**DEVELOPMENT BANK, LAW AND INNOVATION FINANCING IN A
NEW BRAZILIAN ECONOMY**

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I. INTRODUCTION

Until the early of the 1980s, the prevailing model of Brazilian development was based on accentuated state intervention, in which state-owned enterprises and banks were protagonists. During this period, a large portion of investments in strategic sectors such as infra structure and capital intensive industries was made either by government controlled companies or financed by state-owned financial institutions. Companies such as Petrobrás, in the oil and gas sector, Companhia Vale do Rio Doce, in the mining sector, and Embraer, in the aircraft segment, are examples of state companies responsible for the formation of a significant part of the Brazilian industrial base. They were accompanied in this task by state-owned banks, especially BNDES (National Economic and Social Development Bank), which fulfilled its role as main economy financier during this industrialization period.

However, during the subsequent decades, between the 1980s and 1990s, this institutional organization suffered a few relevant changes. At first, the market protection and reserve mechanisms, which had until then guaranteed the import substitution policies, were mitigated. During a period equivalent to two years, between 1990 and 1992, the Brazilian import tariff was reduced by 50% and the non-tariff trade controls practically eliminated: the Brazilian economy became open to the international market.¹ Next, an extensive privatization program of state-owned enterprises was set up: of the 252 state-owned companies in existence in 1985, only 96 remained in 1999.² State-owned banks faced a similar scenario: between 1996 and 2002, the number of state-owned financial entities was reduced from 32 to 14.³ Parallel to this partial destatization process the activities in the capital market were increased.

In spite of these profound reforms, which indeed brought the chapter of state-centered development model to an end, it is questionable whether the extension of their measures permitted the consolidation of a true market-based economy in Brazil. Not only are two of the biggest Brazilian companies, Petrobrás and Petrobrás Distribuidora, still state-owned, but also a great part of the 100

¹ W. SUZIGAN and A. VILLELA, *Industrial Policy in Brazil* (Campinas: Unicamp, 1997), pp. 81-102.

² Data supplied by the Brazilian Planning, Budget and Administration Ministry, available at http://www.planejamento.gov.br/secretarias/upload/Arquivos/dest/090105_ESTA_Univ_privatiza das.pdf, accessed October 16 2009.

³ Data supplied by the Brazilian Central Bank, available at <http://www.bcb.gov.br/?SANEIA>, accessed October 16 2009. See also B. STALLINGS and R. STUART, *Finance for Development: Latin America in Comparative Perspective* (Washington: Economic Commission for Latin America and the Caribbean – UN, 2006), pp. 222-258.

largest Brazilian companies have state-owned entities as shareholders.⁴ Furthermore, the financial funding for long term and high risk ventures still depends on state-owned banks, particularly BNDES. This evidence suggests that, in the aftermath of market oriented reform, Brazilian economy seems close to an hybrid model of development, in which both the State agents and the private actors are supposed to share projects and responsibilities.

Not surprisingly, due to the interest by private enterprises in developing competitive strategies based on innovation in face of international competition, there has been a growing demand for BNDES to develop new financial products to support these pioneering companies' investment decisions. As a result, besides the financing of infrastructure and productive capacity, which represented the Bank's main financial agenda throughout the developmental period, the attention of its administration was slowly drawn towards intangible assets as well.

The tools that were developed for this new mission have not only represented a break in the Bank's paradigm (used to financing large enterprises with physical assets), but has also represented a different type of state intervention in the economy. As explained in this paper, instead of top-down standard and pre-defined operations, designed to meet economic planning requirements, the financing of innovations has been based on cooperative alliances and public-private partnerships between the companies and the Bank. For such, it relies on different management legal structures that, formally or informally, favor a financial relationship subject to trajectory revisions and alterations. A good example of this new kind of legal tools comes from joint operations established between the Bank and capital market investment groups, who associate to form venture capital private funds.

The observation of these operations reveals certain affinity with the incomplete institutional transition of the Brazilian development model.⁵ On the one hand, it is undeniable that in spite of the market reforms, BNDES is still an important agent in the financial segment, and has in fact expanded its scope of action in order to shelter investments of the *new economy*. On the other hand, this performance differs from the way the Bank played its role during the

⁴ This information can be obtained from the ranking of the biggest Brazilian companies organized by Valor Econômico (newspaper specialized in finance and business). See on this VALOR ECONÔMICO, *1000 Maiores Empresas*, Agosto 2009.

⁵ The idea of an incomplete institutional transition is also developed by COUTINHO & MATTOS, see D. COUTINHO and P. MATTOS, *Brazil Pilot*, Research Report given at Law and New Developmental State Workshop (Madison, 2008), 13-21, available at: <<http://www.law.wisc.edu/gls/lands.html>>, accessed 15 October 2009.

developmental period. In contrast to its intervention between the 1950s and 1980s, the financing of innovations has been characterized by public-private cooperation, as well as partnerships with the financial segment.

In order to conceptually situate this new experience, indicating the ensuing innovations and continuities in relation to the developmental model, this paper will observe three plans of analysis: (i) *the agenda*, (ii) *the legal tools* and (iii) *the rationality* of BNDES's performance. Because it is a state agent responsible for carrying out public policies, its intervention is preceded by an agenda that is believed to correspond to the different stages of development. The scope of agenda conditions the profile of the legal tools (the means) by establishing the objectives of public performance. Finally, the proposal of the State's performance and the legal means used in this activity configure a type of rationality, which corresponds to the institutional arrangement established between the state agent and the private sector. This analytical set (agenda, legal tools and rationality) will be applied to verify if the BNDES's performance reviews possible traces of a New Developmental State framework.

For such, this paper is organized in five further sections. The following section (section 2) presents a panorama of the financing model of the developmental period, indicating the prevalence of BNDES as financing agent. The third section suggests the formation of new competitive strategies in the national economy, and evidences the growing interest for investment in innovation, at least by part of the business community. The fourth part describes BNDES's reaction to these flashes of knowledge-based economy and presents the types of legal tools developed for this new role. The fifth section discusses the rationality underlying these tools and, finally, the sixth section presents a conclusion.

II. AGENDA, LEGAL TOOLS AND RATIONALITY IN DEVELOPMENTAL STAGE: THE OVERLAPPING OF FINANCIAL ACTIVITIES WITH GOVERNMENTAL PLANS

One of the main characteristics of developing countries lies in the difficulties encountered by the private financial sector to raise and provide funds for long term investments: as a rule, their capital and credit markets are deficient and unable of providing the economy with a satisfactory volume of financing, capable of stimulating an investment pattern on a par with their economic agents'

necessities.⁶ The Brazilian case does not differ. During the industrialization process, the capital market was never able to guarantee a regular and expressive financial flow for the economical activities⁷: between 1970 and 1990, the volume of primary share emission, for example, did not excel an annual level of 0.5% of the GDP⁸ and the number of companies listed in the São Paulo Stock Exchange never reached 500.⁹ The participation of private banks presented a similar performance: their financial intermediation was concentrated on short term and low risk operations and, contrary to what happened in Japan and Germany, where banks substituted the lack of the capital market in supplying industrial financial resources,¹⁰ in Brazil the banking system did not perform its role of loaner in long term operations.¹¹

These serious flaws in the private financial markets were only overcome with direct participation of state agents. Based on the diagnosis that the Brazilian economy presented pronounced financial failures, policy makers recognized that the simple guarantee of legal security and the constitution of indirect regulatory methods would not be enough to consolidate a solid financial system. Likewise, the adoption of institutional measures to favor the private banking system, such as permission of cross participation in companies and their exclusion from the competition regime, similar to the Japanese and German models was also deemed

⁶ A. GERSCHENKRON, *Economic Backwardness in Historical Perspective: a book of essays* (3^a repress, London: Belknap Press, 1976), pp. 5-30.

⁷ The financial market operations only became relatively relevant as of the 1970s. During the 1970s, a few regulatory actions were promulgated in the capital market, guaranteeing an institutionalization standard of their activities (for example, the Capital Market Law, n.º 4.728 of 1965, and the Public Companies Law, n.º 6.404 of 1976). During this period, in an effort to activate this financial vehicle, the Federal Government established a tax incentive program to favor the opening of the companies' capital and the acquisition of shares by investors. See D. TRUBEK, *Toward a Social Theory of Law: an essay on the study of law and development*, 82, Yale Law Journal, 1 [1972], 45-46. Even so, capital market had a marginal performance within the Brazilian financial system.

⁸ D. MONTEIRO FILHA, *Aplicação dos Recursos Compulsórios pelo BNDES na Formação da Estrutura Setorial da Indústria – 1952-1989*, Tese de Doutorado apresentada ao Instituto de Economia da UFRJ (1994). p. 46.

⁹ MB ASSOCIADOS, *Desafios e Oportunidades para o Mercado de Capitais Brasileiro* (Estudos para o Desenvolvimento do Mercado de Capitais, Bovespa, 2000), 30, available at: <http://www.bovespa.com.br/pdf/mercado_capitais_desafios.pdf>, accessed 15 October 2009.

¹⁰ J. ZYSMAN, *Governments, Markets, and Growth: financial systems and the politics of industrial change* (New York: Cornell Paperback, 1984), p. 61; and see also F. ALLEN and D. GALE, *Comparing Financial Systems* (London: MIT Press, 2000), pp. 3-9

¹¹ “STALLINGS and STUDART” (2006), *supra* note 3, pp. 222-258.

insufficient to secure a volume of resources compatible with the industrialization strategies.¹²

Therefore, in tandem with developmental industrial policies, public banks and especially, development banks¹³ were founded. Within this institutional arrangement, based on public ownership of part of the financial assets, the State took over responsibility for overcoming both flaws detected in the private segment: (i) poor funding capacity of long term operations and (ii) aversion to projects that, despite the higher risk, presented relevant external effects for the economy. For such, the founding of public banks was supported by two tools that constituted the industrialization strategy financing model: (i) the establishment of mechanisms of compulsory savings, instituted by means of taxation to guarantee the funding of banking activities, and (ii) governmental allocation of credit. It was, therefore, a financial arrangement (or part of it) largely directed by the State, from financial funding (via taxation) to selection and execution of financed projects. The National Economic and Social Development Bank (BNDES), founded in 1952, was one of the protagonists of this model, and has since then been responsible for financially supporting Brazilian industrial development.

In relation to its *agenda*, BNDES's intervention during the industrialization stage followed the objectives of the economic planning policies. Between 1956 and 1961, during the first great Brazilian planning experience (Target Plan), BNDES's activities were directed towards the infrastructure sectors, with a large portion of the resources transferred to the respective state-owned companies responsible for public constructions. During this period, observing designations of the Target Plan, the Bank allocates 48.6% of its spending to the metallurgy sector and 33.4% to the electricity sector. At that time, these sectors had been selected as priority by the Federal Government.¹⁴

Following this first period, in which the base of the country's industrial specialization was partially constituted, Brazil lived through its second great experience in economic planning – the II PND (National Development Plan), responsible for reinforcing industrial investments and expanding the country's

¹² M. ROE, *Some Differences in Corporate Structure in Germany, Japan and the United States*, 102, *The Yale Law Journal*, 8 [1993], 1936-1958. See also J. STIGLITZ and M. UY, *Financial Markets, Public Policy, and The East Asian Miracle*, 11, *World Bank Research Observer*, 2, [1996], 259-263.

