

The Capital Structure of Brazilian Companies*

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Abstract

In view of the importance of studying the relationships between the development of the financial system, the capital structures of companies and the growth of the national economy, this article aims to analyze financing patterns among Brazilian companies over the period 1989/96. The study draws on a methodological approach proposed by the International Finance Corporation, which proved to be problematic when applied to data for countries subject to high inflation, significant changes in legislation and a high degree of tax evasion. The difficulty of including unquoted companies in the sample under analysis introduced a further bias into the results. In this way, the article presents the empirical study undertaken and discusses the problems that were identified.

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1. Introduction

A discussion of the relationship between the development of the financial system, the capital structure of companies and economic growth has become highly relevant in the case of Brazil, due to the changes in its macroeconomic environment that have occurred since the beginning of the 1990s, involving deregulation of trade, liberalization of the exchange rate and the achievement of monetary stability. Independent of the role that the State adopts in the economy over the next few years, there is scope for it to implement policies that establish structures and rules for the financial system that are more favorable to corporate investment and long-term growth.

On this basis, we decided to undertake a study of funding patterns among companies with operations in Brazil, using a methodological approach proposed by the International Finance Corporation [Singh (1995) and Singh and Hamid (1992)]. The results indicate that internal financing formed a major source of funding for Brazilian companies for several years within the period studied, while, on average, equity issuance was an important source of funding throughout the same period (1989/96).

Firstly, the results obtained are consistent with the small size of most Brazilian companies, or in other words, the fact that such companies depend predominantly on equity to finance their investments partially explains their small size. We did not expect that equity issuance would constitute such a significant source of funding, given the underdeveloped nature of Brazilian markets (both primary and secondary). It is probably the case, therefore, that these results reflect problems with the sample, as well as with the methodology. Finally, on the basis of what is known of the Brazilian growth process, it would be reasonable to expect that companies would borrow from banks more frequently than the data indicate.

The principal conclusions of the article are that the results obtained were affected to a significant degree by the methodology used, by the high degree of tax evasion during the period under consideration, by the impact of inflation on the data, even after the achievement of monetary stability, and by the composition of the available sample.

This article presents the results of this stage of the study. Since various problems were found with the methodology employed, it also seeks to explain these, as well as to outline the steps that would be necessary to treat the information on this subject in a more adequate way.

Following this introduction, Section 2 makes a brief survey of the literature, and discusses the idea that there is an ideal capital structure for a company, from the point of view of maximizing economic growth rates. The study also compares models of the financial system based on credit, and models based on the market, and describes factors identified in the literature as determining corporate decisions with regard to their capital structure. Government policies, in so far as they affect these factors, may influence financing decisions by such companies, as well as the rate of economic growth. Section 3 presents the methodology used to analyze the evolution of capital structures of Brazilian companies after 1990, while Section 4 presents the results obtained, as well as problems identified. These are reexamined in Section 5, which presents the conclusions of the study. The complexity of the subject, and the difficulties of carrying out an empirical analysis are such that this article should be viewed as the first stage of a research project.

2. Is there an Optimal Capital Structure?

Modigliani and Miller have been the main defenders of the idea that the financing model chosen by companies has no effect whatsoever on its level of investment and on the rate of economic growth. According to their irrelevance theorem, any project that is viable from an economic point of view should also be viable from a financial point of view [Modigliani and Miller (1958)].

The authors assume that *a)* the supply of funds is perfectly elastic, *b)* there is perfect symmetry of information in determining returns on investment projects between both borrowers and lenders of financial resources, *c)* the characteristics of equity markets and shareholders are such as to allow funds to be raised at all times by issuing new shares, and *d)* the capital structures of companies place no restrictions on the use of any source of funding, and conclude that companies are unlikely to encounter any problems in financing projects whose expected return is suitably rewarding.

The Modigliani-Miller Theorem suggests that there is a dichotomy between financial markets and the “real economy”. The growth of companies and their investment decisions will thus be entirely determined by “real” variables such as demand, productivity, technological progress and relative prices of productive factors. In this way, funding will be a “passive” variable that will merely allow an investment to be realized, but will never influence its outcome.¹

This idea of irrelevance began to be questioned by “traditionalist” authors, for whom the availability of adequate forms of funding would affect corporate investment decisions. Such authors maintained that the global level of investment in the economy is not independent of the funding model adopted by companies. According to the *pecking order theory of finance*, firms always prefer to use internal resources rather than third-party resources, and when the latter become necessary, they will always try to raise debt before issuing shares. In contrast to Modigliani and Miller, this group maintains that capital structures and dividend policies have a direct influence on the formation of share prices, from which it follows that the choice of financing model is not neutral.²

On the basis of these initial “traditionalist” contributions, a series of authors incorporated a series of hypotheses regarding the real manner in which financial markets work, such as the impact of taxes, the cost of bankruptcy and the possibility of takeovers, strengthening the argument that the financing model chosen by a company affects its level of investment, and thus the rate of economic growth.

According to this view, companies always try to maintain an “optimal” capital structure, which minimizes both costs and risks at the same time. Thus, the greater the cost advantages that are associated with current interest and tax rates, the greater the tendency to use debt, with the reverse applying as the risk of bankruptcy rises. The result will be an optimal ratio for the firm between raising debt and issuing equity.

¹ In the field of irrelevance theory, Levine and Zervos (1996) highlight important development economists who hardly mention the question of financing models, such as Stern (1989) and Meier and Seers (1984). Other examples, also mentioned in Levine and Zervos (1996), are studies by Lucas (1988), who holds that in general, economists tend to exaggerate the role of the financial system in economic development, and Robinson (1952), who is more radical in maintaining that the development of the financial system merely responds to the development of the “real” sector of the economy.

