

Derivatives operations of corporations from emerging economies in the recent cycle¹

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Abstract

The aggravation of the international financial crisis, the appreciation of the US dollar and a high risk aversion during the second semester of 2008 led several productive companies from emerging economies to register enormous losses in the foreign exchange derivatives markets. This fact points to what has been termed the “financialization” of corporations and to their speculative dynamics in the environment of financial deregulation. This paper aims to relate this pattern of behavior with the crisis and to discuss some of the macroeconomic effects of the financial losses caused by speculation in the derivative markets. The text emphasizes the magnitude of the risks involved in these operations and it goes on to analyze the losses incurred in many non-financial companies from emerging economies. Finally, attention is drawn to the need to reconsider regulation and supervisory mechanisms.

Keywords: derivatives, speculation and corporations from emerging economies.

1. Introduction

The international financial crisis which was initiated in mid-2007 with the increase in the default rate of subprime mortgages in the United States gained a systemic dimension with the bankruptcy of the Lehman Brothers in September 2008. Its echoes have been subsequently felt in all corners of the globe, thus prompting successive public interventions aimed at ensuring the solvency of the banking system and at mitigating the recessive impact of the sudden credit crunch. It has, however, also renewed the discussion concerning the “financialized” character of operations conducted by productive companies, which have resorted to extremely complex instruments in the search for supplementary gains derived from financial leverage.

In this crisis, the search for high financial gain had very conspicuous consequences, both in what concerns the risks (and losses) to which corporations were exposed and in what regards the macroeconomic impacts which are a consequence of its magnitude in a context of pronounced risk aversion. The debate, though still in its beginnings, was initiated by the disclosure of the negative balances of many productive companies from emerging economies, stemming above all from derivatives operations in the foreign exchange market. As far as one can now see, this process has had an impact on corporations in Brazil, China, South Korea, India and Mexico. In these emerging economies, international banks are present to different degrees, and companies claim to have been tricked by them into signing asymmetrical derivatives contracts. In Brazil, national financial institutions have also taken part in the movement,

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as distinct from Mexico for example, where the banking system is controlled by international players.

This article seeks to evaluate the intertwining of financial derivatives operations, speculation and the current crisis in emerging economies. It comprises two sections, as well as an introduction and concluding remarks. The first section presents the concepts of hedge, speculation and arbitrage. This leads to an assessment of the potential risks posed by the financialized and speculative structure of corporations in their approach to derivatives. The second section focuses on the study of some cases of losses incurred by corporations operating in these markets, as well as its macroeconomic impact and its unfolding in emerging economies, especially regarding the impact on the exchange rate, the credit squeeze and the risk perception. In the concluding remarks, a few comments are made concerning the intensification of the process of “financialization” of the companies and the importance of new mechanisms of regulation and supervision for these markets.

2. Hedge, arbitrage, speculation and the derivatives markets

With the end of the Bretton Woods agreements and the greater volatility of interest and exchange rates, financial derivatives were created and multiplied with the initial purpose of hedging. However, the use of these mechanisms was not restricted to this purpose, becoming a privileged instrument of speculation, given the possibility it opens for high capital gains. It is thus necessary to distinguish the concepts of hedging, arbitrage and speculation within the context of derivatives markets, in which companies have leveraged their positions.

It is first of all imperative to define a derivative. According to Dodd and Griffith-Jones (2007, p. 13), “a derivative is a financial contract whose value is derived from an underlying asset or commodity price, an index, rate or event. They commonly go by names such as forward, future, option, and swap, and they are often embedded in hybrid or structured securities.” The defining trait of this set of derivatives is the negotiation in the present of the future value of an asset. In order for this to happen, there has to be an agreement between buyer and seller. For this reason, the derivatives markets are a zero sum game, in which what is gained by some agents corresponds exactly to what is lost by others, if one does not take transaction costs into account.