¹³ Besides BNDES, founded in 1952, and the National Housing Bank (BNH), in 1964, for investments in housing, other state development banks were also founded, like the Northeast Bank (BNB), in 1952, and the Amazonia Bank (BASA), in 1950.

¹⁴ C. CURRALERO, *A Atuação do Sistema BNDES como Instituição Financeira de Fomento no Período 1952-1996*, Dissertação de Mestrado apresentada no Instituto de Economia da UNICAMP (1998), pp. 11-24.

national productive platform. During this period, the majority of the loans was directed towards private companies, which since then have become the main beneficiaries of credit operations.¹⁵ Between 1974 and 1979, during the execution of the plan, BNDES concentrated on financial support to the heavy industry segment, which was considered strategic to industrial development. As a result, during the II PND 48% of financial disbursements were directed towards raw material processing, (mainly metallurgy, chemical and fertilizers, paper and cellulose); 30% of resources were allocated to infrastructure (with emphasis on electric power and railways) and 7% was invested in capital goods (especially mechanical and electrical equipment).¹⁶

The financing of these segments was supported by explicit inducing conditions, part of the *legal tools* used by the Bank. During the Target Plan (1956-1961), the tool used by BNDES was financial collaboration contracts, meaning credit contracts based on fixed earnings (payment of principal amount plus interest rate). At that time, besides the Bank's selection criteria, in which the decision to grant resources was based only on the merit of projects and their pertinence to the Government's plan, the contracts also included another specification – interest rates that were below inflation. With this, the real cost of the loan was reduced, indicating that the Bank took on the role of a real foment agency, willing to subsidize investment intentions.¹⁷

A similar policy directed towards private companies occurred during the II PND, when financial collaboration contracts included monetary correction below inflation, and therefore permitted an indirect transfer of public resources to industrial projects. Still during the II PND, financial support to private companies demanded the constitution of a new legal tool of financial collaboration – private equity investments. The use of share subscription as a mechanism of investment financing was meant to strengthen and consolidate national business groups, which lacked a satisfactory level of capitalization.¹⁸ With this objective, BNDES

¹⁵ Until 1968, the majority of the financial operations were directed towards state-owned companies. As of 1968, private companies became the main beneficiaries of the Bank. By 1974, private companies were responsible for 66% of the disbursements and by 1978, for 87%. See M. SCHAPIRO, *Novos Parâmetros para a Intervenção do Estado na Economia: persistência e dinâmica na atuação do BNDES em uma economia baseada no conhecimento*, Tese de Doutorado apresentada na Faculdade de Direito da USP (2009), p. 98.

¹⁶ "CURRALERO (1998), *supra* note 14, pp. 31-40" and see also "MONTEIRO FILHA (1994), *supra* note 7, pp. 97-110".

¹⁷ Interest rates varied between 8% per year for infrastructure projects and 11% per year for key industries. On this, see "CURRALERO (1998), *supra* note 14, pp. 11-24".

¹⁸ Although participation was meant to be temporary and minor, in some of the 95 beneficiary companies, this participation became major and long term. See on this "SCHAPIRO (2009), *supra*

established three subsidiary companies specialized in equity sharing (EMBRAMEC, for operations in the capital goods sector; FIBASE, for the basic raw materials sector and IBRASA, for ventures in national companies in general), which later came to constitute BNDESpar, a subsidiary company that nowadays concedes variable income investment supports.¹⁹ In both cases (Target Plan and II PND), legal tools employed by the Bank were designed as Pigovian instruments to spurring industrial investment, working under very generous conditions either for stated-owned or for private companies in their financial contracts.

During this period, the Bank's intervention obeyed a substantive-developmental *rationality*:²⁰ its activities were strictly linked to the Federal Government's development policy. Firstly, its allocation criteria were not based on assessment of the risk/return type, but on the project's merits in term of its developmental perspective.²¹ Secondly, during each stage of the industrialization process, the financing decision favored those segments nominated as strategic by the planning offices, which at that time were disciplined by federal laws,²² in a top down way. Finally, the financial collaboration contracts (either fixed or variable income) included rules and clauses closer to the usual standards of those of the funding agencies than to those of the banking sector.

note 15, p. 99, and also A. PINHEIRO, "Privatização no Brasil: por que? Até onde? Até quando?", in F. GIAMBIAGI and M. MOREIRA, *A Economia Brasileira nos Anos 90* (Rio de Janeiro: BNDES, 1999), pp. 157-158.

¹⁹ At the beginning of the 1980s, in 1982, corporate reorganization occurred in the Bank and the three subsidiary companies were grouped together as one company, BNDESpar, which since then has been responsible for operations involving equity sharing.

²⁰ The notion of substantive rationality is discussed by TEUBNER and refers to a pattern of state intervention linked to the production of social and economic results. In the US context, this diagnosis is found in realist studies concerning the role of the State post New Deal, based on commands and controls. This debate will be resumed in the last section of this paper, where it will be argued that the rationality of State intervention has obeyed new parameters, with the identification of a knowledge based economy. Substantive rationality gives way to a type of reflexive rationality or governance rationality, an expression used by researchers in tune with the US realist tradition. On this, see G. TEUBNER, *Substantive and Reflexive Elements in Law*, 17, *Law & Society Review*, 2, [1983], 250-257 and O. LOBEL, *The Renew Deal: the fall of regulation and the rise of governance in contemporary legal thought*, Legal Studies Research Paper Series No. 07-27 (University of San Diego School of Law, 2005), 281-287, available at: <<http://ssrn.com/abstract=723761>>, accessed 15 October 2009.

²¹ "CURRALERO (1998), *supra* note 14, p. 11-44".

²² The observation that the developmental policies were determined by law, thus indicating the binding nature of their planning measures is discussed by COUTINHO and MATTOS. See "COUTINHO and MATTOS (2008), *supra* note 5, p. 18". According to the authors, this indicates a form of statist intervention in the economy.

In sum, at this stage, there was a kind of overlap between the BNDES's role in the direct regulation of the credit market and the substantive aims of government plans. The Bank was not only a source of supplemental financial resources to the market; it was in fact a source of financing of the developmental policy objectives.²³ Although it may seem a subtle overlap, it is a relevant feature to understand the trajectory of the Brazilian financial system: its agenda and financial intervention tools were determined by the country's industrialization macro objectives.

III. A NEW AGENDA FOR THE BRAZILIAN FINANCIAL ARRANGEMENT: THE INNOVATION ECONOMY

Between the 1980s and the 1990s, the developmental strategy was partially revised. Since then, institutional reforms have been introduced aiming at promoting market spaces in the Brazilian economy. At first, the initiative to dismantle the market protection and reserve mechanisms that supported the import substitution policy gained attention: in a period equivalent to two years, between 1990 and 1992, the Brazilian import tariff was reduced by half and non-tariff controls were practically eliminated, configuring an abrupt opening of the Brazilian economy to the international market.²⁴ After that, a broad privatization program of state-owned agents was stipulated: of 252 state-owned companies in 1985, only 96 remained in 1999.²⁵

In this context, the exposure of national companies to competition (no longer enjoying tariff and non-tariff protection policies), the destatization process and the intensification of knowledge based strategies within international competition patterns²⁶ contributed to the constitution of a new agenda in the Brazilian economy: the adoption of innovation strategies by private companies. Up to then, due to the State orientated development model, a great part of the technological growth was produced by state-owned companies.²⁷ However, with

²³ "SCHAPIRO (2009), *supra* note 15, pp. 60-102" and "CURRALERO (1998), *supra* note 13, pp. 11-44".

²⁴ "SUZIGAN and VILLELA (1997), *supra* note 1, pp. 81-102".

²⁵ Data supplied by the Brazilian Planning, Budget and Administration Ministry, *supra* note 2.

²⁶ OECD, *A New Economy? – the changing role of innovation and information technology in growth* (Paris, 2000), 27-48, available at: <<http://www.cherry.gatech.edu/refs/oecd/oecdgrowth00.pdf>>, accessed 15 October 2009.

²⁷ It is true that the technological growth experienced by these state-owned companies is far from negligible, as it was within this segment that the country acquired technological competence to compete commercially in frontier areas such as aircraft construction (Embraer), deep water oil prospection (Petrobrás) and the development of seeds and agrochemicals (Embrapa). On the role

privatization and increasing competition pressure suffered by private companies, the interest in innovation capacity shifted from government controlled companies to private enterprises. Since then, policy makers and a few businessmen have shown a gradual interest in developing competitive strategies based on innovation and intangible assets.

In terms of public policy, although most government measures have been implemented as of the year 2000, since the last decade greater attention has been given to issues related to science, technology and innovation.²⁸ In 1990, a first industrial policy (PICE – Industrial and Foreign Trade Policy) was designed to promote the competitiveness of national companies, with the objective of increasing the quality and productivity of industrial products. In 1999, 16 sectional funds were set up, financed by private companies to promote research and development activities. In 2004, the Brazilian government once again implemented an industrial and technological policy (PITCE – Industrial, Technological and Foreign Trade Policy). On this occasion, it enacted three federal laws in order to institutionalize and promote the National Innovation System.²⁹ Finally, in 2008, PITCE was extended and originated a new industrial policy, the Productive Development Policy (PDP), which also contemplated measures to stimulate research and development strategies. These policy initiatives had in common an agenda to promote innovation capacity in Brazilian private companies (not in state-owned companies any more).

In relation to the enterprises, the diagnoses show that in the last 20 years, a new business segment has been formed in the Brazilian economy.³⁰ While the

of state-owned companies' research centers, see F. ERBER. "Os centros de pesquisa das empresas estatais: um estudo de três casos", in S. SCHWARTZMAN (Ed.), *Ciência e Tecnologia no Brasil: política industrial, mercado de trabalho e instituições de apoio* (1ª ed. Rio de Janeiro: FGV, 1995).

²⁸ M. ALMEIDA, "A CF/88 e as Políticas de Incentivo à CT&I Brasileiras", in J. CARDOSO JR. (Ed.), *A Constituição Brasileira de 1988 Revisitada: recuperação histórica e desafios atuais das políticas públicas nas áreas econômica e social* (Brasília: IPEA, 2009), pp. 213-245.

²⁹ These laws are: 10.973/04 (Innovation Law), 11.080/04 (ABDI Law) and 11.196/05 (Goods Law). Law 10.973/04, the so called Innovation Law, regulated, among others, the innovation protection mechanisms, the rules to facilitate partnerships between governments, companies and scientific and technological institutions to create new products and processes, as well as provisions for innovation promotion by foment agencies. Law 11.080/04 authorized the creation of the Brazilian Agency for Industrial Development (ABDI), in charge of industrial policy's coordination. Finally, Law 11.196/05, the Goods Law, instituted different tax regimes and suspended the payment of a few taxes (PIS and COFINS) by information technology, software and capital goods businesses, as long as they complied with import or export performance targets.

³⁰ G. ARBIX, *Inovar ou Inovar: a indústria brasileira entre o passado e o futuro* (São Paulo: Papagaio, 2007), pp. 105-142.

majority of the Brazilian companies still restrain from betting on innovation as a competitive strategy, there is a select group of companies situated in the vanguard of the production process. This is revealed by the data from the PINTEC research (Technology Innovation Research), conducted by IBGE³¹ since 1998. During the research's first biennium, between 1998 and 2000, within a universe of 72.005 companies (companies with more than 10 employees), 22.698 presented some sort of innovation (in products or processes), representing 31.5% of the companies. In the second biennium, between 2001 and 2003, this percentage registered a positive variation and reached 33.2% of the companies, increasing once again in the third PINTEC, between 2003 and 2005, when 38.9% of the companies presented some sort of innovation. These numbers reveal the incidence of new products and processes in the companies but not for the market. Taking the market as reference and observing the introduction of new products (excluding process innovations), the data are more timid: 4.1% of the companies for the period between 1998 and 2000; 2.7% between 2001 and 2003 and 4% for 2003-2005.