² See Myers (1984) and the following references in Singh (1993): Danaldson (1961), Myers (1985) and Fazzari, Hubbard and Peterson (1988).

The argument that there is an optimal capital structure for companies is reinforced by the recognition of principal agent problems, asymmetry of information, adverse choice problems, moral hazard, agency and transaction costs.³³ Stiglitz (1989) discusses these capital market failures and argues that in less developed countries, their impact on the “real” economy tends to be more accentuated than in more advanced economies, since in the former, institutions and the government are less qualified to deal with such failures, with the result that there is a lower availability of capital for firms and lower growth in productivity.

Zysman (1983) has devised a system of classification to show that the kind of financial system present in each country favors certain kinds of capital structures among companies, influences adjustment and restructuring processes in different ways, and leads to divergent economic results. The author distinguishes three kinds of financial system:

a) the first is based on capital markets, with resources allocated via prices, which are formed in competitive markets. In this model, the relationship between banks and financial institutions on the one hand, and companies on the other, is mediated via the capital markets and through short-term lending. Instead of investing in specific companies, banks/financial institutions manage portfolios and seek to maximize return and diversify risk. Investors thus work with a short time horizon and concentrate on dividend income and capital gains. The more developed secondary markets allow a relatively simple escape route for investors, whose behavior follows a model on the lines of what Hirschman (1970) called an “exit” style.

b) The second model is based on credit, with key prices set by the government. Long-term loans deepen the relationship between banks and financial institutions on the one hand, and companies on the other. Unlike the preceding model, when companies face difficulties, their creditors tend to react by increasing the degree of control over the former, and seek to monitor them at closer range. This characterizes the “voice” style of model described by Hirschman (1970).

c) The third model would also be based on credit, albeit with prices set by large financial institutions with a high degree of power within the market.

In the first case, government activity is relatively limited. The State takes on the role of regulator, but in fundamental terms, costs and benefits are determined in the market. The financial system is thus the vehicle for allocating resources between different applications, acting with a considerable degree of autonomy with respect to the government. In cases where intervention proves necessary, the government has considerable difficulty in doing so (Zysman cites Britain as such a case). The United States would be a successful example of this model.

The second financial system model facilitates the presence of the government, creating a favorable context for its direct intervention. This may aid certain sectors or companies, whether through credit, fiscal or other policies. France and Japan would be good examples of this model.

The third model resembles the first. Financial institutions exert influence on companies through the market. Finance serves an important role, and financial

³ See Myers (1977 and 1984) as well as Fazzari, Hubbard and Peterson (1988), Myers and Majluf (1984) and Myers (1985), all cited in Singh (1993).

institutions act as potential allies of the government as a basis for forming social pacts. This sort of model describes the German, and most notably the Swedish system.

In his study, Zysman notes that in countries where the capital markets arose to finance industrial development, banks tend to limit their activities to short-term lending. In this way, companies with long-term investment plans tend to use internal funds and issue shares, using bank loans only for short-term purposes. In countries where capital markets have not developed in an adequate or reliable way, specialized banks and financial institutions have emerged to fill this gap.

This gives rise to the following questions: What is the most suitable policy for stimulating growth and development in countries whose capital market is not fully developed? What factors are for and against activity via capital markets? Which would be the more dynamic model for such countries, the one based on credit or the one based on the market?

On these questions, the author himself provides a series of points for consideration. From the viewpoint of those seeking funds for investment, the credit-based model provides security since in times of difficulty the creditor will behave more on the line of the *voice* than of the *exit* model. The creditor will suffer a loss of liquidity that may be the necessary counterpart for the financial recovery of the debtor. On the other hand, the greater the dependency of companies on loans, the greater the influence of such institutions, and since loans have a defined value that must necessarily be repaid (unlike the return on shares in the form of dividends), the companies become more vulnerable to economic crises.

According to Zysman, in general, companies will only seek long-term bank loans when their growth exceeds the capital that they can derive from retained profits and share issues, providing a reason why systems based on credit tend to be related to late and accelerated growth, and very often to government support. This is consistent with the view that, from a macroeconomic point of view, the credit-based model is more susceptible to intervention by the state, which can use the financial system as an instrument of industrial and economic policy.

One of the principal advantages of systems based on the market is the scope for realizing long-term investments without obliging the investor to hold quotas or shares for the full period of the investment. The resulting liquidity, on the one hand, increases the amount of capital available for new investments, and on the other, diminishes the overall time horizon for the investment, possibly increasing the difficulty of realizing projects with longer-term returns, and raising the volatility of capital movements, so as to jeopardize the investment project.

Where economies have a well-developed and dynamic secondary market, this aids in forming the benchmark price for a primary issue. In theory, a perfectly functioning market will set prices in such a way as to achieve an optimal allocation of resources. At the same time, if the state needs to intervene directly at any point, it will discover financial institutions to be potential rivals that are opposed to interference.