According to Guttman (2008, pp. 20-1), the derivatives instruments “helped to reduce the different kinds of risks associated with finance and also served as excellent tools for speculation.” Indeed, derivatives are high leverage mechanisms which allow multiplying both possible losses and gains in relation to the initial capital. In the derivatives markets, small initial margins or guarantee deposits enable the operation of vast sums. The results might be spectacular, thus becoming an additional factor for attracting speculators eager to see their initial investment multiply by many times, which would be virtually impossible if they operated in the spot markets. The other side of the coin is that potential losses can be theoretically unlimited in some of these operations and it is not always possible to measure them beforehand. An agent can thus be exposed to a very high degree of risk by taking on more positions in derivatives. The crux of the problem is thus not located in the derivatives positions, but rather in the conceptual differences between hedge and speculation. The micro and macroeconomic consequences of each of those are different and sometimes even opposed. Derivatives positions taken on as a means of hedging cannot amount to unbearable losses, whereas speculative positions can lead to unbearable losses and, depending on the profile and on the size of the agent, they can bring about a severe credit and trust crisis.

Nevertheless, this distinction is not always made, and some authors limit themselves to pointing out the importance of derivatives as a means of hedging. For instance, Saxena and Villar (2008) discuss the growing use of hedge instruments in the markets of emerging economies, emphasizing the importance of derivatives. “Hedging took a gigantic step forward with the development of derivative products in global financial markets. The growth in depth and breadth of these markets has made derivatives one of the most important instruments to trade risk in financial markets” (2008, p. 72). The authors, however, do not draw attention to the speculative use of derivatives in the operations of financial and non-financial agents. In spite of this, they point out that “the non-financial corporate sector has a relatively greater share of more complex and long-lived FX derivatives. There are many opportunities for the use of FX derivatives to increase among the corporate non-financial sector in many EMEs. However, even in advanced economies the corporate non-financial sector does not hedge a great deal of the risks in their balance sheet in the derivatives market” (2008, p. 77).

It is thus important to clearly distinguish between the concepts of hedge and speculation in financial markets that make ample use of derivatives. Distinguishing between a hedging and a speculative operation in the financial derivatives markets is not an easy task and it has been giving rise to different interpretations. Before the creation and the development of the financial derivatives markets, the speculator of financial assets was distinguished from the non-speculator essentially by the intentions which guided his operations and by the length of time during which he kept the asset in his portfolio. In the absence of financial derivatives, speculation was defined by the relatively short term for which a paper was kept in the portfolio and by the expectation of making fast capital gains, as opposed to the investor who would keep the paper for a longer term and who would be interested in receiving dividends, this being a typically non-speculative attitude.

Working (1962), regarded as one of the most important theoreticians of these markets and the pioneer in their study, was the first to point out, based on quantitative studies, that hedging decisions are, in practice, taken for reasons other than risk aversion, mainly to make money or not to lose it:

Surprisingly, perhaps, quantitative studies contributed more to the understanding of hedging than interviews about the motivations of operations. Particularly worth mentioning are the studies about the maintenance of insured stocks and about market carrying costs, which showed that the majority of hedging activities aimed at making profit and not only at avoiding risk.

The search for financial gain as a characteristic of hedging operations implies that decisions are mainly taken in relation to price expectations, thus causing these operations to actually be so close to speculation as it is commonly defined that it becomes difficult to distinguish the two activities. A few economists (Plihon, 1995, and Bourguinat, 1995) go as far as defending the idea that the speculative spirit became so prominent that the boundaries that used to separate speculation from arbitrage and hedging simply disappeared without leaving any traces.

However, the analytical distinction between these different categories is of considerable importance for the analysis of the markets of financial assets and their derivatives given their completely different macroeconomic consequences. As will be later shown, hedging and arbitrage cannot by definition result in catastrophic losses, whereas speculation is able to bring about unsustainable losses, bankruptcy and, depending on the profile of the affected agents, systemic risks.