Taking the figures of the first PINTEC (2000), and crossing them with statistics from other government agencies, DE NEGRI, SALERNO & CASTRO³² divided the Brazilian companies into three groups and classified them according to types of competitive strategy. The research divided 72.000 companies into the following three groups: (i) companies that innovate and differentiate products; (ii) companies that specialize in standard products and (iii) companies that do not differentiate and have lower productivity.³³ The groups were formed considering a few sub-criteria such as export capacity and operational efficiency, as well as innovation competence. The results indicate that 1.199 companies presented strategies based on innovation and products differentiation, and are also capable of obtaining good placing for their exports. The second group, formed by companies that focus on standard products, has 15.311 companies and the third has 55.495. The surprising information is that although the companies from the

³¹ IBGE- Brazilian Institute for Geography and Statistics is a Federal Government agency responsible for the production of data and indicators.

³² J. DE NEGRI, M. SALERNO and A. CASTRO, "Inovações, Padrões Tecnológicos e Desempenho das Firms Industriais Brasileiras", in J. DE NEGRI and M. SALERNO, *Inovações, Padrões Tecnológicos e Desempenho das Firms Industriais Brasileiras* (Brasília: IPEA, 2005), pp. 5-44

³³ The companies from the first group are those that presented innovation for the market and increased exports by 30% compared to companies that produce similar products. The companies in the second group have strategies based on costs. They are either export companies that did not obtain a 30% gain or non-export companies that presented operational efficiency superior to export companies in the same product category. Finally, the last group is of smaller and less competitive companies. "DE NEGRI, SALERNO and CASTRO (2005), *supra* note 32, pp. 5-44".

first group represent just 1.7% of the industrial entirety, they respond for 25.9% of the Brazilian industrial revenue.

Table 1 Competitive Strategy of Brazilian Companies			
Competitive Strategy	Number of Companies	Revenue Participation (%)	Employment Participation (%)
Innovate and differentiate products	1.199 (1.9%)	25.9	13.2
Specialize in standard products	15.311 (21.3%)	62.6	48.7
Do not differentiate and have lower productivity	55.495 (77.1%)	11.5	38.2
Total	72.005	100	100
Source: DE NEGRI, SALERNO & CASTRO			

Both PINTEC's raw data and the typological analyses by DE NEGRI, SALERNO & CASTRO indicate the scope of Brazil's *new economy*: it is still a restricted segment, but economically relevant. According to Glauco ARBIX, this select group of companies and entrepreneurs, forged by the country's institutional redesign during the 1990s, has presented distinct behavior in relation to the rest of the Brazilian productive segment, such as: (i) they adopt new competitive strategies; (ii) they present organizational and structural changes within their companies; (iii) they obey international norms and patterns; (iv) they bet on innovation and (v) they present an internationalization effort.³⁴ Therefore, they represent a new group of entrepreneurs, willing to participate in a market economy with a competitive pattern that involves innovation capacity and keenness to compete at international level.

A. The New Brazilian Economy and Persistence of BNDES in the Financial Arrangement

Curiously, however, the financing of this new segment of innovative companies (at least part of it) has also been supported by BNDES, which has taken on an important financing role in this *new economy*, similar to that of the developmental stage. In fact, even following the institutional reforms of the 1990s that expanded private participation in financing the Brazilian economy³⁵, a significant part of the

³⁴ "ARBIX (2007), *supra* note 30, pp. 105-142".

³⁵ These reforms basically included the privatization of 18 public state banks, between 1995 and 2003, when the national banking system became open to international competition (in this period, the number of foreign banks rose from 25 to 48) and the definition of new rules for the capital

higher risk and long term investments still depends on state-owned banks, especially BNDES. Data presented by STALLING & STUDART³⁶ indicate that BNDES alone answers for the majority of the long term resources allocated in the country – it is practically a monopolist in this segment.³⁷ Neither the capital market nor the private banks or private equity and venture capital industry players substituted its leadership in providing this kind of financial resources.³⁸

market. Within the market in particular, two initiatives were particularly important: (i) the enactment of a new corporate law in 2001 (Law 10.303), with corporate governance regulations to balance forces in publicly-traded companies and (ii) the adoption of self-regulation by the market agents themselves, establishing different market levels according to the level of demand of their managements regulations. With this, besides the traditional stock exchange, the markets level 1, level 2 and New Market were created, the latter with a strict set of rules for corporate governance. Besides these, Bovespa Mais was created, as a stock exchange for the IPOs of start up companies (it has similar rules to the New Market, but geared towards small companies' difficulties). Details can be obtained at www.bovespa.com.br, at "SCHAPIRO (2009), *supra* note 15, pp. 257-308" and also at "STALLIN & STUDART (2006), *supra* note 3, pp. 222-258". Information also available at the Brazilian Central Bank, www.bcb.gov.br

³⁶ "STALLIN & STUDART (2006), *supra* note 11, pp. 222-258".

³⁷ For STALLING & STUDART, public agents still play a relevant role in the national economy: *The public banks continue to play a vital role in Brazil, contrary to expectations. Both the government and those supporting the reforms in the 1990s believed the changes would revolutionize the credit market. In particular, they expected the entry of foreign banks to expand credit significantly and broaden access for those normally excluded, such as SMEs and poorer households. They further assumed that the public banking sector would continue to shrink because it was less competitive than private, especially foreign banks. The results turned out differently than anticipated, however, and public banks continue to play a key role.* See "STALLIN & STUDART (2006), *supra* note 3, pp. p. 245".

³⁸ Under the current circumstances, a possible reason for the predominance of public agents in long term operations combines two complementary causes: (i) the type of public bank funding and (ii) the incentives produced by the public debt on private banks and other financial institutions. Firstly, compared to private bank funding, which comes from deposits in current accounts, the public banks' financial base (or part of it) is more adequate for long term operations. These resources come from compulsory savings mechanisms (public funds) that allow the use of resources with no need for short term return. BNDES's resources, for example, come from a fund instituted by the Federal Constitution – the Worker's Aid Fund (FAT), which is remunerated by Long Term Interest Rate (TJLP). FAT's resources not only permit long term investments (they do not demand short term liquidity), but are also remunerated with one of the lowest interest rates set by the Federal Government (at present, the TJLP, set by the National Monetary Council, stands around 6.25% per year). Besides these comparative advantages based on financial funding, there is still a second factor: the attraction of private banks to financing the public debt. The public debt securities are remunerated by another interest rate, equally set by the National Monetary Council – the SELIC. During the past years, the SELIC (presently at 8,75%) has been superior to the TJLP. The practical effect of this difference is the creation of an incentive for private banks to secure part of their profit by acquiring public securities, instead of broadening the private credit market. This incentive provokes a similar effect on the other financial institutions, like private pension foundations and other investment funds (crowding out effect). See "STALLIN & STUDART (2006), *supra* note 3, pp. 222-258". This is indicated by the fact that, over this period, the volume

As to the capital market, it is true that in the last ten years a rise in Initial Public Offering (IPO) activities has been noted, which seems to be associated to an improvement of the legal-institutional environment, with the adoption of new corporate governance rules.³⁹ Nevertheless, the market's dimension is still limited, with only 432 companies listed. Particularly noticeable is the fact that primary funding in the capital market has not yet consistently overcome the volume of resources made available by public agents. It is evident that, with the exception of 2007, the annual volume of BNDES's spending is still superior to the volume of resources funded via equity and debt in the capital market.

Graphic 1 – Source: BNDES and CVM

Still in the securities segment, the private equity and venture capital market is also limited, especially for new and emerging companies. Although the volume of capital employed in these operations has grown in the last few years, from US\$ 3.71 billion (three billion and seventy-one million US dollars) in 1999 to US\$ 26.65 billion (twenty-six billion and sixty-five million US dollars) in 2008, its participation in relation to the GNP is 1.71%. Besides that, the majority

of public debt was always superior to the volume of private debt, suggesting greater Government capitalization in relation to private investments.

³⁹ See on this *supra* note 35.

of these investments (37%) is geared towards private equity operations only (larger and more solid enterprises), while a smaller fraction (25%) is dedicated to emergent and start-up companies.⁴⁰

These figures are even more significant when considering that BNDES itself (through BNDESpar) is also one of the major financial agents in the securities segment. Since the 1990s, the Bank's participation in the capital market and the private equity/venture capital market has grown, with even more striking results in the last few years when two specific areas were created within its organizational structure to manage market operations – Capital Market Area (for large companies) and Entrepreneur Capital Area (for small and medium companies). Data from the 2008 Annual Report indicate that BNDES possesses the largest security portfolio in the country, with an approximate value of R\$ 61.2 billion (sixty-one billion and two hundred million reais).⁴¹ In relation to the number of companies and considering only its direct participation (excluding participation via funds), the Bank is present in 303 companies (large, medium and small).⁴² As stated below, in the venture capital segment alone, BNDESpar participates in half of the entities registered by the Brazilian authority for market regulation (CVM).

As with the capital and private equity markets, limited participation also affects the Brazilian banking system, which likewise has not managed to play an active role in the concession of long term funding to Brazilian industrial enterprises.⁴³ Proof of this is the low volume of financial loans in the Brazilian economy: in volume, the extension of the credit market is approximately 60% of the Brazilian GNP. Comparatively, Thailand presents a capitalization rate equivalent to 112.8% of its GNP and China a rate of 178.8% of its GNP.⁴⁴

⁴⁰ See FGV-Cepe, *Panorãma da Indústria Brasileira de Private Equity e Venture Capital*, Relatório de Pesquisa, (2008), p. 28, available at: <<http://www.nsgcapital.com.br/arquivos/PANORAMA%20INDUSTRIA%20BRASILEIRA%20PVC%202008.pdf>>, accessed 15 October 2009.

⁴¹ The estimate as the largest portfolio in the market was presented by Valor Econômico - "BNDES Amplia Compras de Participação em Empresas", Valor Econômico, 25 de Março de 2009 (Valor Econômico is a newspaper specialized in finances and business) It is equivalent to US\$ 35,7 billions (considering the following exchange rate US\$ 1 is equal to R\$ 1,71).

⁴² BNDES, *Annual Report*, (2008), p. 96 and p. 148, available at <<http://inter.bndes.gov.br/english/RelAnualEnglish/ra2008/JOB-BNDES-BILINGUE.pdf>>, accessed 15 October 2009.

⁴³ "STALLING & STUDART (2006) *supra* note 3, pp. 244-245".

⁴⁴ WORLD BANK. *Brazil Investment Climate Assessment*, 2, (2005), p. 85. For a discussion on the legal-institutional changes promoted in Brazil to stimulate the credit market, see E. FABIANI, *Reformas Institucionais do Mercado de Crédito Bancário no Brasil (1999-2006): uma análise jus-sociológica*, Tese de Doutorado apresentada na Faculdade de Direito da USP, (2009).