More systematically, the arguments in favor of a market-based model may be described as follows:

1) *Savings* – equity markets reduce the cost of mobilizing savings and thereby facilitate investment in more productive technologies that require a larger scale and a greater injection of capital.⁴

2) *Liquidity* – the liquidity of equity markets facilitate investments since the agent that buys shares is not obliged to hold them for the full period of the investment, while, at the same time, the company succeeds in financing itself through the issue. In such cases, there is a reduction of cost and risk that makes it possible to realize investments in projects with long maturation periods.⁵

3) *Information* – in buying and selling within the market, investors are obliged to make efforts to obtain information on companies, which facilitates the task of monitoring these, both for investors and creditors. These agents benefit from any information that is made available, and this, in turn, leads to a better allocation of resources as well as to economic growth.⁶

4) *Corporate Control* – the efficient functioning of equity markets reduces the principal agent problem, stimulates corporate control, and harmonizes the interests of managers and owners, to the degree that the remuneration of the former can be linked to the performance of their company's shares.⁷

5) *Takeovers* – The challenge of a takeover can induce managers to maximize their company's share price, in order to defend themselves.⁸

6) *Risk Dilution* – The dilution of cross-border risk, where equity markets are integrated on an international basis, favors the allocation of resources and can boost the rate of economic growth. The diversification of risk makes viable projects that are more speculative, but that at the same time offer higher returns.⁹

In an analogous fashion, we can list the following arguments in favor of credit-based and against market-based models:

1) The possibility of diluting international risk in integrated financial markets may lower global rates of saving and economic growth, with the former reduced as a consequence of the uncertainties generated by the liquidity of equity markets.¹⁰

2) *Liquidity* – the liquidity of the equity market does not provide incentives for spending resources neither on acquiring information nor on exercising functions of corporate governance, since the market itself reveals information on companies through the price mechanism.¹¹ In addition, liquidity, which is regarded as a virtue by shareholders, may have negative aspects for a company that issues shares, since it is associated with a shorter time horizon for the investor.

3) *Corporate Governance* – the development of the equity market leads to greater fragmentation of share ownership, which makes effective corporate government more difficult.¹²

⁴ According to Greenwood and Smith (forthcoming), cited in Levine and Zervos (1996).

⁵ Bencivenga, Smith and Starr (1996), as well as Levine (1991), cited in Levine and Zervos (1996).

⁶ Kyle (1984), Holmstrom and Tirole (1993), and Grossman and Stiglitz (1980), all cited in Levine and Zervos (1996).

⁷ Diamond and Verrecchia (1982) and Jensen and Murphy (1990), cited in Levine and Zervos (1996).

⁸ According to Laffont and Tirole (1988) and Scharfstein (1988), cited in Levine and Zervos (1996).

⁹ Obstfeld (1994), Saint-Paul (1992) and Devereaux and Smith (1994), all cited in Levine and Zervos (1996).

¹⁰ Devereaux and Smith (1994) and Bencivenga and Smith (1991), cited in Levine and Zervos (1996).

¹¹ Stiglitz (1985 and 1994), as cited in Levine and Zervos (1996).

¹² According to Shleifer and Vishny (1986) and Bhidé (1993), cited in Levine and Zervos (1996).

4) Takeovers – counterproductive takeovers may occur as a result of the development of equity markets, and these may compromise rates of economic growth. Insofar, as it simplifies the takeover process, this development may work against the interests of owners and managers.¹³

Several authors have followed the same line as Zysman (1983) in relating models of financial systems to different kinds of market structure, strategy and economic performance, associating the lower degree of dynamism of US and UK industrial companies with the kind of financing model for companies in these countries, that is heavily based on equity issuance, by contrast with the Japanese and German models, where companies have significantly higher ratios of debt to equity issuance.¹⁴

The idea is that in these countries companies operate with a greater degree of financial leverage, allowing a higher rate of investment. The risk that may arise from such a situation is reduced by the establishment of close links between companies and creditors. Banks are shareholders of companies, and thus concern themselves with the performance of the latter, preferring a policy of stable dividends from which they benefit, more than with capital gains from rising share prices.

5) Investment Horizon – financial systems based on equity markets tend to produce a shorter time horizon for investment decisions, reducing the probability that projects that have a longer period of return, or that involve any degree of risk could be undertaken.

6) Return on Investment (ROI) – On many occasions in Anglo-Saxon markets, interest rate behavior is such that the opportunity cost is very high and exceeds the return on investment of various projects. As a consequence, the company fails to take advantage of a series of opportunities.

7) Financial Leverage – On many occasions, Japanese and German companies benefit, by virtue of their higher degree of financial leverage, from government policies that reduce interest rates and that are based on lower rates of return (which is also made possible by the lower cost of capital in these countries). As a result, the level of investment is much higher, and the competitiveness of companies in these countries is enhanced, since they may pass this lower cost of capital through to prices or invest the differential in technology and in upgrading product quality. In expanding their market shares, such companies create a “virtuous circle”. Indeed, the lower returns on investment found in Japan and Germany indicate that these countries do transfer gains to consumers.

8) Competitiveness – In the United States, managers are far more concerned with maximizing returns to shareholders than in improving the competitiveness of their companies, leading them to devote little attention to production.

9) Information – In a system based on banks, these have a greater incentive to expend resources on acquiring information, as well as a greater incentive and ability to subject management to rigorous supervision.

10) Volatility – According to Singh (1993), fledgling equity markets in countries without adequate regulatory systems, accounting standards, availability of public

¹³ Shleifer and Summers (1988), cited in Levine and Zervos (1996).

¹⁴ Cosh, Hugges and Singh (1989?), Frank and Mayer (1990) and Berger *et al.* (1989), all cited by Singh (1993).

information, etc., are characterized by a high degree of volatility, with share prices tending to fluctuate more than other economic variables. In such cases, equity prices are less useful as indicators for allocating resources.

The evaluation of the points in favor and against the two models is inconclusive, mainly because the behavior of the countries that adopt either of the models has not been uniform over time. The most conspicuous and recent case is the financial crisis that started in the Far Eastern economies, and that has been attributed by the majority of analysts to the excessive financial leverage in these economies resulting from their funding model which is based on credit. In this way, the funding model that allowed a series of countries to achieve high rates of growth for many successive years – and thereby financed high rates of technological and socio-economic development – was accompanied by a financial instability, which would lead, later on, to the questioning of the funding model itself.

