United States through legal forms that parallel private market action is probably the result of widespread acceptance of market risks by those who engage in market activity. If this is less strongly accepted in Brazil and if there is a widespread expectation that the government will, and should, directly regulate markets to further macroeconomic goals, then the use of legal forms that parallel market activity may do little to decrease demoralization costs. Furthermore, if government market activity that reorders private obligations to achieve macroeconomic goals is viewed as unjustifiably manipulative,[106] then the demoralization costs of direct regulation might be less than those of indirect market implementation. Recent weakening of the voluntary portion of the ORTN market does not have any obvious, conclusive explanation. However, it is possible that in contrast to this weakening, the continued vitality of the market for LTNs, which are primarily subject only to the indirect effects of open market operations, may be partially explained by an underlying Brazilian market orientation, even if that orientation may not be as strong as that in the United States.[107]

Indexation of private contracts in Brazil represents a modern realignment of the distinction between private law and public law. The rights of debtors and creditors, formerly matters of private law, have taken on the color of public law in Brazil perhaps to a greater degree than elsewhere. The direct governmental mediation between the Brazilian debtor and creditor in order to further public goals such as economic development and the reduction of inflation is qualitatively different (because of the directness of its actions) from aspects of governmental mediation in financial transactions found elsewhere (assuming that direct price controls for financial assets are not viewed as a normal government activity). For example, securities laws establish the regulator as a third institution in securities transactions. However, the generally accepted role of the regulator in the United States is not to adjust the consideration given for a securities transaction. Instead, its general role is to encourage full disclosure which in turn provides the framework for private parties to establish the terms of their own

106. This could arise because of a normative view that when governments regulate, they should do so directly, *see* notes 116-120 & accompanying text, or because only certain private parties would have the information and technical skills to predict and act upon such market-oriented government actions.

107. *See* note 85 *supra.*

transaction. Brazilian monetary correction is more than a framework; the government continually establishes the key term to financial transactions.

This suggests a parallel that may be drawn between the Brazilian monetary correction system and the enforceability of sales contracts lacking a price term under the Uniform Commercial Code.[108] Absent some explicit or implicit contrary understanding of the parties, most U.C.C. remedies refer to the market price at the time of performance (or to the cost of performance) to find the implied reasonable price term.[109] Brazilian indexation by private parties is roughly analogous. The arbiter of the price in Brazil, however, cannot refer to an independent market price, as a United States court ordinarily would, because the Brazilian government directly establishes the market.[110] Brazilian indexation of government bonds can also be analogized to the requirement that a party set a price in good faith contemplated by U.C.C. § 2-305(2) & (3). Under U.C.C. § 2-305(2) & (3), however, this price can usually be tested against an independent market price or compared to actual costs. For Brazilian monetary correction of government bonds, there exists no independent market price or cost basis to which courts may refer. Furthermore, no court evaluates the good faith used to establish the monetary correction. Finally, both analogies suffer from the comparative breadth and penetration of the institution. For example, resort to U.C.C. § 2-305(2), without the existence of an independent market price or cost basis for determining the reasonable price, would not be characteristic of the ordinary

108. *Cf.* U.C.C. §§ 2-204(3), 2-305 (a contract for the sale of goods is not necessarily incomplete if it fails to specify a price; a reasonable price is implied in the contract).

109. WHITE & SUMMERS, *supra* note 98, at 62, 100.

110. *Cf.* text accompanying notes 128-132 *infra* (describing interaction between American government's control of gold sales and private contracts with gold payment clauses). The importance of market price was demonstrated in Karl Llewellyn's testimony concerning the U.C.C. sales article statute of frauds:

> [Y]ou can be inaccurate [about various contract terms] or leave them out . . . . [P]rice, for example, can [be left] out. You refer to the market—you have to keep the jury from going crazy. You can't swear too much of a price onto a guy where there is a market around to test whether or not it is likely that that was the term agreed upon.

Llewellyn, *Memorandum Replying to the Report and Memorandum of Task Group 1 of the Special Committee of the Commerce and Industry Association of New York, Inc. on the Uniform Commercial Code*, in 1 N.Y. STATE LAW REVISION COMM'N, 1954 REPORT 106, 117-18 (1954), *quoted in* WHITE & SUMMERS, *supra* note 98, at 52.

sale of goods in a market economy.[111]

A creditor in Brazil has a private right to payment of a value that will be calculated by the government partially on the basis of a larger public interest. Monetary correction adjustments are not made solely to compensate creditors for lost purchasing power, but are also made with the intention of dampening the immediate effects that full adjustments would have on inflation, employment, and the solvency of business enterprises.[112] To summarize, monetary correction may therefore be viewed as an effort to directly establish legal aspects of the mixed economy where the macroeconomic effects of government actions are so significant that certain contract obligations may be seen as justifiably affected by implementation of those macroeconomic policies. In many countries, such economic policies are implemented through less direct tax and monetary practices that affect governmental and private obligations. In Brazil, similar policies are directly implemented by adjustments to the indexation formula.

Max Weber anticipated the development of legal systems in which a lack of sufficiently generally accepted norms required that privately determined economic rights would be administered directly by the government,[113] perhaps, presumably, by creating new norms. Brazilian monetary correction arose from an economy where private contracts for long-term financial payments collapsed because of expectations of continued hyperinflation. Private parties, incapable of efficiently constructing their own price index, turned to the government for guidelines. The government took this opportunity to administer the rights of debtors and creditors directly, with macroeconomic norms as one of the factors affecting this financial administration. It later mandated that virtually no indexed adjustment could be made on any basis other than the government index,[114] which is influenced by these macroeconomic norms. The net effect was to make the total system significantly more calculable. The relatively smaller Weberian uncertainties

111. Another secondary parallel may be found by comparing monetary correction with the view of the American publicly held corporation, first associated with Adolf Berle, as owned by shareholders whose legal rights have been substantially reduced such that their interest is primarily "the expectation of fair dealing [by the Board of Directors] rather than . . . the ability to enforce a series of supposed legal claims." A. BERLE & G. MEANS, THE MODERN CORPORATION AND PRIVATE PROPERTY 242 (rev. ed. 1968).