Conversely, BNDES's participation is not only substantial but also increasing: in the last 15 years, the volume of annual disbursements has varied positively, from 5.5 billion dollars in 1994 to approximately sixty billion dollars in 2008, indicating the dimension of the bank's participation in the Brazilian economy even after the opening of the Brazilian financial system to international private banks.⁴⁵

Graphic 2 – Source: BNDES

Not surprisingly, with the growing interest of national companies in developing competitive strategies based on innovation to accompany the rhythm of the *new economy*, there has been a demand for BNDES to develop new financial products to support investment decisions by innovative companies. Consequently, besides the financing of physical assets, which since the developmental period had been part of the Bank's agenda, intangible assets have now started to receive the administration's increasing attention.

This broadening of the Bank's agenda has in turn fostered the customization of previously existing legal tools, making them suitable to support

⁴⁵ See on this *supra* note 35.

financial operations involving intangible assets. These assets, as opposed to physical goods, carry uncertainty and are, therefore, subject to a lower degree of predictability and a greater level of contingency.⁴⁶ Thus the necessity of adapting its tools, both in fixed income (credit contracts) and variable income (equity). As it will be argued below, these new tools not only reveal technical capacity to deal with unpredictability, employing specific governance structures, but they are also convergent with the broad institutional arrangement of the Brazilian economy (hybrid organization), insofar as they are based on alliances established between the Bank and the private actors.

IV. BNDES IN FACE OF A KNOWLEDGE BASED ECONOMY: CUSTOMIZATION OF LEGAL TOOLS

Within the context of the opening of the Brazilian economy and the pursuit of new corporative strategies, the national companies began demanding from BNDES the development of adequate financial tools for investments in innovation. The result was a gradual structuring of a set of legal tools, appropriately developed for the financial engagement of intangible assets and enterprises presenting a significant level of uncertainty. As an outcome of a process of institutional experimentation, the Bank developed, over the last 20 years, an arsenal of four types of instruments: (i) equity investments in emergent companies; (ii) indirect participation, by means of investment funds, in partnership with private investors; (iii) credit contracts (fixed income) open to partnerships and collaboration and (iv) financial contracts with non-refundable resources.

At the beginning of the last decade, in 1991, BNDES implemented CONTEC, a pioneering legal tool, similar to venture capital, to finance emerging companies.⁴⁷ In this program, BNDES took on the role of venture capitalist, directly acquiring equity shares in emerging companies and playing an active role in monitoring them. This approach was initially structured as an experimental program and incorporated a restricted number of 20 companies. A few years later, as a result of a process of institutional learning, this tool was consolidated and originated a mode of operation that nowadays has its own department within the

⁴⁶ G. DOSI, "The Nature of Innovative Process", in G. DOSI, C. FREEMAN, R. NELSON, G. SILVERBERG and L. SOETE (Eds.), *Technical Change and Economic Theory* (London: Pinter Publishers, 1988), pp. 221-238. See also C. FREEMAN and L. SOETE, *The Economics of Industrial Innovation* (3rd ed., Massachusetts: MIT Press, 1999), pp. 242-264.

⁴⁷ See L. PINTO, *Capital de Risco: uma alternativa de financiamento às pequenas e médias empresas de base tecnológica – o caso do CONTEC*, Revista do BNDES, 7, [1997] 20-27.

Bank, known as Entrepreneur Capital Area, responsible for managing a portfolio of 35 companies (and also in charge of investment via funds).

Besides acting directly as a venture capitalist, based on corporate law solutions, the Bank also assumed the objective of setting up a private capital risk segment in the country. Therefore, as of 1993, the Bank started stimulating the constitution of venture capital private entities (CCRs), figuring as an investor in high risk companies. These were private companies that, with resources from their investing partners (like BNDES), would acquire equities in emerging companies. Thus, BNDES introduced a second mode of financing innovative companies: the formation of public-private partnerships to constitute risk capital investments entities.

As of 1996, this mode of indirect participation was adopted for setting up investment funds, a legal entity that since 1994 has substituted investment companies (former CCRs).⁴⁸ The participation of BNDES in the establishment of this market segment has been significant. The chart below shows that the Bank pioneered this sector, setting up the first investment funds for emergent companies. This participation is still relevant today: half the investment funds in emergent companies registered with the capital market securities commission (CVM) has investment by BNDES.

⁴⁸ In 1994, the Securities Commission (CVM) set the rules for the fund sector, permitting its use for venture capital and private equity investments – Regulatory Instruction 209/94. According to the first Brazilian venture capital and private equity census, up to 1994 investments in emerging companies were made via holdings, such as CCRs. However, this alternative presented legal deficiencies which hindered the full feasibility of this type of investment. Unlike companies, the investment fund has the legal nature of a joint ownership and is inspired by the US model for venture capital – limited partnership. Thus, four inconveniencies presented by holdings were solved: (i) it mitigated the administrators' equity risks, (ii) it relieved taxation, (iii) it enabled funding by international resources and pension funds and (iv) it had a limited time of existence, facilitating the closure of its activities. The success of investment funds as a legal tool can be verified by the data on its use in the venture capital and private equity market: in 2005, about ten years after Regulatory Instruction 209/94, of 97 investment entities operating in Brazil, 44 were constituted via investment funds and only 20 via holdings. On this see A. CARVALHO, L. RIBEIRO, and C. FURTADO, *A Indústria de Private Equity e Venture Capital: primeiro censo brasileiro* (São Paulo: Saraiva, 2006), pp. 55-65. The report on BNDES's participation in the formation of funds can be found in its 2005 annual report, see BNDES, *Annual Report* (2005), pp. 44-46, available at <<http://inter.bndes.gov.br/english/RelAnualEnglish/ra2005/Rel-Anual.pdf>>, accessed 15 October 2009.

Graphic 3 – Source: CVM and BNDES

In 1997, a few years after the first CONTEC initiatives and the start of indirect funding programs, BNDES introduced a few changes in financial tools. Besides variable income investments, the Bank also started to develop new contract rules to permit the funding of innovative companies through credit operations (fixed income operations). The first contractual experiences with fixed income were made within a program called Prosoft⁴⁹, created to attend the specificities of the software sector. Amongst other innovations, detailed below, Prosoft dispensed with the presentation of collaterals in financial operations limited to R\$ 400 thousand (four hundred thousand reais).

⁴⁹ BNDES has credit lines and programs. The lines are permanent, while the programs are temporary and have a pre-defined budget. According to BNDES's operational policies, a program is created under three scenarios: (i) there is a specific objective pursued by BNDES; (ii) there is a government policy to be established, with specific objectives and targets and (iii) sector specifications determine changes in contractual and financial rules. Such was the case of Prosoft: the creation of contractual exceptions to favor the sector's specificities – according to interview conducted on July 30 2009 with the following BNDES administrator: Helena Tenório, Planning Superintendant (responsible for the rules of lines and programs).

This type of contract, with rules better adapted to the specificities of innovative companies, was intensified in 2005, when the Bank approved the new Operational Policy.⁵⁰ From then on, the introduction of innovations within the Brazilian productive process became a funding priority. Thus, besides the sector programs, such as Prosoft and Profarma (for medicines) that have a defined budget and are temporary, two permanent horizontal credit lines were created: the “Innovation P, D and I” line and the “Production Innovation” line. Both had pre-defined financial costs and more favorable conditions than those presented by standard operations, such as a fixed interest rate, set at 6% - inferior to the interest rate charged by BNDES (TJLP).⁵¹ At the time, FUNTEC, a BNDES accounting fund created in 1972, was restored to provide resources in a non-refundable mode. FUNTEC was set up to guarantee resources for the leading edge technology segment, expecting that the beneficiary companies would return to the Bank for further refundable funding once the production of their prototypes was made viable.

In 2008, owing to the implementation of *Productive Development Policy* (PDP), a new industrial policy, the “Innovation P, D and I” and “Production Innovation” lines, created in 2005, were replaced by new credit lines called “Technology Innovation” and “Innovative Capital”. Not only were interest rates lower for these new lines, around 4% per year (in average), but also the possibility

⁵⁰ The Operational Policy is the document describing the contractual modalities and procedures to be observed by the Bank’s administrators. In its presentation text, the new Operational Policy emphasized the consolidation of a new phase in BNDES intervention, stressing that, similar to other moments in history, the Bank was initiating a new chapter in fomenting Brazilian capitalism: “Over its history of more than 50 years, the actual content of these great objectives has been often revised. There is strong evidence that BNDES once again faces one of these historical moments, in which its strategic objectives must be redefined and updated (...). With regards to supporting the exploitation of new opportunities, the general speed of technological changes, associated to competition agility, imposes on the Brazilian economy rapid advances in relation to the generation and diffusion of innovation. The Bank’s support in this field will privilege the exploitation of possibilities for advancement (many times already foreseen by the companies) that could not be enjoyed during the quasi-stagnation period the Brazilian economy is now overcoming. These possibilities, up to now repressed, will be combined with many others still to be detected and exploited. These opportunities configure a new growth frontier, based on innovation and, therefore, completely synchronized with the Industrial, Technological and Foreign Trade Policy (PITCE) launched by the Development, Industry and Commerce Ministry in 2004. Some advance in innovation has undeniably been achieved by BNDES (for example, through Profarma). From now on, however, not only will innovation support not be restricted to technologically sophisticated industry segments, but will also be considered of maximum priority by BNDES”. BNDES, *Políticas Operacionais*, (2005), pp. 5-6.

⁵¹ Normally BNDES’s financial collaboration operations have the following cost composition: funding cost (TJLP rules) + agent’s spread + Bank’s operational cost.

of dispensing with real guarantees for loans up to R\$ 10 million was contemplated (therefore broadening Prosoft's initial limits).

Finally, still in 2008, also due to the new industrial policy (PDP), the range of legal tools was once again expanded. At that time, a specific funding operation for new companies was created (seed money). A fund called CRIATEC was formed with resources from BNDES (R\$ 80 million) and the Northeast Bank (R\$ 20 million), to fund companies at pre-start up phase.⁵² With the establishment of this fund, the scope of risk capital programs was extended, reaching also fairly incipient companies all around the country.⁵³ Table II below synthesizes on a time line the introduction of legal tools for innovation funding.

Table 2 Time line					
1991	1993	1996	1997	2005	2008
Beginning of activities as venture capitalist (CONTEC program)	Beginning of indirect participation. Formation of venture capital private companies	Beginning of the venture capital private fund participation program	Introduction of new contractual rules in fixed income (Prosoft Program).	Creation of credit lines and extension of the contractual rules introduced in 1997. Recovery of FUNTEC.	New credit lines. More flexible contractual rules. Extension of the funding programs with CRIATEC.
Elaborated by the author					

Therefore, as a result of a path initiated at the beginning of the 1990s, with an experimental program (CONTEC), BNDES has now a diversified portfolio of programs and lines to fund investments in product and process innovations. At present, its financial intervention can be effected not only *indirectly*, in which case its resources are used to set up an investment fund specialized in innovative

⁵² When setting up CRIATEC, BNDES, by means of a selection process, chose a private consortium formed by Antera Gestão de Recursos and Instituto da Inovação to manage the fund (a kind of general partner). This consortium was responsible for managing CRIATEC's financial policy, established by the Investment Committee's quotaholder. See <www.bndes.gov.br/programas/outros/criatec.asp>. For further details on CRIATEC, see also "COUTINHO and MATTOS (2008), *supra* note 5, pp. 31-32".