It is clear that the funding model adopted from the 1960s onwards in countries such as South Korea was not the only one that generated a successful late industrialization in these countries but its importance is, nevertheless, undeniable. On the other hand, the system itself was incapable of creating mechanisms that could reduce financial instability (vulnerability) and that allowed the extended use of the model over longer periods.

The macroeconomic question as to which financial system model is more efficient at promoting economic development cannot be separated from a microeconomic analysis of the factors that define company choices with regard to their capital structures. A review of the literature raises the following points regarding either companies themselves or their macroeconomic/institutional context:

1) Collateral value of assets – Companies with assets that can be used as collateral will probably succeed in obtaining loans on more favorable terms than other companies, and will thus tend to exploit this advantage by issuing more debt than equity. On the other hand, companies with fewer assets available for use as collateral will be obliged by their controllers to maintain higher levels of debt with regard to equity, in order to facilitate and reduce the cost of monitoring, and to limit the unwarranted consumption of benefits by management, even if terms of access to bank loans are less favorable than those enjoyed by companies that are able to collateralize their debts.

2) Rate of growth of the firm – Companies controlled by shareholders tend to maintain suboptimal levels of investment, in order to appropriate resources provided by creditors. For fast growing companies, the cost of monitoring may be higher, as such companies have a greater degree of flexibility in choosing their future investments. For this reason, expected future growth rates for industrial companies are negatively correlated with levels of long-term indebtedness.

3) Degree of product specificity – a decision by a company to go into liquidation will always entail costs for any agent that has a relationship with it, regardless of its nature. In the event that this occurs, consumers, suppliers and employees of firms that manufacture specific products will suffer higher costs. Consumers may not find equivalent suppliers (or may increase the degree of monopoly of other suppliers), suppliers may not find other companies to which they can sell their products, which are probably also of a specific kind, and employees will probably have specific skills that do not correspond exactly to those required by other

companies. For these reasons, since indebtedness is associated with a higher risk of bankruptcy, the higher the degree of specificity of a product, the lower the use of debt.¹⁵

4) Industrial sector – this point is closely linked to the preceding one, since products may be more specific in some industrial sectors than in others, causing companies in those sectors to use proportionately less debt. It is nevertheless important to draw a distinction between the two points in order to identify situations in which a given product is specific, and others in which specificity arises from the characteristics of a given sector.¹⁶

5) Company size – the cost of bankruptcy is proportionately higher for smaller companies. Larger companies, on the other hand, tend to be more diversified, and thus less susceptible to bankruptcy and more disposed to maintain higher levels of leverage than smaller companies. The cost of issuing equity and long-term debt is also much higher for smaller companies than for larger ones. As a consequence, smaller companies tend to use a higher proportion of short-term debt.

6) Volatility of earnings – the higher the volatility of earnings, the lower the optimal level of indebtedness.

7) Corporate profitability – in accordance with the *pecking order theory of the firm*, companies will always prefer to fund themselves in the first instance using retained earnings, and only afterwards with external resources. In this way, the higher the profitability of a company in the preceding period, the greater the probability that it will fund itself out of retained earnings.

8) Tax – the structure and amount of taxes play an important role in defining the capital structures of companies, to the extent that they lead to differing costs for each different kind of capital. Policies that alter the opportunity costs of funding, the real rate of return on savings, tax rates on interest and dividends, and subsidies, etc., will also affect the capital structure of companies.

9) Stability – inflation affects the opportunity cost of funding for borrowers. The higher the rate of inflation, the lower the propensity to issue equity. Monetary stability, on the other hand, favors equity issuance.

10) Development of the financial system – as previously discussed, both the degree of the development of the financial system and the model adopted by each country will condition the capital structures of companies.

¹⁵ Titman (1984), cited in Singh (1993).

¹⁶ *Idem*.

3. Methodology

An analysis of corporate funding models for a given country may be based on two alternative sources of information: aggregate data from financial institutions, including stock markets, banks, and regulatory organs (e.g. analysis of funds flow), or data compiled from corporate balance sheets. Both methods have their advantages and disadvantages: for the former, a larger amount and a wider variety of information is available, but there are many inconsistencies between data from different sources, and even between data from the same source, but for different years. In the latter case, inconsistency problems tend to be less important, although the variety of data is also smaller.

In this article, we decided to use the second method, in accordance with proposals by Singh and Hamid (1992), a study that was expanded in 1995 with regard to the number of countries, the size of sample for each country, and that investigated the behavior of four groups of variables: *a*) the size of the firm and performance measures; *b*) the form of funding of corporate investments (rates of retention of earnings, internal and external funding via debt or equity issuance); *c*) capital structure (stock and leverage policies); and *d*) the behavior of share prices and dividend returns.

We began by calculating only the variables of the second group. On account of the difficulties encountered, which form the principal subject of this section, we decided to outline the problems relating to the treatment of data according to the adopted methodology, and have left the investigation of other groups of variables for a subsequent article.

The sample consisted of the 216 quoted companies in transformation industries that are the most actively traded on stock exchanges. Data was obtained from the database of the Economática company. The sector breakdown of the companies was: Food (23); Autocomponents (12); Beverages (8); Toys (2); Cement (3); Leather (3); Various (9); Electronics (7); Household Appliances (6); Fertilizers (11); Mechanical Industries (9); Lumber (4); Transportation (8); Metalworking (22); Paper and Pulp (8); Petrochemicals (25); Chemicals (7); Steel (10); Textiles (25); Others (14).