112. Jornal do Brasil, May 5, 1977, at 25, cols. 1-2.

113. 2 M. WEBER, *supra* note 1, at 644.

114. *See* note 64 & accompanying text *supra*.

were more than counter-balanced by the substantial elimination of uncertainty inherent in the inability to anticipate the future level of inflation accurately. The elimination of economic risks may partly well explain the initial success of the system; but the simultaneous creation and impact of legal risks is nevertheless of interest when comparing legal systems.[115]

Several hypotheses, all of which deserve more examination than can be given here, are available to place into a historical-cultural perspective the development of Brazilian discretionary financing. Each could establish both a basis for the government's propensity to alter rates and for the possible acceptance of these alterations by the unregulated part of the financial public. First, in terms of the influence of economic structure on law, Brazil has not had the highly developed, decentralized market system to which bargaining within a formal framework is most suited. Much of the modern Brazilian economy is controlled by large state-owned or state-directed enterprises. Large multinational corporations form a significant portion of the modern economy that is not state-owned or state-directed. These large enterprises are subject more to direct regulation than to bargaining within a system of formal rules. Nor was this modern structure of large enterprises superimposed on a well-developed, decentralized market that would have been a basis for developing legal doctrines concerning the formal bargain.[116] In

115. These legal risks might be characteristic of aspects of Brazilian law outside the ambit of monetary correction. *See* D. TRUBEK, LAW, PLANNING, AND THE DEVELOPMENT OF THE BRAZILIAN CAPITAL MARKETS: A STUDY OF LAW IN ECONOMIC CHANGE 55 (1971).

Trubek states: "[T]he Brazilian government['s] . . . efforts [in law reform of the capital markets] were focused almost exclusively on developing a complex system of detailed regulation. No attention was given to the role of law in structuring and improving the process of bargaining among groups in the economy . . . ." *Id. But see* N. EIZIRIK, O PAPEL DO ESTADO NA REGULAÇÃO DE MERCADO DE CAPITAIS 120-38 (1977) (discussing developments in Brazilian capital markets subsequent to the time period covered by Trubek and noting the advance of some formal, nonregulatory law, such as disclosure requirements in the securities laws). For general discussions of the use of law to direct economic development in Brazil, see Gomes, *Desenvolvimento Econômico e Evolução Jurídica*, 248 REVISTA FORENSE 7 (1974); Grau, *O Direito: Sua Formação e os Fatos Econômicos*, 473 REVISTA DOS TRIBUNAIS 11 (1975). *See generally* Rosenn, *The Jeito: Brazil's Institutional Bypass of the Formal Legal System and its Developmental Implications*, 19 AM. J. COMP. L. 514 (1971); Steiner, *supra* note 54, at 46-52 (describing the shift in a developing country's legal system from market-ordering to government regulation and describing some aspects of this transformation in Brazil).

116. Care must be taken before arguing that the existence of large state enterprises was a *cause* of a weakened formal legal bargain. First, legal forms that

the 19th century, a "planter class dominated the land and the very lives of a large part of the active population, both slave and free. That same class controlled political institutions and most economic opportunities, including those of merchants, magistrates, bureaucrats, and a small and dependent intelligentsia . . . ."[117] Second, in cultural terms, the concept of self-reliance has not been as dominant in Brazilian intellectual-cultural history as it has been in the American past.[118] Third, Brazilian education, and particularly legal education, has traditionally been imparted more through a rhetorical style coupled with exegesis on the wisdom of past texts, than by the dialectic method. The formation of law in Brazil parallels these ideas: It has often been made by small, elite groups independently acting on the basis of their conception of what laws Brazilian society should have.[119] Finally, Brazil has not had a legal system that was structured for individualistic, formal rules externally imposed (as occurred in Portugal when French armies helped establish the Napoleonic Code during the same period that Brazil, which was then separately governed, moved toward independence). The colonial bases for Brazilian law (the feudal, 17th century ordinances of Philip II) remained in effect until 1916.[120]

There is, however, little to suggest the appropriate weight to be given these specifically Brazilian factors in explaining forms of Brazilian law. Regulation and legal change are a powerful part of the development of twentieth century western law. These

---

avoid the formal bargain may themselves lead, directly and indirectly, to the establishment of large state enterprises. Second, more state enterprises were created during the late 1960s and early 1970s (the primary period examined in this article) than in the entire previous history of Brazil. Araújo, *Intervençaõ Econômica do Estado e Democracia*, in ESTADO E CAPITALISMO NO BRASIL 221, 238 (C. Martins ed. 1977). These large state enterprises could not easily be said to be the cause of the legal forms developing simultaneously, although the two may have reinforced one another or they both may have been the product of other forces.

Although not common in the United States, the state enterprise is not a uniquely Brazilian institution; it strongly parallels similar structures developed in recent decades in Western Europe. *See* A. SHONFIELD, MODERN CAPITALISM 61-67, 221 (1969); Abranches, *Empresa Estatal e Capitalismo: Uma Analise Comparada*, in ESTADO E CAPITALISMO NO BRASIL 5-53 (C. Martins ed. 1977).

117. R. CONRAD, THE DESTRUCTION OF BRAZILIAN SLAVERY, 1860-1888, at xiv (1972).

118. *See* Rosenn, *supra* note 115, at 526-28.

119. *Id.* at 527.

120. Gomes, *Historical and Sociological Roots of the Brazilian Civil Code*, 1 INTER. AM. L. REV. 331, 331-35 (1959). *Cf.* Art. 2 of the Napoleonic Code ("The law disposes only for the future; it has no retroactive effect.").

historical-cultural Brazilian factors are highly visible factors that provide a convenient explanation; they nevertheless might only be reinforcing ripples in a tide of modern legal change.

It is difficult to measure whether differing political systems necessarily have differing tendencies to develop generally fixed rules. At first glance, a pluralist system seems less likely to develop generally fixed financial rules. As the pluralist balance shifts, perhaps because of change in the composition of a legislative finance committee, the new balance results in an initiative for a rule change.[121] In contrast, a more authoritarian system, or a system dominated by a group with unchanging interests, might have greater stability of rules.