⁵³ The "seed money" sector is one of the risk capital market's biggest flaws. Not only in OECD countries, but also mainly in developing countries this type of resource encounters the greatest resistance amongst investors. This is due to the fact that budding companies present fragile economic capacity and consolidation level, imposing an even higher risk rate than other initial enterprises (start-up). In Brazil, this tendency is corroborated by the indexes presented by the *Brazilian Private Equity and Venture Capital census*, stating that of all risk capital phases, the "seed" phase is the one in greater need of resources: of 204 companies that received risk capital in Brazil during the census period, only 36, 11.8%, were in the seed money stage. Data presented by "CARVALHO, RIBEIRO and FURTADO, (2006), *supra* note 46, p. 35".

companies, but also *directly*, with financial operations made directly with the companies. The direct operations can be structured by means of equity sharing (variable income), as well as through credit contracts (fixed income), or via the non-refundable mode (FUNTEC). The table below synthesizes the operations that exist nowadays.

Table 3 Synoptic Table of BNDES's modes of participation	
Funding Modes	Instruments and programs
I) Non-refundable resources	FUNTEC
II) Credit to companies (fixed credit operations)	P, D & I Innovation/ Technological Innovation
	Production Innovation / Innovation Capital
	Sector programs: Prosoft, Profarma
III) Equity sharing	Direct participation of BNDS (via BNDESPAR) according to the lines (Technological Innovation and Innovation Capital) and programs (Prosoft, Profarma)
IV) Participation via funds	Emerging company funds
	Seed money funds – CRIATEC
Elaborated by the author	

Table 4 below presents the volume of disbursement of the Bank's lines and programs. The data are grouped by instrument and not by funding type (some instruments admit both funding types – variable income and fixed income).

Table 4 BNDES Disbursements (Values in US\$) ⁵⁴						
Year	Funtec	Criatec	P, D & I Innovation	Production Innovation	Profarma Innovation	Prosoft Company
1999	-	-	-	-	-	2.509.483,51
2000	-	-	-	-	-	7.455.500,44
2001	-	-	-	-	-	5.447.913,63
2002	-	-	-	-	-	10.193.828,42
2003	-	-	-	-	-	2.955.638,75
2004	-	-	-	-	-	3.120.365,92
2005	-	-	-	-	3.501.604,90	39.044.782,03
2006	1.607.261,74	-	-	3.268.346,08	2.655.967,32	30.569.028,30
2007	12.049.788,15	1.867.522,61	11.422.756,93	64.535.203,97	2.343.152,03	80.986.037,93
2008	35.351.746,72	3.828.421,36	15.858.030,93	27.603.355,28	3.966.936,68	172.141.542,46
TOTAL	49.008.796,62	5.695.943,97	27.280.787,86	95.406.885,32	12.467.660,93	354.424.121,39
Source: BNDES						

⁵⁴ Exchange rate: US\$ 1 is equivalent to R\$ 1, 7135 according to Brazilian Central Bank (Banco Central do Brasil) in October 16th 2009.

The following sections will present in greater detail the governance structures of the tools, indicating that the constitution of an interactive relationship of cooperation amongst the parties is common to all of them. Given the uncertainty involved in this type of financing, no relation of economic guidance is established between the parties, nor any bond based solely on antagonism, with reciprocal allocations of obligations and benefits. What they do is try to constitute, as much as possible, a cooperative collaboration with a horizontal sharing of risks and uncertainties, from the process of analysis and approval to the financial operation itself.

The following exposition does not follow the chronology of the tools' creation: it is organized by the increasing degree of complexity of the tool governance structure. The description starts with non-refundable contracts, followed by fixed income contracts, direct participation and finally indirect participation.

A. Contracts with Non-Refundable Resources: The Technological Fund

The resources of FUNTEC are destined for non-refundable operations and are operated within a governance structure which includes two agents, besides the Bank: the Technological Institutes and the intervening companies. The resources are solicited by the technological institutes (IT), which are non-profit legal entities dedicated to research and development of new products and processes. The objective of the funding is to foster the development of applied technology, capable of producing technical solutions to new demands presented by companies. In this type of contract, the Bank assumes 90% of the cost of the project presented by the IT, and the intervening company, associated to the IT, responds for the remaining 10% (except in the case of small companies).

In this type of contract there are no requirements for collaterals or any obligation to repay the Bank. The only obligation assumed by the beneficiaries is restricted to the fulfillment of the technological project: the parties involved commit solely to achieving the objective proposed to the Bank. According to FUNTEC regulations,⁵⁵ the areas covered by this modality are those with future potential, whose development solutions are not met by the present Brazilian entrepreneur environment. These areas are: (i) renewable energy sources (biomass and improved technology in hydroelectricity); (ii) environment (with focus in bio-digestion and biotechnological solutions); (iii) health (in particular,

⁵⁵ FUNTEC regulations are available at <http://www.bndes.gov.br/siteBNDES/bndes_pt/areas_de_Atualizacao/Inovacao/funtec.html>

bio-pharmacy, vaccines and new diagnostics); electronics (micro and nano technologies); (iv) new materials and (v) chemicals (especially new resins, plastics and fertilizers).

B. Fixed Income Financial Contracts: a Combination of Formal Rules and Informal Governance

Besides the non-refundable contracts, new rules were introduced in contracts related to fixed income operations. These alterations represented a change of paradigm in the Bank's financing procedures. Compared to standard fixed income contracts, the contracting rules for innovation present important modifications in the structure of the loans, and their formulation was based on two assumptions: (i) the companies that were being financed not always had a track record as they were new companies, and (ii) these companies tended not to have collaterals, which are usually required by the Bank as a condition for obtaining loans.⁵⁶ Due to such vicissitudes, the Bank tried out alternative ways of structuring operations:⁵⁷ instead of a track record, technicians began to weigh their financial decisions based on future prospects presented in the companies' business plans, the execution of which would be monitored by the Bank. Besides that, for loans up to R\$ 400.000⁵⁸, no collaterals would be required, only the personal surety of the company's controllers.

With the mitigation of the track record analysis and the exemption from presenting collaterals, the business plan presented by the company became the main criterion for financial analysis and decision. However, these are innovative enterprises whose business plans are subject to a margin of uncertainty, that is, not all results can be anticipated in detail. To address this problem, the contracts usually determine a gradual allocation of resources, subject to scrutiny of the

⁵⁴ BNDES rules state that, with rare exceptions, companies must present real guarantees to the value of 130% of the approved loan: "Art. 27 – O valor da garantia real deve corresponder, no mínimo, a 130% (cento e trinta por cento) do valor da dívida, exceto se regulamento específico estabelecer índice diverso para as operações por ele regidas". BNDES, *Resolução 665/87-Disposições Aplicáveis aos Contratos*, (1987), available at <http://www.bndes.gov.br/SiteBNDES/export/sites/default/bndes_pt/Galerias/Arquivos/produtos/download/disaplic.pdf>, accessed 15 October 2009.

⁵⁷ This description is based on interviews conducted on July 30 2009 with the following BNDES administrators: Helena Tenório, Planning Superintendent (responsible for the rules of lines and programs) and Maurício Neves, responsible for the software area.

⁵⁸ Currently this value is R\$ 10 million, which is equivalent to US\$ 5.84 million (considering a exchange rate of 1.71).

business plan execution, which occurs at periodical meetings between the bank administrators and the company representatives (a kind of meeting protocol).

Therefore, instead of elements of contractual guarantee of a discontinuous nature, this type of financing emphasizes ongoing monitoring of financed projects. This monitoring and meetings protocol allows the parties involved to discuss difficulties, mistakes and successes diagnosed in the execution of the respective business plan. Thus, an informal structure of contract governance is forged, based on a permanent interaction between the Bank and the company, which might even result in a revision of the activities initially programmed.

This margin for adaptation and revision of contractual objectives, though not formally stated in the adjustment clauses, is nevertheless a result of the contractual structure. In fact, BNDES contracts include two types of contractual obligations: (i) the financial and the (ii) non financial.⁵⁹ The former, for fixed income contracts, are formal and strict, identifying clearly what is considered contractual default: the lack of payment of the contracted debt. The latter, on the other hand, the non financial obligations, refer to the object of the contract and are more flexible than the financial clauses: their non-fulfillment, or fulfillment in a different way to what was initially agreed, may not be considered a contractual default⁶⁰. In other words, this dissociation between financial and non financial obligations allows the latter to be administered with certain degree of flexibility, without implying a breach of contract.

This division between two types of obligation is not a particularity of innovation contracts. In general, BNDES contracts present both forms of obligation. What is characteristic of innovation contracts is the importance given to this dissociation, through which great part of the uncertainty and lack of previous guarantees fades away in face of a permanent administration of the development of the business plan. Unlike a traditional sector, in which there is little difference in the administration of both obligations, in innovation financing the object of adjustment is less palpable and its realization requires a management that goes beyond the contractual clauses - the existence of two types of default favors the establishment of this governance (beyond the contract).

Therefore, in its attempt to replace *ex ante* risk allocation elements (such as collaterals and contractual fine details) with the monitoring of the business plan, BNDES has drawn on a combination of formal rules (regarding financial obligations) and informal governance (established during the administration of

⁵⁹ BNDES, 1987.

⁶⁰ Information obtained in an interview with Maurício Neves on July 30 2009.

non financial obligation). This resource seems to be similar to the one diagnosed by GILSON, SABEL & SCOTT in the innovation contracts made between some companies and their suppliers.⁶¹ In the work *Contracting for Innovation- vertical disintegration and interfirm collaboration* GILSON, SABEL & SCOTT⁶² analyze three types of contracts in different economic sectors such as machinery and equipment, software and pharmaceuticals (respectively, contracts made between Deere and Stanadyne; adjustments established between Apple and SCI and between Warner-Lambert and Lingard). The authors try to understand the specificity of these contracts, which deal with the supply of ultra-specific assets in an uncertain context, governed by permanent modifications due to constant innovations to the product made by Deere, Apple and Warner-Lambert.

In the three cases analyzed by GILSON, SABEL & SCOTT,⁶³ the contracts combined two types of clauses: (i) those typically synallagmatic, and (ii) those of governance, leading to informal corrections and combinations. The predictable elements of the contract, such as the delivery of well known products, the establishment of stages for new decisions, amongst others, are regulated in a formal manner, as in a conventional contract: fixed obligations and penalties are established for default. Beyond that, however, these contracts also present devices that constitute a real governance structure between the parties, allowing the formation of an interactive process of analysis, revision and decision making - adequate for the uncertain elements of the agreement. In synthesis, what GILSON, SABEL & SCOTT⁶⁴ suggest is that, due to uncertainty, the innovation contract combines formal rules for activities with some degree of predictability with an informal governance that addresses the needs of a routine of apprenticeship, monitoring and adjustment between the parties⁶⁵.

⁶¹ R. GILSON, C. SABEL and R. SCOTT, *Contracting for Innovation: vertical disintegration and interfirm collaboration*, 109, Columbia Law Review, 3, [2009], 458-494.