The total revenues of the 216 companies in 1996 (R\$ 126 billion) corresponds to 24% of the production value of the transformation industry for that year (R\$ 523.6 billion) [Source: National Accounts System/Decna/IBGE (1996)].

Three indicators were calculated for each firm, based on the formulas given below. We then calculated the averages for the sample:

Internal funding of growth

$$\frac{\sum_{p+1}^m (\text{net profit} - \text{dividends})}{\sum_{p+1}^m \Delta (\text{total assets} - \text{current liabilities})}$$

External funding of growth (indebtedness):

$$\sum_{p+1}^m \Delta \text{ long-term liabilities}$$

$$\sum_{p+1}^m \Delta (\text{total assets} - \text{current liabilities})$$

External funding of growth (issuance):

1 – internal funding – indebtedness

where: m = last year of the period;
 p = first year of the period.

For each year we calculated the three-year moving average, and then the average for the period 1989/96, making strict use of the above formula.

In order to guarantee the consistency of results, the study proposes the following criteria for rejecting data. These were also adopted in this article:

- internal funding and debt: exclude indices less than –100% and greater than +200%; and
- equity issuance: exclude indices less than –100% and greater than +100%.

We also eliminated companies for each year of the sample for which there was no data. The total number of companies and the distribution by sector differed from year to year, as they did for the calculation of the average for the whole period (1989/96). Furthermore, the total number of companies was always less than that of the original sample (216), due to the fact that there was a significant number of companies for which data was unavailable for every year.

4. Results

The results for the 1980s reported in Singh (1995), that use this methodology confirm the trends observed in Singh and Hamid (1992). Companies in developing countries place a much greater emphasis on financing their investments through external sources than has been verified in developed countries, and among external sources, equity issuance is more important than funding through debt.

Singh (1995) has argued that there has been sharp growth in the equity markets of developing countries since the 1980s that is closely related to government policies rather than to market forces. This effort on the part of governments of such countries to promote the development and liberalization of equity markets can be explained by a series of factors: privatization programs implemented since the start of the 1980s, the debt crisis that led several governments to seek to expand equity markets as an alternative for attracting foreign capital without increasing foreign debt, the need for

public companies to attract private capital in order to finance investment, a general trend towards the deregulation and globalization of financial markets, and the difficulties faced by international development agencies.

Singh (1995) poses a series of questions: Does the growth of equity markets accompany global growth in the level of savings, or does it merely represent the replacement of one kind of saving by another? Does the high volatility of share prices in developing countries have an adverse effect on aggregate investment in these countries? How stable are international capital flows to recipient countries? What are the macroeconomic implications, as well as the implications for the balance of payments of such flows? What kinds of measure are being adopted to counter the excessive concentration of the market among a few large corporations?

The results of our calculations for Brazil for the period 1989/96 confirm Singh's view that less developed countries rely on equity issuance to a higher degree than was imagined, given the limited size and incipient nature of their equity markets, both at primary and secondary level. This form accounted for 48% of funding for the companies in our sample over the period 1989/96, and for 37% of the funding for companies in Singh's (1995) sample for the period 1985/91 (Tables 1 and 2).

The data found by Singh (1995) for the share of internal funding among the sources used by the companies in his sample (46%) are easy to interpret in a Brazilian context, since the figure could result from the underdeveloped nature of external sources of financing, the high domestic interest rates for most of the period under analysis, as well as the instability caused by inflation until 1994. At the same time, such a high degree of use of internal funding would explain the modest size of most domestic companies – that is, the use of internal funding allows companies to satisfy their basic financing needs, but is insufficient to allow them to evolve to a more appropriate size. While our calculations give a much higher proportion of internal funding than Singh's (25%), the analysis is still valid.

The results of the two studies also diverge with regard to the percentage of funding among companies in the two samples that correspond to long-term borrowing from financial institutions (6% according to Singh's calculations, and 27% according to ours). Both figures could represent reality, given the high market interest rates, macroeconomic instability until 1994, and the crisis of public sector lending institutions.

At the same time, our calculations of the annual evolution of such figures (three-year moving average) are consistent neither with Singh's results nor with the development of the Brazilian economy over the period. With the exception of 1989, the data shows a high degree of volatility that does not correspond to expectations (Tables 1 and 2, and Figure 1).

TABLE 1
Funding Model for Brazilian Companies – 1989/96
(In %)

YEAR	INTERNAL FUNDING	DEBT	EQUITY	SAMPLE (Number of Companies)
1989/96	25	27	48	97
1989	42	20	38	111
1990	10	13	78	94
1991	14	18	68	92
1992	21	15	64	85
1993	55	22	23	128
1994	58	23	19	135
1995	53	28	19	104
1996	58	38	4	88

Source: Economática; own analysis.

FIGURE 1
Funding Model for Brazilian Companies – 1989/96

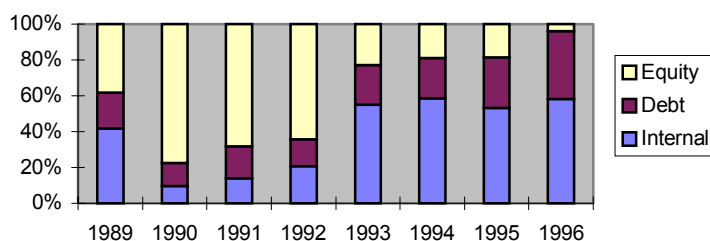


TABLE 2
Financing Models in Selected Countries
(In %)

COUNTRY	INTERNAL	DEBT	EQUITY	SAMPLE	PERIOD
Brazil	46	6	37	100	1985/91
Korea	16	30	47	100	1980/90
Pakistan	68	24	5	100	1980/88
Jordan	55	6	26	38	1980/90
Thailand	15	N/a	N/a	67	1983/90
Mexico	23	1	65	100	1984/90
India	38	39	16	100	1980/90
Turkey	13	17	67	45	1982/90
Malaysia	30	12	48	100	1983-90
Zimbabwe	57	0	43	48	1980-88
Total	32	16	41	-	-

Source: Singh (1995).