To establish this distinction, Farhi (1999, pp. 94-5) takes the definition of hedging as a starting point:

The operations of risk coverage (hedge) fundamentally consist of assuming for a future point of time the opposite position to the one assumed in the spot market. (...) both the industrial who holds a debt in foreign currency and buys foreign exchange contracts in the future market or purchases call options, and the investor who needs to have a sum of money at a certain date and buys contracts of value indexes are performing a buy hedge, although their positions in the spot market are different in the moment of the operations.

In its turn, speculation can be seen as the “liquid positions, long or short, in a market of financial assets (be it a spot or a derivatives market) without hedging for an opposite position in the market with another temporality for the same asset or for a correlated asset.” After the spread of the derivatives markets, extending through an ample variety of assets, “it is the fact that positions are kept liquid, with no hedging by an opposite position in another temporality and in the same asset or in a related asset that characterizes them as speculative. And not the fact that they result from an expectation concerning prices, since such an expectation permeates all kinds of operations in the current financial markets” (Farhi, 1999, p. 104).

The amplitude of the derivatives markets, associated with some of the contemporary styles of financial management (especially some kinds of investment funds and administered portfolios), brings up another issue of significant macroeconomic consequences. This is the possibility of establishing different degrees of speculation which vary in direct relation to the degree of leverage of the portfolios. In the definition above, all portfolios composed of financial assets not hedged by an opposite position in a market of another temporality are speculative portfolios. However, a portfolio with investments up to the limit of its equities will be “less” speculative than a portfolio leveraged several times the value of its equities. The maximum risk of the former is limited to its capital, whereas that of the latter cannot be dimensioned beforehand and might amount to a multiple of the total assets.

In addition, the concept of arbitrage must be introduced into the discussion. There are many modalities of arbitrage operations, whose purpose is to make capital gains, benefiting from distortions in the price relations. They basically consist of two opposite positions, involving either the same asset in distinct temporalities or the realization of the operation with different derivatives in different financial markets or with different assets with a degree of real correlation between the movements of their prices. The arbitrage operations have contributed to making financial markets more intricately connected and interdependent. Through them, eventual disarrangements in specific markets can spread quickly to others.

It is precisely as a result of arbitrage that derivatives markets associated with foreign exchange rates, which proliferated with the advance of financial globalization, came to exert a decisive influence on the process of determining the price of the different foreign currencies negotiated in the global foreign exchange markets (dollar, mark/euro, yen, pound sterling, Swiss franc). This is due to the characteristics of these markets, especially to the high sums negotiated – and thus to their greater liquidity as compared to spot markets –, as well as to their transparency when negotiated in the organized markets. This influence is also observed in some emerging economies, of which Brazil should be singled out because of the existence of liquid and deep derivatives markets as well as because of its large degree of financial openness, allowing foreign investors to access these markets and creating links with the offshore foreign exchange derivatives market. In the emerging economies that share these characteristics, negotiations involving these financial instruments play a major role in the evolution of the nominal exchange rate. The arbitrage operations in time constitute the main mechanism of transmission between the future and the spot exchange rate.

Through these operations, banks and fund managers seek to derive profit from the differences in the exchange rates in the very short term and in their respective interest rates.

It ought to be retained from this discussion that, in the process of “financialization”, companies, which were traditionally productive, became increasingly financial, envisaging, among other activities, the possibility of non-operational gain through these instruments beyond what would be safe to avoid the volatility of prices. That is to say that, by resorting to the high leverage made possible by the very existence of derivatives – by means of which one can purchase in the future an asset one does not wish to receive and short sell another asset one does not have beforehand –, companies did not restrict themselves to hedge. They speculated by believing that an asset would behave in the future in a certain way without having any sort of collateral.