On the other hand, each system should have counter-tendencies. Actors in a pluralist system may find that the entire system's stability is partially dependent on not changing rules too often except in accord with a broad underlying consensus for change. Those with strong interests in the status quo could be expected to appeal to such sentiments. More subtly, a pluralist mosaic of groups could stabilize rules if the fragmentation is multidimensional: Emerging dominant groups are composed of members that belong to minorities in other dimensions. By fostering a general ethic of rule stability in order to protect their status in other dimensions, the coalition of minorities would be reluctant to allow the newly dominant group to change the pre-existing rules radically.[122] In contrast, decision-makers in an authoritarian system may find it easy to change rules as their interests and goals, as well as underlying circumstances, change. Thus, although an inquiry into the nature of political systems and their tendency to adopt fixed rules might be fruitful, a superficial examination does not clearly indicate that one political system would generally yield fixed rules for financial transactions more often than another.

Two final comments should be made concerning Brazilian indexation and utilitarian norms. First, the net effect of Brazilian indexation might be utilitarian because utilitarian doctrine would lead to rules that best encourage productivity, and it cannot be said, *a priori,* that changes in the indexation method on a net basis discourage productivity. Although such changes should ordi-

121. *See* 1 A. DE TOCQUEVILLE, DEMOCRACY IN AMERICA 302 (Schocken ed. H. Reeve trans. 1961) ("the rapid as well as absolute manner in which [the majority's] decisions are executed in the United States . . . has . . . the effect of rendering the law unstable").

122. *See* R. DAHL, A PREFACE TO DEMOCRATIC THEORY 104-05 (1956).

narily[123] be a factor discouraging long-term indexed investments,[124] the cost of discouraging investment is not necessarily greater than such benefits as maintenance of debtors' solvency and dampening a possible transmitter of inflation. Although other means could be used to ensure those benefits, the transaction costs associated with such means might exceed the disinvestment costs that are incurred by a simple change in the index formula. Second, the Brazilian indexation system can be viewed as entirely consistent with traditional utilitarian views of law and property because there is no fixed rule created other than the informal one that changes will have an articulated justification. Utilitarian property is a product of reasonable expectations that are both reflected and created by law,[125] and after the initial years, the application of the Brazilian index has been such that expectations of an immutable index have become unreasonable.[126]

Both of these comments would also seem to apply to the use of fiscal and monetary policy in modern economies. Although these observations are accurate, the more fundamental points are that (i) the direct nature of the revaluation of most long-term debt in

123. *See* note 87 *supra.*

124. Furthermore, changes in the index may discourage long-term investments far afield from the government bond market, because other investors will be discouraged as they sense an increasing possibility of government action that could affect their investment. In the context of a possible model for American eminent domain compensation, this factor has been called a "demoralization" cost. Michelman, *supra* note 95, at 1214.

125. The analysis would not be significantly different if a Lockean concept of property as a natural right not created by law was adopted. Even if the investor came to the financial market with property whose existence preceded legislative norms, the investor's commitment of that property to an indexed instrument indicated, at least after the initial years, a willingness to accept the risks entailed.

126. *Cf.* Hart, *Bentham and the United States of America,* 19 J.L. & ECON. 547, 554 (1976) ("the expression 'a right' is a purely legal term so that where there is no law there is no right"). Michelman states:

> [I]t may be "formally declared" . . . or . . . a tacit understanding [could arise] that society reserves the right to preempt the exploitation of a certain narrowly described class of resources . . ., and that no one is to form any inconsistent expectations about the future use and control of those resources. Such a declaration with respect to "all land" might have an intolerable effect on productivity; but it might not when limited to, say, navigable waters or liquor licenses.

Michelman, *supra* note 95, at 1240 (footnotes omitted). *See also* Arnett v. Kennedy, 416 U.S. 134, 151-54 (1974) (minority opinion of Rehnquist, J., Burger C.J., and Stewart, J.) (procedural rights to remedy property takings could be limited by the terms of the legislative grant of the substantive property right).

Brazil does not have a concrete parallel in United States law (other than the intermittent use of price controls), and (ii) if all potential property may be protected only so long as its use and enjoyment are part of the owner's reasonable expectations, the societal distinction between the reasonableness and unreasonableness of those expectations becomes a matter of interest. According to one scholar, it should be reasonable to proscribe the American governments from retaining this full range of discretion, at least if it is used to change property rules and if the effect is to avoid the restrictions of the takings clause.[127] Even without adopting this as the typical American view, in Brazil the distinction between the reasonableness and unreasonableness of property expectations is clearly drawn differently than in the United States.

B. *The Gold Clause Decisions*

Brazilian indexation raises legal issues similar to those raised by the congressional Gold Resolutions of 1933[128] and decided by the

127. L. TRIBE, AMERICAN CONSTITUTIONAL LAW 465 (1978). Professor Tribe states:

> [W]e may wish to ignore [this reservation of flexibility] even if government has in fact taken care to announce that all property acquired in the jurisdiction is held subject to government's limitless power to do with it what government wishes. Indeed, we *must* deny government the power to make any such announcement, or at least to give such an announcement legal effect, if we are to give content to the compensation clause. But this shows that the expectations protected by the clause must have their source outside the positive law of the state. Grounded in custom or necessity, those expectations achieve protected status not because the state has deigned to accord them protection but because constitutional norms entitle them to protection.

128. Act of May 12, 1933, ch. 25, § 43(b)(1), 48 Stat. 52; Joint Resolution of June 5, 1933, 48 Stat. 112 (codified at 31 U.S.C. § 463 (1970)), *repealed by* Act of Oct. 28, 1977, Pub. L. No. 95-147, 91 Stat. 1227. Other areas of American law could be profitably compared. For example, a significant change in a tax provision could harm those who invested not expecting such a significant change so soon. If these changes were to occur so frequently for a specific activity that, although investment continued, no one could reasonably expect perfect stability in the law, then the legal structure would resemble Brazilian monetary correction of government bonds. A dissimilarity would be that the risks of tax changes could be conveyed through complex transactions, unlike the risks of monetary correction changes. *See* Law No. 6,423 of June 17, 1977; text accompanying notes 64 & 98 *supra*. Although such changes do occur in the United States from time to time, there are often provisions for prospective application only of the new tax law, for a phase-in of the change, and for grandfathering past actors from adverse effects of the change. It is traditionally assumed that without such mitigation of

United States Supreme Court in the Gold Clause Decisions of 1935.[129] While the results of the Gold Clause Decisions have some rough congruence with utilitarian norms, they do not result from an articulated application of those norms. Indeed, they explicitly deal with a nonutilitarian constitutional view of the limits of the state's role in its own finance and the wider boundaries of the state's role in private finance. Yet, the appropriateness of a direct continuing role of the state in establishing the terms of financial agreements, at least where its own obligations are concerned, demands comparison of the fifth amendments due process and takings clauses, as interpreted in the Gold Clause Decisions, with Brazilian monetary correction.