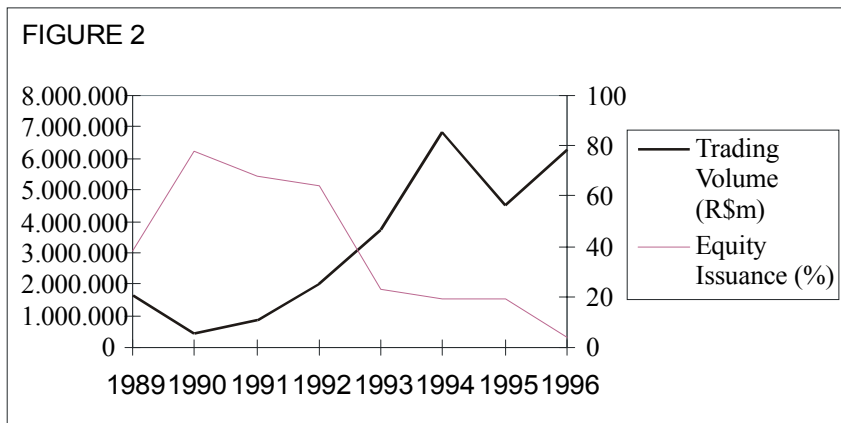
At first sight, the sharp growth in use of the equity market in 1990 may be interpreted as a consequence of the policy of freezing assets, implemented by the Collor administration, which for a determined period, prevented companies from financing themselves internally or from seeking bank loans, obliging them to turn to the equity market. At the same time, it was precisely in this year that there was a dramatic reduction in trading volumes on the São Paulo Stock Exchange, the principal Brazilian stock market, as well as sharp fall in the Ibovespa stock index, that reflects the performance of share prices on the same exchange (Table 3).

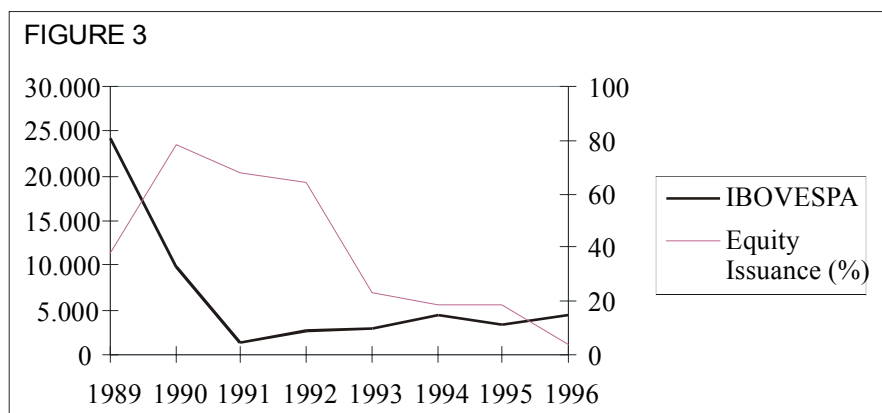
TABLE 3
Trading Volumes on the São Paulo Exchange and the Ibovespa Stock Index – 1989/96
 (Monthly Average)

YEAR	VOLUME TRADED (IN R\$ MILLION)	IBOVESPA
1989	1,652,917	24,154
1990	418,244	9,904
1991	879,784	1,328
1992	2,023,469	2,593
1993	3,743,729	2,939
1994	6,856,866	4,450
1995	4,514,594	3,304
1996	6,264,176	4,475

Source: Macrométrica. Deflator: IGP-DI (August 1994 = 100).

Figures 2 and 3 show the lack of correlation between the behavior of the secondary market (in terms of trading volumes and prices), and the equity issuance funding indicator in subsequent years.





Upon closer observation, we see that this period corresponds exactly to the period during which Law 8,200/91 remained in force, which allowed companies to adjust balance sheet data by a suitable inflation index (the IPC), after having been obliged to correct their financial statements by indices well below the then current rates of inflation (by the BTN Fiscal, which was abolished in 1991). The law also permitted the retroactive adjustment of 1990 financial statements, with the resulting difference deducted at 25% per year over four years starting in 1993 (the profit would be calculated, but the deduction would be allowed). In order to provide an idea of this adjustment, while the BTN Fiscal recorded accumulated inflation of 845.12% over the year 1990, in the same year, the IPC rose by 1,794.72%. This explains the sharp fall in net profit declared in the adjusted 1990 financial statements, which resulted in a reduced internal funding indicator starting in that year, as well as a rise in the same indicator from 1993 onwards.

The changes in trend observed from 1993 onwards, with a heavy fall in equity issuance and a rise in internal funding are also difficult to explain. It might be expected that, at least from 1994 onwards, equity issuance would grow in importance in response to the new macroeconomic outlook that was characterized by low and easily tolerable inflation, opening to trade and growing liberalization of markets, including financial markets. We are unable to find a reasonable explanation for such a low percentage of equity issuance in 1996 (4%) by comparison with the 38% of debt-based funding, precisely at a time of high and rising interest rates. Indeed, if we observe the behavior of primary equity issues, we see that both 1994 and 1996 were years in which the volume of issues registered in the primary market grew substantially (Table 4).