⁶² *Idem*

⁶³ *Ibidem*

⁶⁴ *Ibidem*

⁶⁵ Alongside typical clauses of a supply contract, Deere, for example, keeps a ranking program of its main suppliers, based on criteria of relationship between the company and its commercial partners. This is a disciplined and public program presenting successive phases of punctuation and promotion of supply companies. The type of supply relationship established by Deere varies according to the status of its suppliers in the punctuation and identification program: the selection of which supplier will make the ultra-specific assets of unpredictable results will depend on their position in the relationship ranking. (Stanadyne, for example, is classified at the highest level, identified as being broadly in tune with the strategies of Deere). In the case of Apple-SCI, besides the formal supply contract for products that both companies know well, there is the provision of an open clause, a manufacturing plan for new products: by contract, Apple is obliged to acquire goods during a period three-year period, but the details of the product are stipulated in a collaborative manner through a jointly-devised plan. In both contracts, the formal contractual rules

In the case of BNDES fixed income contracts, something similar occurs. There is an opening, though not contractually formalized, for a permanent collaboration between the Bank and the borrowing company, thus guaranteeing an informal protocol of agreements concerning strategies for the fulfillment of the business plan. As in the cases analyzed by GILSON, SABEL & SCOTT,⁶⁶ this informal management is a result of the actual contractual rules: it derives from the existence of two different types of obligations and also from the provision that the allocation of funds be conditioned to the monitoring of the plan's execution (which permits permanent scrutiny of the business plan).

C. Equity Investments: BNDES as a Venture Capitalist

Alternatively to structured operations by means of loan contracts with fixed income, financial collaboration by BNDES can also be guaranteed through equity investments in the beneficiary company. In this type of financing, the Bank's activity is similar to a venture capitalist, meaning that its participation in actively monitoring the company is expressive, cooperating towards the generation of value for the enterprise. Given that these companies are not yet established, the scrutiny of the bank's administrators is comparatively larger and more intense than with bigger companies situated in traditional sectors. This participation is, however, temporary: from the initial financing, the Bank establishes its disinvestment strategy, which will preferably happen through the capital market.

The enterprises targeted for this investment program normally suffer from two entrepreneurial difficulties: (i) from the internal point of view, the corporate governance of these firms is rather unprofessional and highly dependent on the administrative attributes of the original entrepreneur; (ii) from the external point of view, these companies have not yet established their commercial strategy and

are combined with dispositions which act as management structures, established to discipline the uncertain terms of the business. These management structures are not contingencies, but established from formal contracts, that is, they are programmed by contractual expedients which stimulate the establishment of collaborative relationships. In the case of Deere, the punctuation program is fomented by the long term contracts established for the supply of conventional products and which stimulate permanent relationships; in the case of Apple, the contract stipulates a decision making process for the production plan. The ensuing interactive collaboration provides the solution for two problems concerning uncertainties: (i) it promotes the proximity of the agents and therefore a mutual acknowledgement, which allows the companies to recognize their strategies and innovation capacities in a reciprocal manner and (ii) it discourages, due to the proximity, opportunistic conducts in either parties. "GILSON, SABLE & SCOTT (2009), *supra* note 61, 458-494".

⁶⁶ *Idem*

lack experience which would allow them to react permanently to alterations in market competition patterns⁶⁷. In comparison with companies borrowing resources through fixed income, companies receiving variable income loans present a smaller payment capacity: their investment thesis is usually more attractive than their current revenue performance. For this reason, there is a higher demand for risk sharing, beyond the expedients used with more established innovative companies. Technological uncertainties coupled with financial uncertainties lead to the structuring of an operation which relies on the establishment of a true partnership between Bank and company.

Formally, the formation of this partnership relies on two predominant types of securities: (i) debt securities convertible into stock, and (ii) preferred shares convertible into ordinary shares. According to Brazilian Public Company Law (Law 6.404/76), a corporation may emit debt securities (debentures) and equity securities (shares). Convertible debentures are very flexible debt securities which can be, at the convenience of the underwriter (in this case BNDES), converted into shares over time. The advantage of this procedure in this type of operation is to give the investor time to evaluate the convenience of becoming an effective partner in the company, at which point he will share the risks and benefits of his enterprise. Due to the uncertain nature of the business, prolonging this decision may be convenient to the investor. For this reason, in BNDES's pilot experiences as venture capitalist in the early 1990's (CONTEC), the convertible debenture was the modality employed by the Bank.⁶⁸

This type of vehicle, however, also presents a disadvantage: because it is formally a debt (up to the time of its conversion), it is registered in the account book as a liability, which restricts the company indebtedness capacity, limiting its ability to borrow short term resources (such working capital loans, leasing, bank loans, etc.) According to the case, this liability may compromise its growth capacity. Currently, with the knowledge accumulated by the Bank, both vehicles are used, depending on a cost-benefit assessment conducted for each individual operation, balancing the financial constraints *vis a vis* the risk and the trajectory of uncertainty. In any of the cases, upon becoming a partner the Bank's

⁶⁷ This description is based on an interview conducted on July 30 2009 with Fabio Sotelino, BNDES's Superintendant for Entrepreneur Capital (responsible for equity sharing in small and middle-sized companies).

⁶⁸ See "PINTO (1997), *supra* note 47, 21-38" and D. SANTOS, et al. *Fundos de Empresas Emergentes: novas perspectivas de capitalização para pequenas e médias empresas*, Revista do BNDES, s/n., pp. 12-13, available at <http://www.bndes.gov.br/conhecimento/revista/durval.pdf>, 12-13, accessed 10 October 2009.

participation is always minor, accumulating more or less 25% of the equity capital.⁶⁹

Despite its minor participation, the Bank's monitoring capacity is disproportionately high. This is supported by the Stockholder Agreement which rules the relations between investors and beneficiary companies. Through contractual clauses the Bank formally ensures an expressive participation in the administration of the company, which guarantees considerable political advantage in corporate decisions. Regarding this, the standard Stockholder Agreement for this type of financing combines three types of dispositions:⁷⁰ (i) previous consent by BNDES for certain company activities; (ii) participation in the Board of Directors (regardless of its corporate representation) and (iii) free access to corporate information. Previous consent by the Bank is required for many company decisions, such as: (i) equity alterations like the increase or reduction of equity capital; (ii) the realization of mergers and acquisitions; (iii) investment in areas other than the core business; (iv) concession and acquisition of technology, amongst other topics related to corporate administration. Participation in the Board of Directors and free access to corporate information allow a constant scrutiny of and cooperation in corporate decisions.

The routine of this scrutiny consists of monthly or bimonthly meetings between Bank representatives and company administrators.⁷¹ It is in this collective forum that corrective measures, paths and revisions of the investment and business plans are stipulated, to the extent that the role played by BNDES in equity sharing goes beyond that of mere financier: it also includes improvement of equity administration and cooperation towards the definition of competitive strategies.⁷² Furthermore, the standard Stockholder Agreement ensures the Bank's technical team free access to corporate information, including that of a

⁶⁹ Information taken from an interview conducted on July 30 2009 with Fabio Sotelino, Superintendant for Entrepreneur Capital (responsible for equity sharing in small and middle-sized companies).

⁷⁰ The Superintendence for Entrepreneur Capital provided a copy of the Stockholder Agreement for this research. The considerations which follow are based on this instrument.

⁷¹ Information taken from an interview conducted on July 30 2009 with Fabio Sotelino, Superintendant for Entrepreneur Capital.

⁷² BNDES's participation goes from the initial entrepreneurial moment, centered on the figure of the entrepreneur and his frequently personal and intuitive decision making process, to the consolidation of an administrative model with management rules, in which decisions are taken in collegiate bodies with the participation of investors and in many cases of independent advisors. Information taken from an interview conducted on July 30 2009 with Fabio Sotelino, Superintendant for Entrepreneur Capital.

strategic nature, which supports the Bank's participation in decisions concerning corporate issues:

Clause 6.1 The Controlling Quotaholders of the Controlling Shareholder, the Controlling Shareholders and the Corporation commit themselves before BNDESPAR to promote action to assure that the Corporation and its Affiliates implement the following directives and norms concerning its Administration:

XIII. to allow the technical team indicated by BNDESPAR, to be composed exclusively of personnel drawn from the BNDES system, free access to the premises of the Corporation and of its Affiliates, as well as provide information of any nature, juridical, financial, administrative, fiscal, technological or strategic, so that the team is able to develop their studies and diagnostics about the Corporation, the Affiliates or sectors in which they are active.

Along with the routine of corporate monitoring and scrutiny, the capacity of alienating its participation is one of the critical matters of the variable income loan. As with a venture capitalist, the objective of the Bank's investment is temporary: once the resources for the company's corporate and financial maturity are guaranteed, the investment is expected to be withdrawn. This is, however, a particularly delicate point due to the size of the Brazilian capital market. In this scenario, the option for disinvestment in the capital market is not a safe and predictable route, although it is acknowledged as a relevant strategy. Therefore, the Stockholder Agreement offers two types of procedures to allow disinvestment by the Bank: (i) the obligation of an IPO and (ii) the constitution of a redemption fund for an installment acquisition of the Bank's shares (formed by a fraction of the company's revenue, usually 30% of the profit).

The IPO is BNDES's preferred option of withdrawal. Firstly because it guarantees the return of its investment in market conditions, and secondly because, indirectly, it favors the development of the Brazilian capital market, which in turn expands its investment capacity in new innovative companies: due to the broader horizon of disinvestment in the future⁷³.

⁷³ Information taken from an interview conducted on July 30 2009 with Fabio Sotelino, Superintendant for Entrepreneur Capital. On the topic of IPOs, the standard Stockholders Agreement obliges the companies to open their capital in the stock market, or justify to the Bank the reasons for not doing so. "Clause 7.1. The controlling shareholders are obliged to provide by ____ 20____ the registers of the Corporation and of its public distribution of emission securities with the Securities Commission - CVM, the register of the negotiation of its securities in the Novo Mercado or BOVESPA Mais stock markets, instituted by the São Paulo Stock Exchange, or any other register necessary for opening the Corporation's equity capital, as well as

In the past few years, some innovative firms supported by the Bank have succeeded in guaranteeing disinvestment by IPOs at the most demanding market level of the Brazilian Stock Exchange, Novo Mercado. This has been the case of TOTVS (software sector), of BEMATECH (software sector) and LUPATECH (raw materials for the petroleum production chain), among others.⁷⁴

D. Indirect Participation: Investment Funds

In the investment funds program, the role of BNDES is even closer to that of other agents in the market. In this case, it is not only a question of establishing monitoring rules to collaborate in aggregating value to the company, making it competitive both financially and in business. In the funds program the Bank takes a step forward and develops relations directly with the private investors: the object of its partnership and collaboration is not only the borrowing company, but also the investing partners interested in forming a financial instrument for risk investments - an investment fund.

The legal structure for this private instrument of venture capital is partly similar to the US structure, which is characterized by a trilateral relationship formed by the following actors: (i) the investors (equivalent to the limited partners); (ii) the administrators (equivalent to the general partners) and (iii) the invested firms.⁷⁵ In the Brazilian structure, the legal form used for investment in risk capital is the investment fund (normative instruction 209/94 – CVM). Formally, it is a condominium in which the quotaholders act as investors and the administrators correspond to a general partner, responsible for the administration

the announcement of the initial public offering of the Corporation's emission securities. *Clause 7.1.3.* In case the Corporation's conditions at the time, or the circumstances of the capital market do not allow the realization of the capital opening stated in the previous clause, the Controlling Stockholders will submit their justification of such an impossibility in writing to BANESPAR. In the event of BANESPAR not accepting the justification, the non opening of capital will imply in the discontinuation of this contract." Besides the IPO and the redemption, there is also the possibility of carrying out a strategic sale of the Banks's equity to companies active in the same productive chain, such as clients or suppliers.