If the Gold Clause Decisions have sufficient precedential and persuasive force,[130] they establish the constitutional limits upon direct revaluation by the government of private and governmental debt. Eight of the nine Justices decided that the abrogation of the gold clause in government bonds was unconstitutional. Four of them held that there were no damages; the other four found damages and dissented. The ninth Justice held that there were no damages and decided that he therefore did not need to reach the constitutional question. The Court's more modern discussions[131] of the role of the state in government finance display lines of thought quite similar to discussions in the Gold Clause Decisions. And, regardless of their continuing precedential force, they represent one important continuing strain of American legal thinking concerning the role of the state in government finance.

After the United States had promised to pay certain of its obliga-

---

unexpected tax changes, the changes would be less fair and production would be deterred. Retroactive application of changes in American taxation is therefore usually condemned as soon as it is mentioned. *See* Graetz, *supra* note 97, at 47-48 & nn.2 & 3, 57-63, 74 & n.79, 87 (arguing, however, against the traditional assumption that unmitigated retroactivity should be avoided). Since in many ways Brazilian monetary correction is implemented to bring about desired macroeconomic effects, it is best compared with modern central banking functions and implementation of tax policy.

129. Perry v. United States, 294 U.S. 330 (1935); Nortz v. United States, 294 U.S. 317 (1935); Norman v. Baltimore & O.R.R., 294 U.S. 240 (1935).

130. For discussions of various interpretations of the decisions and of possible inconsistencies within them, *see* Dawson, *The Gold Clause Decisions*, 33 MICH. L. REV. 648 (1935); Hart, *The Gold Clause in United States Bonds*, 48 HARV. L. REV. 1057 (1935).

131. *See generally* notes 140-141 & accompanying text *infra* (discussion of Fleming v. Rhodes, 331 U.S. 100 (1947) and the later price-control decisions); notes 150-55 & accompanying text *infra* (discussion of United States Trust Co. v. New York, 431 U.S. 1 (1977)).

tions in gold coin, legislation was enacted in the financial emergency of the early 1930s, abrogating those gold clauses. The Joint Resolution of June 5, 1933 provided that all obligations requiring payment in gold were against public policy, all obligations that required payment in gold could be discharged by payment in legal tender, and the obligations affected included those of the United States itself, as well as those of private parties.[132] After the banking holiday of March 1933, the Secretary of the Treasury was authorized to require, and did require, the delivery to him of all privately-held gold coin and bullion.[133]

When the Gold Clause resolutions were adopted, there were approximately $75 billion in similar obligations outstanding.[134] Norman C. Norman owned a $1000 four and one-half percent bond, dated February 1, 1930, issued by the Baltimore & Ohio Railroad, which provided that payment of principal and interest "will be made . . . in gold coin of the United States of America of or equal to the standard of weight and fineness existing on February 1,

132. The joint resolution provided in part:

(a) Every provision contained in or made with respect to any obligation which purports to give the obligee a right to require payment in gold or a particular kind of coin or currency, or in an amount in money of the United States measured thereby, is declared to be against public policy; and no such provision shall be contained in or made with respect to any obligation hereafter incurred. Every obligation, heretofore or hereafter incurred, whether or not any such provision is contained therein or made with respect thereto, shall be discharged upon payment, dollar for dollar, in any coin or currency which at the time of payment is legal tender for public and private debts. Any such provision contained in any law authorizing obligations to be issued by or under authority of the United States, is hereby repealed, but the repeal of any such provision shall not invalidate any other provision or authority contained in such law.

(b) As used in this section, the term "obligation" means an obligation (including every obligation of and to the United States, excepting currency) payable in money of the United States; and the term "coin or currency" means coin or currency of the United States, including Federal Reserve notes and circulating notes of Federal Reserve banks and national banking associations.

48 Stat. 113 (1933) (codified at 31 U.S.C. § 463 (1976)), *repealed by* Act of Oct. 28, 1977, Pub. L. No. 95-147, 91 Stat. 1227.

133. The various executive orders and Treasury regulations that required this delivery were issued under the authority of the Emergency Banking Relief Act of 1933, Ch. 1, § 2, 48 Stat. 1. They are summarized in Dawson, *supra* note 130, at 649-50 n.5. They were withdrawn by EXEC. ORDER No. 11,825, 40 Fed. Reg. 1003 (1974) (codified at 3A C.F.R., at 20 (1974 compilation)).

134. Norman v. Baltimore & O.R.R., 294 U.S. at 313.

1930." A $22.50 coupon of that bond was payable on February 1, 1934. Norman presented the coupon, demanded payment in gold, did not receive it, and then sued the railroad in New York's courts for $38.10, which he claimed to be the equivalent value in legal tender of the 22.5 gold dollars. The railroad pleaded that the various acts of Congress prevented it from paying in gold, and only required that payment be made in legal tender of $22.50. The state courts entered and affirmed judgment for $22.50 in legal tender.[135]

The United States Supreme Court, in an opinion by Chief Justice Hughes, stated that although private obligations to repay in gold coin could be swept aside by congressional action, and although peculiar problems existed in measuring damages caused by the government's effort to abrogate the gold clauses in its own obligations, the attempted abrogation of the government's gold obligations was void as unconstitutional. Thus, if the United States adopted an index to determine the nominal value of its obligations, and then unexpectedly attempted to alter the method by which the index was later calculated, the rationale of the Gold Clause Decisions would, if given effect, strike down that alteration as unconstitutional. This statement does not mean that Brazilian indexation modifications would, if attempted in the United States, be unconstitutional under the Gold Clause Decisions. In Brazil, every reasonable investor knows that the government retains the discretion to alter the index if the government deems a new index as better reflecting the standard of Law No. 4,357, which requires that adjustments must be made in accord with "variations in the purchasing power of the national currency." If the United States retained such discretion, the Gold Clause Decisions would not control. The issues raised by the Gold Clause Decisions are similar to those raised by Brazilian index changes; they are not identical.