TABLE 4
 Primary Market: Volume of Equity Issuance Registered
 by Quoted Companies – 1992/96

YEAR	VOLUME (In US\$ Million)
1992	943
1993	841
1994	2,591
1995	2,111
1996	9,155

Source: CVM, *Informativo CVM*, various editions.

Deflator: “flutuante” exchange rate, offered rate on the day of registration of issue with the Brazilian Central Bank.

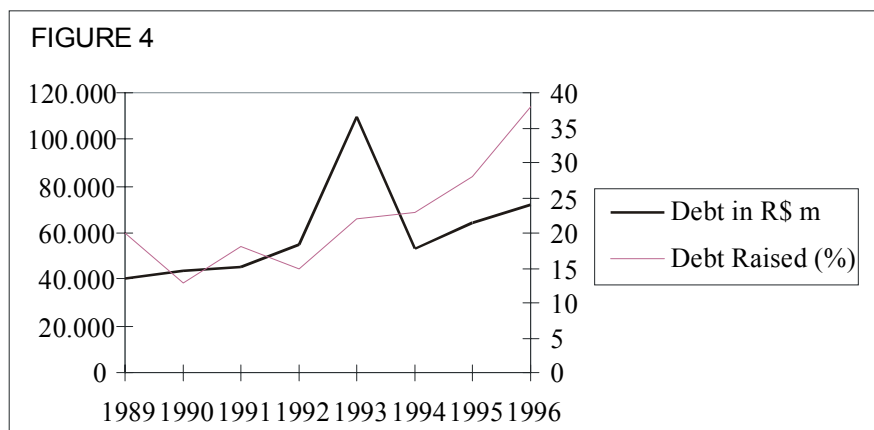
An analysis of the total volume of loans from the banking sector to industry reveals a degree of consistency between this variable and the behavior of the debt financing indicator, although the two diverge at various points of the survey period (from 1989 to 1990, from 1991 to 1992, and from 1993 to 1994) (Table 5 and Figure 4).

TABLE 5
 Total Private Sector Loans to Industry – 1989/96

YEAR	R\$ MILLION
1989	40,449
1990	43,312
1991	45,009
1992	55,149
1993	110,071
1994	53,162
1995	63,990
1996	71,730

Source: Macrométrica (average for the period).

Deflator: IGP-DI (August 1994 = 100).



The results obtained were compared with the performance of the economy over the period (Table 6 and Figures 5, 6 and 7). While it would be necessary to undertake a far more sophisticated statistical analysis in order to establish whether or not the variables are correlated, the data appears to indicate a general pattern of behavior similar to that of the relationships between the evolution of GDP and internal funding, and between the evolution of GDP and funding and only later through debt.

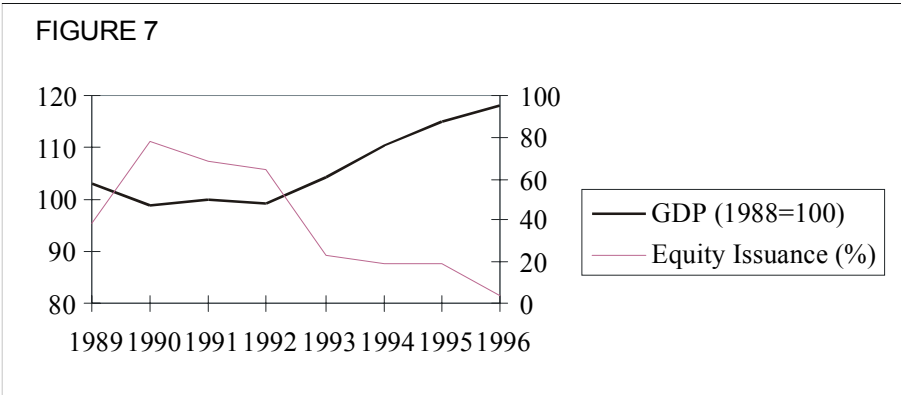
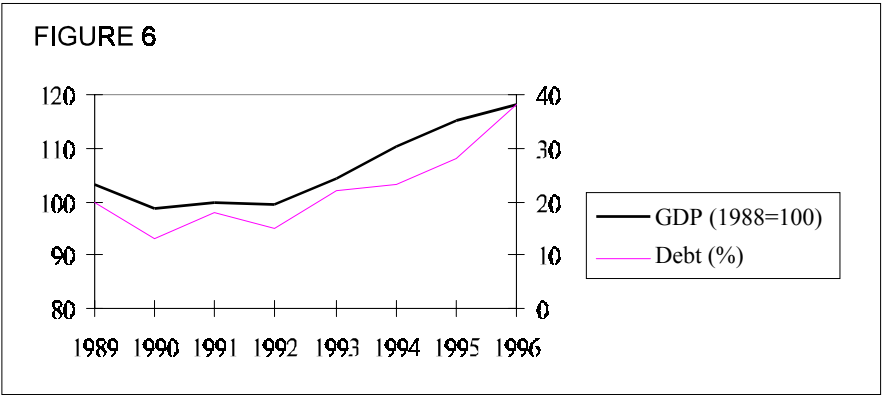
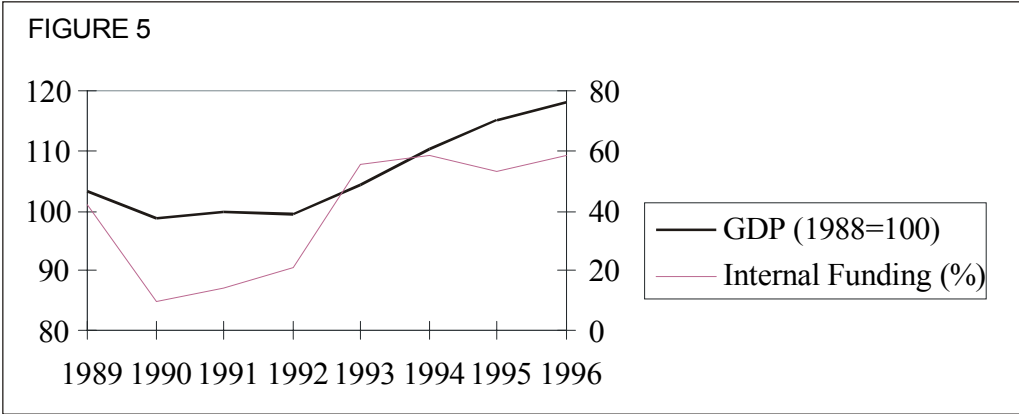
With regard to internal funding, since both Singh's and our study suggests that this is an extremely important source of financing for companies, or in other words, since companies apparently prefer such funding and only later to funding from external sources, it would be reasonable to expect use of internal funding to accompany the level of economic activity. In periods in which the economic outlook is more promising, companies will probably be more profitable, and will thus be able to finance a larger portion of their investments with internal funds (even if such behavior implies a smaller size of most companies, lack of scale, etc.).