⁷⁴ For a description of these cases see "COUTINHO and MATTOS (2008), *supra* note 5, 27-29" and on LUPATECH see also "SCHAPIRO (2009) *supra* note 15, pp. 252-253."

⁷⁵ In the US risk market, this relationship is based on Limited Partnership (the investors figure as limited partners, and do not participate in the fund administration); investment decision, performance monitoring and the choice of disinvestment form and timing fall to the general partner, who effectively manages the financial instrument. On this see R. GILSON, *Engineering a Venture Capital Market: Lessons from the American Experience*, 55, Stanford Law Review, [2003], 2-52 and also W. SAHLMAN, *The Structure and Governance of Venture-Capital Organizations*, 27, Journal of Financial Economics, [1990], 473-521.

and the investment policy. Compared to the US model of Limited Partnership, however, there is a substantial difference in the governance of Brazilian funds: the funds usually have an active investment committee, in which the quotaholders, numerically superior to the administrator, can discuss investment options and their performance.⁷⁶

In this form of participation, BNDES acts as an investor, financing resources as a quotaholder of the fund, whose management is in the hands of a private administrator responsible for attracting resources and selecting their allocation. The decision on which fund will be financed by BNDES is a result of a selection process carried out by the Bank, in which administrators interested in these resources present their investment plans and governance rules, as well as their policy for remunerating administrators and quotaholders.

Once the vehicle is selected, the Bank allocates funds following an established payment chronogram, then takes on the role of investor, working together with the other fund quotaholders in the investment committee. The resources mobilized by the fund are allocated to companies through the acquisition of shares or convertible debentures. As with the variable income investments of BNDESpa, this funding ends with a disinvestment, on which occasion the fund administrator alienates his participations and remunerates the rest of the quotaholders (such as BNDESpa).

E. Overview of Legal Tools

The legal tools developed by BNDES to support decisions of investment in innovative companies constitute a diverse but convergent set. All the dispositions in this plural range of possibilities share a functional identity: the possibility of dynamic collaboration between public agent and private partners, whether a company or an investment fund. Relying on different substantive dispositions, the tools analyzed above allow the development of financing contracts open to the

⁷⁶ This figure of the administrative committee with active participation was created by BNDES itself when it began its fund program in the mid 1990's. Due to the pioneering character of this type of activity in Brazil, the Bank administrators were insecure about allocating public resources to a risk capital program whose managers had less market experience than their own employees at the Bank (who as stated had been working with capitalization resources since the decade of 1970). The active participation of the administrative committee has been characterized as a particularity of the Brazilian model of venture capital, even amongst vehicles which do not have BNDES participation. Information taken from an interview on July 30 2009 with Fabio Sotelino, Superintendant for Entrepreneur, see also CARVALHO, RIBEIRO and FURTADO (2006), *supra* note 46, pp. 101-106.

possibility of adapting and revising the terms initially proposed. It is as if all four types of tools (non refundable contracts, fixed income contracts, equity sharing, and investment funds) were situated on the same scale of rationality.

On this scale, the different levels relate to the degree of complexity used to combine the imperatives of stability with the demands of flexibility. In this context, the non refundable contracts, in which the beneficiary company has no financial obligations, are those which present the least complexity in governance structure. Following these are the fixed income contracts, which have an informal governance structure to handle obligations that are subject to possible course alterations. A level above on the scale comes equity sharing, whose flexibility to revisions and adaptations of the initial contractual terms is governed by formal government rules (corporate governance rules); and finally there are the investment funds, bearing a complex decision making structure with multiple financing agents.

Table 5 Scale of BNDES Legal Tools			
Non refundable contracts	Fixed income contracts	Equity sharing	Participation in investment funds
Less governance complexity (no financial obligations)	First level of complexity in governance structure (formal rules for financial obligations and informal administration)	Second level of complexity in governance structure (formal rules of administration, open to revisions)	Most complex level of governance structure (multilateral relations with investors and firms)
Elaborated by the author			

Compared to loans structured through contracts (non refundable or fixed income), financing effected through equity represents an increase in the complexity of partnership relationships. In this tool, the Bank is not merely a contractor but a partner in the enterprise, which imposes the constitution of corporate governance rules and the establishment of institutional forums for decision making, such as the Board of Directors. The constitution of the Board guarantees a formal space for collegiate decision making, investing the Bank with the power-duty to collaborate with the other partners in the company in defining strategies and formulating desired results, especially because these are beginning companies, not yet established in the market.

In this modality, there is yet an additional element to be considered: the relationship with the rest of the financial market. As the preferred mode of

disinvestment is the IPO, financing via equity sharing incorporates an adjustment to the expectations and procedures of the other market operators. At the limit, as a venture capitalist, the Bank seeks convergence with other financing agents, who may become future investors in the businesses of its portfolio. Therefore, its investment decisions allow for synchronization with the remaining operators in the capital market, making this a sort of diffuse partnership relation: not exclusively dedicated to a particular company, but seeking conciliation with the other agents of the financial system - potential partners.

The tool for a more complex collaboration is the participation of the Bank in private fund investments. In this case there is a triple decision-making structure: first of all there is the decision of which fund to invest in, which involves the capacity to select investment plans adequate to fomenting innovative enterprises. Following that is the governance of the fund itself, in which the Bank acts as an investor alongside other financial agents with similar powers. And lastly, there is the relation between the funds and the companies, which equally involves formulating governance rules and institutionalizing decision-making spaces. In this type of intervention, not only are simultaneous public-private partnership links established ((i) between the Bank and the fund; (ii) between the Bank and the rest of the quotaholders and (iii) between the fund and the company), but also its operational logic assumes the establishment of a diffuse partnership with the financial market. As observed in equity investments, the success of this tool relies on the establishment of a permanent relation between the Bank and the remaining private investors. At the limit, the attraction of resources and the formation of new funds require a capacity of intervention by BNDES in line with the practices and modes of operation recognized by the other financial agents.

Therefore, these are tools that, by means of different governance structures, are designed to allow financial contracts of a public Bank within a scenario of uncertainty. In common, they all have two characteristic attributes, in higher or lower degrees of complexity: (i) malleability to administrate the terms of agreement without necessarily compromising the financial return and sustainability of the Bank's programs; (ii) the absence of an *ex ante* risk allocation for all future events established between the Bank and the company. Between the simplest type and the most complex, the differences relate to two attributes: the formalization level of the malleability of the governance structure and the scope of the established partnership (for variable income operations they are projected for the whole of the financial market). Finally, as it will be stated below, they also have another characteristic: all of them embody a particular

arrangement between the Bank and the companies, one is convergent with this Brazilian hybrid model of development.

V. INTERVENTION BY GOVERNANCE: REVIEWING THE DEVELOPMENTAL OVERLAP AND ESTABLISHING HORIZONTAL PARTNERSHIPS BETWEEN STATE AND MARKET

Constituting a group of financing mechanisms, what do these tools reveal with respect to the rationality of the State's participation in financing the new Brazilian economy? In this section, the argument developed intends to suggest that, as a set, these tools make up a new parameter of State intervention. By means of its contractual and equity sharing tools, BNDES executes a type of regulatory intervention in the financial segment which allows it to foment investment in innovation without assuming at the same time a directive role in the Brazilian economy. Ultimately, it constitutes a different paradigm of State intervention, characterized by a less direct overlap than the one that prevailed between the development bank and governmental targets (during the industrialization process).

On the one hand, despite being pro-active in fomenting innovation, the role played by BNDES in this segment does not conform to a "top down" pattern of intervention, in which the Bank would hierarchically select sectors and strategic businesses, developing financial tools compatible with goals and objectives previously determined by the national development plans. On the other hand, the State, through its Development Bank, is undeniably a relevant actor in this segment. In other words, from the point of view of the institutional design, the State's performance in fomenting innovation goes beyond the mere role of guaranteeing stable and safe regulations for private investments. In the case under analysis, the State not only acts directly, but also contributes to promote the risk capital market, especially when participating in private investment funds. This mode of intervention, formed by the direct action of the State in the economy, open to the formation of partnerships and collaborations with private agents (on many levels), constitutes a differentiated type of public action. It therefore includes similarities and differences with both canons of the political economy of regulation which have alternated since the WW II: (i) the interpretation of market failures and (ii) the view of government failures.⁷⁷

⁷⁷ On this paradigms see H. CHANG, "The Economics and Politics of Regulation", in H. CHANG, *Globalization and Role of State* (New York: TWN, 2003), pp. 157-198 and also D. TRUBEK. *Developmental States and the Legal Order: Towards a New Political Economy of*

In common with the interpretations and strategies resulting from the literature on market failures is the recognition of the limitations of the Brazilian capital and credit market and the consequent need for public action to guarantee an increase in the volume of resources for the risk loans. To a certain extent, the literature on market failures, by recognizing the existence of maladjustments and irrationalities in the private allocation of funds, has legitimized an active role of the State in national economies, both in developed and developing countries.⁷⁸ In the latter, the State's action has been even more expressive, geared not only towards the regulation of preexisting markets, but also to constituting, in many cases, whole economic sectors which were absent in the economy.⁷⁹

This interpretation resulted in the constitution of active industrial policies dedicated to the creation of the respective national industrial bases, with special attention to the sector of infra-structure and heavy industry (such as raw materials and capital goods). These policies, destined to replace the range of imported products with nationally manufactured goods (import substitution policies), were in turn supported by a complex public bureaucracy formed by state companies, public banks and economic planning agents: BNDES is the result of this type of institutional arrangement.

In terms of innovation financing, similarities may be identified between the experiences of the decades of 1950 and 1970 and the current public activity in support of the *new economy*. In both the developmental phase and the current one, the State is diagnosed as being important to guarantee the financing of activities that show expressive market failures. In common, the infra structure activities, the introduction of new productive chains and now, the innovation strategies, share a high level of externalities in their investments, which are even more pronounced in less diversified economies such as the underdeveloped ones.⁸⁰ To some extent, therefore, the definition of new lines and programs by BNDES, this time viewing innovation, confirms the reasons and justifications which in other times governed the State's performance in conducting development processes - the correction of deficiencies in the Brazilian financial market.

Development and Law (Univ. of Wisconsin Legal Studies Research Paper No. 1075, 2008), pp. 29-32.

⁷⁸ "CHANG (2003), *supra* note 77, pp. 157-198".

⁷⁹ *Idem*

⁸⁰ D. RODRIK, "Industrial Policy for the Twenty First Century", in D. RODRIK, *One Economics, Many Recipes: globalization, institutions and economics growth* (New Jersey: Princeton University Press, 2007), 102-112.

It is further noted that, from the point of view of the State's role in the economy, this public intervention represents something more than the mere establishment of good rules, predictable and safe for the participation of private agents. In this sense, the constitution of a set of financial tools by the public Bank is in itself a sign of divergence from the orientations of the *Rule of Law* type, which prevailed in the developmental political economy of the 1990's.⁸¹ In financing innovations, the State still follows the execution of an induction agenda, entrusting one of its agents with the task of intervening directly to promote the economy. At the limit, the proposal disseminated by scholars, policy makers and multilateral agencies of reducing the presence of the State in the economy and strengthening the protection of property and the enforcement of contracts as the most appropriate means of leveraging the development of countries⁸² does not seem to have been strictly assimilated, with the maintenance of BNDES as a financial agent relevant to the Brazilian economy.