The Supreme Court carefully distinguished private contracts from government contracts,[136] declaring that a private contract dealing with a matter that Congress could constitutionally regulate must bend to the act of Congress.[137] The Gold Clause legislation had been enacted in the exercise of congressional authority "to coin money, regulate the value thereof, and of foreign coin."[138] The

135. *Id.* at 292-95.

136. *See* notes 143-149 & accompanying text *infra* (discussion of Perry v. United States, 294 U.S. 330 (1935)).

137. Norman v. Baltimore & O.R.R., 294 U.S. at 306-11.

138. *Id.* at 303; U.S. CONST. art. I, § 8, cl. 5.

legislation was thus held to be reasonably related to a valid congressional function.[139]

A later Court could have found other bases for upholding the legislation as it affected private contracts. Doctrines that might have undermined federal reordering of contracts have become less persuasive with time. In *Fleming v. Rhodes,*[140] for example, the Court dealt with price-control legislation that allowed the Truman Administration to enjoin eviction proceedings where the leased properties were subject to price controls that were to be given retroactive effect to approximately one month before the legislation was enacted, when previous price-control legislation had expired. Prior to the enactment, various landlords had obtained judicial eviction orders. The administrator later sought to enjoin actual eviction after the enactment. The district court held that such action to enjoin previously acquired "vested rights" was a violation of the fifth amendment guarantee of due process. The United States Supreme Court reversed, stating: "Federal regulation of future action based upon rights previously acquired by the person regulated is not prohibited by the Constitution. . . . Immunity from federal regulation is not gained through forehanded contracts."[141] A stronger contrast to the Brazilian system could be seen

139. 294 U.S. at 311.

140. 331 U.S. 100 (1947).

141. *Id.* at 107; *cf.* University of Southern California v. Cost of Living Council, 472 F.2d 1065, 1070 (Temp. Emer. Ct. App. 1972), *cert. denied*, 410 U.S. 928 (1973) ("the right of the government to apply the [wage-price] freeze to existing contracts . . . has not been seriously disputed"); Amalgamated Meat Cutters & Butcher Workmen v. Connally, 337 F. Supp. 737, 763 (D.D.C. 1971); California Teachers Ass'n v. Newport Mesa Unified School Dist., 333 F. Supp. 436, 442-44 (C.D. Cal. 1971) (challenge to price control legislation, on grounds of, *inter alia*, violation of the Fifth Amendment and ban against contract impairment, was "plainly insubstantial").

The court in *Amalgamated Meat Cutters* said: "[I]t is plain beyond doubt that contracts do not fetter the constitutional authority of Congress. [Federal regulation may reach previously-made] contracts that, however commendable when signed, would frustrate government programs if carried into effect . . . . [T]he significance to be given prior contracts [is] at least in the first instance [a matter] of subsidiary administrative policy . . . ." 337 F. Supp. at 763-64 (citing, *inter alia*, Norman v. Baltimore & O.R.R., 294 U.S. 240 (1935)) (citations omitted).

One commentator has suggested that there was some judicial discomfort in holding that recent price control legislation did not represent a taking that would require just compensation. *See* B. ACKERMAN, *supra* note 83, at 256 n.69. Ackerman states, "[T]he fact that the judges in the recent challenges to price control felt themselves obligated to resurrect the doubtful 'emergency' rationale suggests that they found considerable difficulty with a state price control effect as soon as

by comparing it with that of the United States in the early nineteenth century, when the Contract Clause was regularly employed by commercial interests to strike down retroactive laws and to establish an expansive notion of vested rights.[142]

In 1934, John Perry owned a $10,000 Fourth Liberty Loan four and one-half percent Gold Bond of 1933-38, which had been issued by the United States in 1918, stating that "[t]he principal and interest hereof are payable in United States gold coin of the present standard value." The bond was called for redemption on April 15, 1934 and Perry presented it on May 24, 1934 for payment of 10,000 gold dollars of the weight and fineness of a 1918 gold dollar. Upon the refusal of the United States to do so, Perry demanded an equivalent payment in gold or $16,931.25, which he calculated as the equivalent value in legal tender. The United States refused to pay in gold and would not pay more than $10,000 in legal tender; he brought suit in the Court of Claims, which certified the following question to the Supreme Court: Did the gold clause entitle John Perry to receive "an amount in legal tender currency in excess of the face amount of the bond?"[143] On May 31, 1933, government obligations with an approximate total value of $21 billion had similar gold clauses.

Chief Justice Hughes wrote the majority opinion of the Court, stating that the gold clause "was intended to afford protection against loss . . . by setting up a standard or measure of the Government's obligation."[144] The promise "was intended to assure one who lent his money to the Government and took its bond that he would not suffer loss through depreciation in the medium of pay-

it took on a bureaucratic, legalistic character." *See also* Calabresi, *Retroactivity: Paramount Powers and Contractual Changes,* 71 YALE L.J. 1191 (1962) (discussing FHA v. Darlington, Inc., 358 U.S. 84 (1958)).

142. Horwitz, *The Rise of Legal Formalism.* 19 AM. J. LEGAL HIST. 251, 253 (1975).

143. Perry v. United States, 294 U.S. at 346-47. A second question certified by the Court of Claims was whether performance by the government was made impossible by the legislation abrogating the gold clause in all contracts. However, given the disposition of the first question, the Court never reached the second one. *Id.* at 348, 358.