The above argument should also, by analogy, explain the apparent lack of a correlation between economic performance and the use, by companies, of issuance as a way of financing their investments. Having said this, it would not explain the similarity between trend growth in GDP and corporate use of debt funding. In this case, the relationship could be explained in terms of changes in the cost of capital, so that periods during which economic growth is highest would also be periods where interest rates are at their lowest, a factor that would favor the use of this type of funding.

TABLE 6
Brazil – GDP Growth Rates – 1989/96

YEAR	RATE OF GDP GROWTH (1988 = 100)
1989	103.0
1990	98.9
1991	99.9
1992	99.3
1993	104.2
1994	110.3
1995	115.0
1996	118.2

Source: IBGE.



The relationship between the behavior of the various indicators and the volume of funding raised outside Brazil also fails to shed any light on the results of this study. While, for example, we might suppose that the fall in the equity issuance indicator in 1996 is related to the increase in the volume of foreign funding, this relationship is not borne out by the 1994 data, in which year both the equity issuance indicator and the volume of foreign funding fell (Table 7).

TABLE 7
Brazil - Foreign Funding Volumes- 1991/96

YEAR	VOLUME RAISED (In US\$ Million)
1991	1,405
1992	3,445
1993	6,116
1994	4,291
1995	6,813
1996	13,372

Source: Aronovich (1997). The author used the database of the Funding Department of the Finance Division, information from *Gazeta Mercantil*, the *International Financial Review*, the *Financial Times*, the *Wall Street Journal* and the annual reports of various banks.

One of the principal problems is thus our inability to discern, on the basis of the methodology we have adopted, what are effective movements between alternative sources of financing, and what are the distortions caused by frequent and significant changes in legislation that are in turn motivated by the need to counter the effects of high inflation on company financial statements.¹⁷

Another serious problem is tax evasion, which has a direct effect on the indicators that we have calculated. The lower the profit disclosed by the company, the lower the level of internal funding, and the higher the issuance indicator, which is calculated on the difference between the two.

In order to overcome these difficulties, it will be necessary to undertake a study which extends beyond the scope of the current article.

It is important to note that the difficulties identified in this article could also affect the studies of Singh (1995) and Singh and Hamid (1992), at least in so far as these apply to Brazil. Despite the efforts of the authors to explain why less developed countries have, since the 1980s, been using equity issuance as a source of financing to a greater degree than developed countries, it is possible that their results arise from their methodology (due to the points that we have discussed) and from the sample used (the authors only consider quoted companies, which in itself, carries a major bias).¹⁸

5. Conclusions

The decision to proceed with this study arose from the importance of the subject, and from the absence of previous studies that attempted to analyze, at a microeconomic level, the financing models adopted by domestic companies.

¹⁷ Singh (1995) has reported that the International Finance Corporation has undertaken a research project which considers data from countries with high inflation. Initial studies do not consider Brazil, however.

¹⁸ In the case of Brazil, we undertook a sampling study to determine to what degree our sample was representative. We used the "Balanco Annual" publication by the *Gazeta Mercantil*, defining a cut-off point for each sector (for a given size of company), and considered all companies above this level, giving a total sample of some 300 companies. Of these only 100 were quoted, and of these quoted companies only 60 coincided with the sample used in this study.

Having said this, the results obtained were found to be problematic, due to the extreme difficulty of monitoring the effects of inflation, of changes in legislation, and of tax evasion on the information sources used (company balance sheets). The problem does not disappear in 1994, the year in which Brazil began to enjoy economic stability, since, as we have seen, Law 8,200/91 itself gave rise to distortions that only began to appear from 1993 onwards.

Once we overcome such problems, it will also be necessary to devise a way of extending the sample to unquoted companies, since quoted companies do not form an appropriate sample for the entire set of domestic companies. The main difficulty here lies in the fact that in the era of high inflation, unquoted companies were not obliged to publish integrally corrected financial statements, and are still not obliged to meet the same levels of disclosure as quoted companies, making such information unavailable.

Despite the difficulties encountered, however, the relevance of the subject justifies continuing research, as well as the use of the alternative methodology of analyzing aggregate data (funds flow), at least as a way of verifying results.

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