However, if it is true that the State continues to play a relevant role in financing the Brazilian economy, including an expressive participation in the industry of venture capital funds, its role in financing innovations does not follow the same perspective of the developmental period. In the first place, the new lines and programs have a horizontal character - neither the government nor the Bank's administration discreetly choose sectors or businesses. Even the sector programs, such as software and pharmaceuticals, do not aim at selecting winners (picking national champions). These programs equally present a horizontal profile, in the sense that all businesses in this segment may obtain financial resources. In second place, it is an intervention dedicated to promoting an activity - *innovation*- and not a specific segment of the economy. And finally, the financing of this *new economy* necessarily assumes an open-ended character: due to uncertainties, the outcome of public intervention cannot be established beforehand and therefore the tools employed are open to trajectory adjustments and revisions.

Therefore, it is a type of intervention less concerned with the stipulation of public incentives to achieve goals, deadlines and previously determined results. In the case in question, the Bank is committed to the constitution of a set of tools which, together, form an institutional arrangement guided towards supporting private innovative projects. Unlike what was observed in the developmental period, its objective is not to determine *ex ante* the profile of the national

⁸¹ D. TRUBEK, "The 'Rule of Law' in Development Assistance: past, present, and future", in D. TRUBEK and A. SANTOS, *The New Law and Development: a critical appraisal* (New York: Cambridge, 2006), pp. 81-93.

⁸² K. DAM, *The Law-Growth Nexus: the rule of law and economic development* (Washington D.C: Brookings Institution Press, 2006), pp. 13-25.

technological specialization, but to establish a process of interactive governance in which the objects pursued are stipulated by both the financier and the borrower.

This interactive governance, by the way, goes beyond the actual financial collaboration established between the parts. The formulation of programs, lines and tools has also included the participation of private agents. The history of the tools points in that direction: the current configuration is a consequence of pilot experiences, evaluations of obtained results and the consequent broadening of practices acknowledged as being successful. This was the case of equity sharing in emerging businesses, which, initiated with the pilot program CONTEC, was later on expanded to a wider range of businesses. Something similar happened in the formulation of Prosoft and the consequent definition of new contractual rules, which also took into account the demands presented by companies of the respective sector.

In the same manner, variable income programs present an equally relevant affinity between their activities and the expectations of the operators of the capital market that goes beyond the financial relationship between the Bank and the companies. Whether due to the need to pulverize financing channels by building mixed investment funds, or to guarantee disinvestment routes, the fact is that alignment with the capital market is important for the success of innovation programs. This justifies the use of tools recognized by financial agents and the incentive for the businesses in their portfolio to open their capital in the stock exchange.

In this sense, it is a style of intervention which not only draws on the recognition of market failures, but is also sensitive to diagnoses that stress the existence of limits for public regulation – particularly the presumption of the State's omniscience (government failures literature). Despite some exaggerations in the descriptions of vices of public action, understood by these authors as subject to imminent capture by rent-seeker groups,⁸³ there is a relevant point in this type of analysis: the skepticism as to the volume of information and the possibilities of intervention by the regulators. To a certain extent, by establishing communication links with private segments, to both build legal tools and structure financial relations, BNDES seems to share this diagnosis: the success of its role requires the comprehension of information drawn from the routines of the respective business sectors, as well as the establishment of partnerships with the private agents (especially the rest of the financial market).

⁸³ G. STIGLER, *The Theory of Economic Regulation*, The Bell Journal of Economics and Management Science, 2, [1971].

The balance of this intervention, therefore, points to a type of synthesis between the recognition of the public Bank's relevance before the weaknesses of the private financial market, and the perception of the limits of an exclusively State-controlled intervention. It is a model of State intervention, which lies half-way between the legacy of activism of the developmental State, and the identification of the State's limited capacity to establish and pursue, without collaboration from other actors, the socially desirable results. A type of compromise solution between State and market, leading to public intervention articulated with dynamics of the private sector.

This style of financial intervention by BNDES, less directive and more open to the demands of economic agents, has parallels in other institutional experiences which have been receiving the attention of different authors working with themes related to the participation of the State in the economy. Both in the systemic European tradition, as in the realist US line, some authors have converged in identifying a distinct rationality of State intervention: the reflexive or governance rationality.

In the European scene, TEUBNER⁸⁴ has for some time indicated the consolidation of a reflexive regulatory rationality in opposition to State intervention sustained by substantive parameters (characterized by the public pursuit of specific social and economic objectives). According to this approach, the complexity of social systems, materialized in their growing functional diversity, has led to a crisis of inadequacy in substantive public regulation: at times excessive, congealing the dynamics of social subsystems, at others impotent, incapable of offering the normative solutions it is called upon to provide. In reaction to these problems, which have led state intervention to a legitimization crisis, another type of regulatory action is supposedly being consolidated - the reflexive regulation: less directive and more adjusted to a horizontal relationship with the diverse social subsystems. In view of the asymmetry of information governing this type of relationship between the public agent and the diverse functional rationale of the private sector, the regulator's task would be to guarantee procedural indicators and normative parameters so that the social groups themselves establish the substantive terms of their self-regulation.⁸⁵ A type of intervention, therefore, more directed towards interaction between regulator and regulated agents and less committed to the pursuit of previously stipulated objectives.

⁸⁴ "TEUBNER (1983), *supra* note 20, pp. 250-257".

⁸⁵ "TEUBNER (1983), *supra* note 20, pp. 250-257".

A similar diagnosis stems from the realist US tradition, which has tried to situate the pattern of State intervention in the context of overcoming the New Deal. Equally marked by skepticism as to the omniscience and omnipotence of State intervention as a regulatory agent of the multiple social and economic spheres, the authors have tried to point out the formation of a governance intervention as opposed to the old dispositions of top down control and command. In *The Renew Deal: the fall of regulatory state and the rise of governance in contemporary legal thought*, Orly LOBEL⁸⁶, for example, identifies new elements in public regulation, led by the US federal agencies, such as: (i) the formation of partnerships; (ii) the possibility of private participation in public decisions; (iii) mutual collaboration; (iv) decentralization of decision making and (v) the employment of flexible, non exclusively coercive resources in public regulation (soft law). In this description, one of the roles played by the regulator is that of an orchestrator, that is, an agent that establishes and disseminates rules of behavior drawn from good practices adopted by social actors at local level. A style of public procedure open to particularities presented by the private segments.

Aligned with these analyses, the works of Charles SABEL, Dani RODRIK and Ricardo HAUSMANN⁸⁷ have equally called attention to the fact that successful experiences of public policies have relied on the efforts of experimentation and interactivity. Viewing the development process as a strategy for experimentation and discovery, whose results cannot be strictly established *ex ante* by policy makers, the authors postulate the role of inductor agent for State intervention. They show skepticism, however, as to the effectiveness of public interventions driven by a directive bias, harnessed to implementing goals and preliminarily established results.⁸⁸

⁸⁶ “LOBEL (2005), *supra* note 20, pp. 293-325”.

⁸⁷ R. HAUSMANN, D. RODRIK, and C. SABEL, *Reconfiguring Industrial Policy: A Framework with an Application to South Africa*, (2008), 1-22; available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1245702; C. SABEL, *Learning by Monitoring: The Institutions of Economic Development*, (Working Paper n. 102, MIT, 1993), 27-43, available at <http://www2.law.columbia.edu/sabel/papers.htm> and “RODRIK (2007), *supra* note 80, 99-119”.

⁸⁸ See C. SABEL, “Beyond Principal-Agent Governance: Experimentalist Organizations, Learning and Accountability”, in E. ENGELN and M. HO (eds.), *De Staat van de Democratie. Democratie voorbij de Staat*. WRR Verkenning 3 (Amsterdam: Amsterdam Press, 2004), pp. 27-43 available <http://www2.law.columbia.edu/sabel/papers/Sabel.definitief.doc> and also C. SABEL and S. REDDY, *Learning to Learn: Untying the Gordian Knot of Development Today* (Columbia Law and Economics Working Paper No. 308), 2003, 1-14, available at <http://www2.law.columbia.edu/sabel/papers.htm>.

Due to the contingency of and the need for a permanent revision of public objectives, in face of the dynamics of the markets and social actors, the success of the State role, argue the authors, depends on its capacity to go beyond the terms of a fixed and unidirectional relationship (from regulator to regulated). It means an adjustment between the public and private entity which is not limited to a relationship of the agent-principal type, in which the regulator hierarchically establishes Pigovian incentives to guarantee previously programmed private behaviors. As RODRIK points out, the success of public intervention lies in the capacity of establishing a permanent interaction between the policy formulators and the market agents:

The right image to carry in one's head is not of omniscient planners who can intervene with the first-best Pigovian subsidies to internalize any and all externalities, but of an interactive process of strategic cooperation between the private and public sectors that, on the one hand, serves to elicit information on business opportunities and, on the other hand, generates policy initiatives in response. It is impossible to specify the results of such a process *ex ante*: the point is to discover where action is needed and what type of action can bring forth the greatest response.⁸⁹

The role played by BNDES in financing innovations dialogues closely with these interpretation keys, especially with regard to three characteristics of its operation mode: (i) openness in formulating the agenda, (ii) the possibility of strategic interaction contained its tools, and (iii) the absence of previously defined results.

Firstly, the formulation of its mode of intervention results from a process of experimentation and institutional apprenticeship which allows space for dialogue with the private agents. Secondly, the governance structures employed in the course of the financial relations admit a continuous administration of the terms initially agreed on. In this sense it is open to collaborative interaction among the agents. The degree of interaction is in turn variable and, as noted, can be diffused throughout the whole financial system, especially in variable income operations in which there is a kind of alignment between the Bank's participation and the current practices of the financial environment. Finally, it is public action which, despite having purposes, does not select sector objectives or national champions beforehand.

Therefore, it consists of a state intervention which at the same time unites and surpasses both predominant visions, the developmental and the neo-liberal.

⁸⁹ "RODRIK (2007), *supra* note 80, 151".

Thus it would suggest evidences of a New Developmental State, at least concerning the financial performance of BNDES.⁹⁰

Table 6 Patterns of BNDES Intervention in the Brazilian Economy			
	New item on the agenda	Tools	Rationality
Developmental Stage (Target Plan) (1956-1961)	Infrastructure	Financial collaboration contracts with subsidies	Substantive intervention (result-oriented)
Developmental Stage (II PND) (1974-1979)	Heavy Industry (raw materials and capital goods)	Financial collaboration contracts with subsidies	Substantive intervention (result-oriented)
		Equity investments	
“Post- Developmental” Stage (1990-...)	Innovation	Non-refundable contracts	Intervention by governance (reflexive rationality)
		Fixed income agreement	
		Venture capital	
		Participation in private funds	
Elaborated by the author			

VI. CONCLUDING REMARKS

Starting out with the agenda, the types of legal tools used by BNDES, and seeking to extract from this set of instruments its regulatory rationality, this paper attempted to suggest that the financing of innovations represents a type of differentiated economic intervention. It is not a typical developmental action in which the role of the development bank is to substitute the private credit and capital market, and direct the productive profile of the economy. Nor is it action geared towards preserving the spontaneous conditions of market resource allocation.

Might it be a new developmental state? The scope of the analyzed program is limited and therefore it does not seem prudent, from this experience, to formulate a general judgment on the profile of the Brazilian State. Even so, restricting the analysis to the limits of the case study, it can be deduced from this investigation that a new type of induction action is in operation, supported by different tools and rationalities compared to BNDES's mode of operation in previous economic periods.

⁹⁰ "TRUBEK (2008), *supra* note 77, pp.29-32".

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