144. *Id.* at 348. When the bond had been issued, a gold dollar contained 25.8 grains of gold with a fineness of 0.9. On January 31, 1934, the President fixed the gold dollar at 15 5/21 grains of gold. Hence, as noted in the text, Perry calculated that if he were to receive paper dollars instead of gold dollars, he should have received $16,931.25. *Id.* at 347; The Gold Clause Cases, 294 U.S. at 374 (McReynolds, J., dissenting).

ment."[145] Could Congress, the Chief Justice asked, use its constitutional power to regulate the value of money as a means for directly altering the terms of its obligations? Congress could not do so, the Court held, because as an attribute of sovereignty, the United States contractual obligations were no less binding than the obligations of individuals. If jurisdiction existed in the Court of Claims to sue the government, recovery for damages could be had. To exercise its constitutional power to issue public debt,[146] Congress needed the sovereign capacity to bind itself to a contract, including the one with Mr. Perry to pay 10,000 gold dollars of the present value. To the extent that the Gold Clause Resolutions attempted to abrogate the government's contract with Mr. Perry, they were unconstitutional.[147]

Having enunciated a firm principle that the Constitution prohibits Congress from abrogating its contracts, and having given Mr. Perry a moral victory of sorts, the Supreme Court refused to give him more than the legal tender for the $10,000 face amount of the bond. The damages done to Mr. Perry by the government's breach of the bond's terms were held to be nominal. When John Perry presented his bond for redemption in gold coin, the exportation of gold was prohibited without a Treasury license, and gold could not be used for payment of private debts. Under the executive orders prohibiting the private ownership of gold, Mr. Perry was not entitled to own more than a trivial amount of gold, unless he received a Treasury license or was subject to another special exception. There was no legal private market for the gold that the Court had decided he was otherwise entitled to have.[148]

145. Perry v. United States, 294 U.S. at 349.

146. The fourth section of the fourteenth amendment was enacted to solidify confidence in the United States government's Civil War obligations, and provided that: "The validity of the public debt of the United States authorized by law . . . shall not be questioned." In *Perry,* the Court found this section of the fourteenth amendment to be applicable beyond the context of Civil War debt; the section was viewed as a confirmation of a fundamental principle of congressional power. *Id.* at 354.

147. *Id. But see* Lichter v. United States, 334 U.S. 742 (1948) (wartime government contracts could, under an emergency rationale, later be reordered by the government).

148. Perry v. United States, 294 U.S. at 358. The Supreme Court also implicitly readopted the principle that the United States could not be held contractually liable for damages caused by actions taken in another governmental capacity that made the private party's obligation more difficult to perform. *See* Nortz v. United States, 294 U.S. at 317, 327-30; Dawson, *supra* note 130, at 650 n.5, 671 n.49.

The government's obligation to pay in gold was only intended to protect Perry against depreciation in the dollar's purchasing power, and, given the interim deflation, payment in gold would have given Perry more in real terms than he could have reasonably expected at the time of purchase.[149] Hence, a substantial element of unjust enrichment would have been present if Perry were paid in gold.

United States Trust Co. v. New Jersey[150] throws some more modern light onto the issues. In that case, the Court applied the Contract Clause[151] to strike down a state's attempt to vary legislation that was interpreted as forming part of a bondholder's security, although as a general principle, the Court said, "the Contract Clause does not require a state to adhere to a contract that surrenders an essential attribute of its sovereignty."[152] First, the Court cited *Perry* as support for applying a harsher standard of review under the Contract Clause to a state's action concerning its own obligations than to a state's action affecting only private obligations.[153] Second, the Court announced a dual constitutional standard for testing New Jersey's attempt to vary the bond's security: (1) The action had to be a reasonable, unforeseen exercise of the state's police power; and (2) there had to be no less restrictive

149. Justice McReynolds argued in dissent that the proper measure of damages should have been the difference between what the Treasury was paying for the quantity of gold in the amount promised under the bond and the $10,000 legal tender that the Treasury had been willing to give Perry. Justice Hughes responded that such a measure of damages contained a substantial element of unjust enrichment, since the rate was primarily chosen to establish a foreign exchange rate for the dollar and was not a reflection of a free market value of gold. Indeed, there was no free domestic market for gold. Because nothing was shown to indicate that the purchasing power of $10,000 had declined—in fact, according to the government's brief, the purchasing power in legal tender was greater in 1934 than that of the original investment in 1918—Perry, if the gold clause was intended to protect only against inflation, had only been nominally damaged. Perry v. United States, 294 U.S. at 342-44, 357-58. *See also* Dawson, *supra* note 130, at 660-75; Rosenn, *supra* note 3, at 741.

150. 431 U.S. 1 (1977).

151. U.S. CONST. art. I, § 10, cl. 1.

152. 431 U.S. at 23.

153. *Id.* at 26 n.25. *But cf. id.* at 53 n.16 (Brennan, J., dissenting) ("the differential standard in *Perry* emerged from the collision of competing grants of power to the Federal Government, and did not purport to suggest that the Contract Clause or its federal counterpart, the Fifth Amendment, standing alone would produce different standards for reviewing governmental interference with public and private contractual obligations"); Allied Structural Steel Co. v. Spannaus, 438 U.S. 234, 244 n.15 (1978) (striking down a state impairment of a private contract, but apparently reaffirming the differential standard of review) (available after the date of this article).

alternatives available to implement the state goals.[154] Since New Jersey failed to meet this dual standard, the legislation was inconsistent with the Contract Clause.[155] If a modern court combined this new Contract Clause test with the fifth amendment and legal tender clause doctrines with which the Court dealt in the first portion of *Perry*, the Court would employ a different analysis than that used by Chief Justice Hughes, but the result might very well be the same.

Although the results of the Gold Clause Decisions may have some rough congruence with utilitarian norms, they do not explicitly arise from them. The general thrust of *Perry*—that a sovereign can bind itself to contracts—appears rooted in the fundamental sense that the government, having entered the market to borrow, should be treated like any other borrower. The specific, dispositive holding—that John Perry should not get gold dollars of the promised weight and fineness—was based on a finding that unforeseeable events (the economic collapse, the substantial deflation and government actions affecting the gold market) would have worked substantial unjust enrichment.

Similarly, the blanket rules of *Nortz, Norman, Fleming,* and other related cases already discussed also cannot be understood as products of a modern utilitarian perspective. A court applying a modern utilitarian view to the legal tender clause would, unlike the Gold Court Court, weigh the demoralization costs of the gold clause legislation against the gains in government implementation of public policy. Obviously, a blanket rule permitting legislative reordering of all private contracts does more than the modern utilitarian would do, unless the utilitarian were also deferring to legislative judgment. Some contracts could be reordered without significant demoralization costs. Too many changes, however, might not survive a modern utilitarian test. Even so, the Supreme Court does not necessarily express the totality of the utilitarian views of American society,[156] which is not to say that American society has a

154. 431 U.S. at 28-32. Chief Justice Burger would have made the test more stringent: "[T]he State [in my view] must demonstrate that the impairment was *essential* to the achievement of an *important* state purpose." *Id.* at 32-33 (Burger, C.J. concurring) (emphasis added).

155. Chief Justice Hughes in an earlier opinion used a different, more relaxed test than that used in *United States Trust Co. v. New Jersey* to ascertain the validity under the Contract Clause of a state's acts. *See* Home Building & Loan Ass'n v. Blaisdell, 290 U.S. 398, 434-35 (1934).

156. One commentator has, however, offered the court the norm of regularity—a first cousin to utilitarian predictability—as potentially capable of constitu-

totally utilitarian viewpoint.[157]

Thus, while Congress could not directly adjust the value of a government bond index, it could, for purposes of public policy, take some action analogous to the closing of the private market for gold. Action of that nature could have an indirect impact upon the index, as well as upon the value of the government's bonds. That small gap illustrates one important distinction between the assumptions of Brazilian legal thought and those of the Gold Clause Decisions: unforeseen direct revaluation of United States debts collided with the Constitution under *Perry;* reordering private obligations did not under *Norman.* It must also be remembered that the Gold Clause Decisions define only constitutional limitations. As already suggested, the political-administrative process may more severely limit governmental action that affects the value of outstanding government and private obligations, particularly when that process is operating outside of the context of the economic depression of the 1930s. Since it is traditionally assumed under one strain of American legal thought that retroactive rule changes should be avoided on the grounds of efficiency and fairness, the beneficiaries under old rules are often compensated for a change or "grandfathered" out of the new rules. An alternative means of protecting individuals with an interest in old rules is to phase in the new rules over a long period of time. Serious challenges to these asssumptions are now arising outside traditional exceptions accorded to certain fiscal and monetary measures.[158] Thus, even more significant than the comparative constitutional limitations on governmental actions directly affecting public and private debt is the rise in Brazil of an expanding (but largely government regulated) financial market that is subject to month-to-month controls. In a sense, the norms associated with Brazilian monetary correction have some congruence with a competing strain of American legal thought, implicitly suggesting that the demoralization caused by ungrandfathered rule changes is only one factor for consideration, that governmental sovereignty should include the reservation of the right to reorder decisions. The costs of rule changes are accepted when certain new fiscal and monetary measures are taken; these costs, it is argued, may

tionally confining and ordering the expanded role of the modern state. L. TRIBE, *supra* note 127, at 476.

157. For example, in a wide range of tax matters (where the reliance interest is not generally constitutionally protected), U.S. Treasury officials have nevertheless acted—and articulated doctrines of general action—so as not to frustrate the reliance interest. Graetz, *supra* note 97, at 50-53.

158. *Id.* at 64-66.

be found insufficient to justify grandfathering when other rule changes are made.[159]

To return to the discussion of legislative reordering of private obligations, *Norman* stands for the proposition that the Constitution does not impede congressional reordering of previously-negotiated contracts; more recent decisions concerning price-control legislation provide further support for that proposition. Thus, if private parties depended upon a United States Department of Labor index, Congress could constitutionally legislate a change in the index as it would apply to those contracts if the change was reasonably related to a constitutional end, such as one concerning the commerce clause or perhaps the legal tender clause. This might be viewed and implemented as nothing more than a price control in our nominalist system, with some retroactive effect,[160] and it would only be one small step for Congress to make such changes every few months. Investors might continue to purchase such indexed assets, knowing that Congress, perhaps by then

159. *See, e.g.*, Justice Brennan's dissent in *United States Trust Co. v. New Jersey*, in which he stated that:

> Decisions of this Court for at least a century have construed the Contract Clause largely to be powerless in binding a State to contracts limiting the authority of successor legislatures to enact laws in furtherance of the . . . collective interests of the polity. . . . [T]hose decisions established the principle that lawful exercises of a State's police powers stand paramount to private rights held under contract. [The majority decision], by creating a constitutional safe haven for property rights embodied in a contract, . . . substantially distorts modern constitutional jurisprudence governing regulation of private economic interests.

431 U.S. at 33. In effect, Justice Brennan argued that the disincentives to investment are only one cost of such changes in financial laws and that the weight of that cost (against possibly foregone policy objectives) is a matter for the consideration of the lawmakers, not for constitutional restriction:

> [The State's] credibility in the credit market obviously is highly dependent on exercising their vast lawmaking powers with self-restraint and discipline . . . . But in the final analysis, there is no reason to doubt that [the bondholder's] financial welfare [is being] adequately policed by the political processes and the bond marketplace itself. The role to be played by the Constitution is at most a limited one.

431 U.S. at 61-62 (Brennan, J., dissenting) (citations omitted). *See also* Graetz, *supra* note 97; Michelman, *supra* note 95.

160. *See* University of Southern California v. Cost of Living Council, 472 F.2d at 1070; United States v. Jefferson Parish School Board, 333 F. Supp. 418 (E.D. La. 1971); *cf.* Amalgamated Meat Cutters & Butcher Workmen v. Connally, 337 F. Supp. at 763 (application of price controls to a wage contract made before the "freeze," but to become effective during the freeze, unsuccessfully challenged on grounds of unconstitutional delegation). *But cf.* B. ACKERMAN, *supra* note 83, at 256 n.69 (surmising judicial discomfort with direct bureaucratic price controls).

having delegated the readjustment function to the Executive, could continue legislating the index directly or through its delegee. The system would not be materially distinguishable from Brazilian monetary correction. However, simply because it would be consistent with the Constitution does not mean that it would be consistent with important American legal assumptions held by some legal theorists, the general public and governmental figures.[161] In addition to some general inhibitions concerning further tightening of government controls over long-term financial assets in our financial system, the fear would be widespread that such a system, as has been stated in connection with fluid eminent domain rules, "might have an intolerable effect on productivity . . . ."[162] There would of course be rules of the game; because the legislature would have reserved the authority to determine the real value of financial assets, no individual investor could reasonably form any inconsistent expectation. Despite strong arguments to the contrary,[163] such "rules" that are themselves fluid are not usually adopted for financial contracts governing future obligations unless there are strong macroeconomic justifications. Indeed, the gold clause legislation and modern price-control legislation[164] indicate that society's usual limits are adjustments that purport to be final changes. Subject to important (and perhaps increasing) exceptions, such as some price controls and the use of instruments of fiscal and monetary policy, once a change is adopted—often in an emergency context—the expectation that there will be no further foreseeable changes is encouraged.[165]

161. *But see* notes 101, 102 & 108 & accompanying text *supra*.

162. Michelman, *supra* note 95, at 1214.

163. *See* note 159 & accompanying text.

164. *See, e.g.*, Carr, Heinke & Ryan, *A Short Historical Perspective of Economic Controls in the United States*, 33 BUS. LAW. 3 (1977). Clearly rule changes have been made in American financial institutions akin to the Brazilian monetary correction rules changes. Examples other than fiscal and monetary measures include local rent controls and public utility rate regulation. These have utilitarian justifications aside from the fact that after the initial application there are expected regulatory changes. Distribution and efficiency goals may justify the regulation despite possible demoralization costs. Increasingly, environmental regulation of land-use has raised similar issues concerning retroactivity and rules changes. *See* B. ACKERMAN, *supra* note 83.

165. The hypothesized congressional action leading to fluid indexation is similar to the use of the "prime rate" in commercial lending or the purchase of short-term United States Treasury obligations, which are heavily influenced by Federal Reserve actions; the key difference is that, unlike the direct readjustment of the

The Brazilian indexation system is not so limited. The data available remain too limited to form any fundamental conclusion, since there is no "control" test, and too many extraneous variables exist, such as the political stability of the government and its sometimes favorable attitudes toward private investment, but it appears that a sophisticated, expanding financial system has been built in a framework of changing rules of the game. The system may well have been created in spite of the fluid rules, because of overriding investment by government instrumentalities, regulations that required purchase by private parties, and regulations that induced and subsidized private purchases. Nevertheless, modern Brazilian finance indicates that formal, stable, calculable rules are not, at least in some cultures and economies principally based upon private property,[166] the *sine qua non* of financial development.

IV. Conclusion

Brazil has not needed the use of formal rules to structure the indexation of government bonds, tax arrears, and many private financial obligations. Those entities that lend to the government must acknowledge the fact that it will choose the method by which the repayment will be calculated. Before a bond matures, elements may be eliminated from the index, government estimates of future inflation may be added and removed, or other adjustments may be made. Many of these changes are improvements of an index whose purpose is to reflect the purchasing power of the national currency; other changes have a macroeconomic justification. Perhaps the application of such changes to bonds in circulation has produced an offsetting erosion in the confidence of future potential bondbuyers; conceivably this could have delayed the completion of one of the apparent purposes of Law No. 4,357 of July 16, 1964, *i.e.*, the establishment of fully marketable government obligations in an inflationary economy. These risks of government variation of the index, however, are significantly smaller than the substantial elimination of risk of unexpected changes in

hypothetical action, the Federal Reserve policies are implemented through methods that mime market behavior and *then* indirectly influence private interest rates. *See* notes 104, 105 & accompanying text *supra*.

166. However, the nature of a large portion of the indexed bond market in Brazil—those buyers that are state-regulated or state-owned—indicates that the Brazilian property subjected to the rule changes is not very distant from government control.

future inflation. To some degree, whatever delay thus caused in fully implementing Law No. 4,357 has been at least partly compensated by using regulation to place the bonds with government instrumentalities and with commercial banks whose only alternative for holding their reserves is cash. To the extent this has occurred, the ORTN is a flexible accounting unit for debt between various semi-governmental institutions and for various government-regulated financial requirements.

Private debtors and creditors, including those with debts to or credits from the government, do not determine the real value of their indexed obligations solely by bargaining within a framework of formal rules; instead, they appoint the government as the arbiter of the final value of an indexed obligation. Assumptions that appear to explain adequately the relationship between law and the development of finance and industrial capitalism in Europe fail to explain the rapid growth of Brazilian financial markets in the last dozen years. In Brazil, the mix between autonomy and regulation in the legal relationships of financial actors is substantially distinct from that which would ordinarily be prescribed by certain utilitarian norms. Indeed, Brazilian society has reserved the right to preempt reliance on established indexed financial contracts with an aggregate value of several billion dollars. Although this flexibility did not initially have an intolerable effect on investment in such assets, perhaps this apparent anomaly can probably be explained as a result of regulatory controls requiring and encouraging such holdings, or because the ORTN and private ORTN-indexed assets were creations that were attractive in spite of the legal risks, due to the substantial elimination of the economic risks of unforeseen inflation. The legal risks associated with monetary correction have been the price paid for implementing macroeconomic policies that in other systems might be effected with different instruments that create more indirect risks. In one sense, the legal aspects of Brazilian monetary correction are due to the time frame of the development of modern Brazilian finance. As modern capitalist economies have become mixed economies, a greater general willingness to permit government reordering (for macroeconomic purposes) of private economic obligations has arisen. Brazilian finance has been developing in such a milieu; indexation as applied in Brazil is thus used in lieu of and in addition to other modern governmental economic and legal instruments.

Concepts of legal automony and a perception of need for calculable law may also mean less in one culture than in another. Enterprises may exist within a larger framework of government regula-

tion. Participants in finance may accept the government's decisions to change rules if there is a convincing, technical justification. Private parties in some cultures and economies, and increasingly with the rise of modern mixed economies, private parties in most cultures and economies, might regularly expect the government to reorder economic rights directly when they contract with the government or privately for future performance. Acting accordingly, they may consider the risk of unfavorable changes in law as only one more risk to be accounted for when the bargain is struck.