3. International financial crisis: the financial losses of productive companies

The aggravation of the international financial crisis in the second semester of 2008 – a crisis originated with subprime mortgages and spread by means of portfolios of “toxic” assets which had been purchased by numerous agents such as investment banks, insurance companies, mortgage companies and municipalities, among others – rendered the positions of leveraged productive companies “transparent”,⁴ as it intensified the volatility of the assets prices. Aggravated after the bankruptcy of the American investment bank Lehman Brothers, the crisis promoted a steep appreciation of the dollar in relation to other currencies. This appreciation was however much more pronounced in the emerging economies. Directly hit by a new sudden stop of capital flows, the assets prices and the exchange rates of these economies became important targets in the general movement of global deleverage and of the investors’ “flight to quality”.

In this context, major financial losses incurred by important companies from emerging economies in positions of foreign exchange derivatives markets were disclosed. They had made operations with high sums in these markets, counting that the national currency would not lose value against the dollar. This decision was apparently made in the first semester of 2008, when the dollar suffered a strong devaluation against the other currencies, thus contributing to the increase in the commodities international prices, expressed in dollars. However, the deepening of the crisis generated marked decreases in the commodities prices and a new tendency of international appreciation of the dollar. It was at this point that the companies’ losses, incurred by speculative moves, came to public knowledge.

It should be noted that many of these companies were exporting companies, those that more severely suffer from an appreciation of the exchange rate of their national currencies. From a microeconomic perspective, it made sense for these

⁴ From a given moment on, public traded companies had to disclose their losses. Since these were usually “out of balance” operations, they were little transparent. Even for public traded companies, whose annual reports are published, there were no control and regulations required to disclose the results of such operations. After these losses were disclosed, new reporting rules were adopted in Brazil, in accordance with recommendations of the Securities Commission (Comissão de Valores Mobiliários, CVM). Among these recommendations, one should note the one dealing with financial instruments, including anything from exotic derivatives to any receivable (Valenti, Jan. 2009). Deliberation 550 of the CVM, announced after the Sadia and Aracruz cases were disclosed, detailed how derivatives positions were to be reported by companies as well as suggested the presentation of a sensitivity analysis framework detailing the likelihood of gains and losses in three possible scenarios. According to the new regulation, passed in December 2008, the inclusion of this framework was no longer facultative, as in the third quarter report, but rather mandatory as from the annual report of 2008 (Valenti and Fregoni, Jan. 2009).

companies to seek hedging against this appreciation. However, the high sums of their operations, much superior to the volumes of their exports, defined their speculative position and, in the second semester of 2008, had macroeconomic effects, as they contributed to aggravate the depreciation of the exchange rate, among other factors. A report of the bank HSBC on Latin America (2009, p. 7) emphasizes the extension and the seriousness of this impact:

Growth forecasts were only revised downward in a meaningful way when the failure of the Lehman Brothers in mid-September made it clear that the US crisis was becoming global and the international banking system was much more vulnerable than originally thought. But it wasn't really until the corporate sector in Mexico, Brazil, and a few other Latin American countries forced a major weakening in currencies as a result of overleveraged currency derivatives in October that we all realized how truly global the crisis was going to be, with a depth and reach much beyond previous estimates.

In this case, the difference between hedge and speculation takes on a quantitative character: in this operation, companies would be hedging up to the estimated amount of their exports over that period and they would be speculating by the amount that surpassed these exports. The IMF report (2008), though emphasizing the use of financial derivatives for hedging against foreign exchange risk,⁵ also points to its speculative use, usually “out of balance”, referring to the losses incurred by Brazilian and Mexican companies as a result of the depreciation of the national currencies.⁶

In the case of the Brazilian companies, it is important to point out that part of these contracts was signed in the offshore over-the-counter market, making it impossible to estimate their true value. Those that were signed in the Brazilian market could have been made in the Brazilian Mercantile and Futures Exchange (BM&F) or, in the case of over-the-counter operations, they could have been registered in Cetip.⁷ Chart 1 shows clearly that the participation of non-financial legal entities in the future exchange market of BM&F has been very low, which strengthens the hypothesis that the operations between companies and banks were mainly performed in the over-the-counter market.

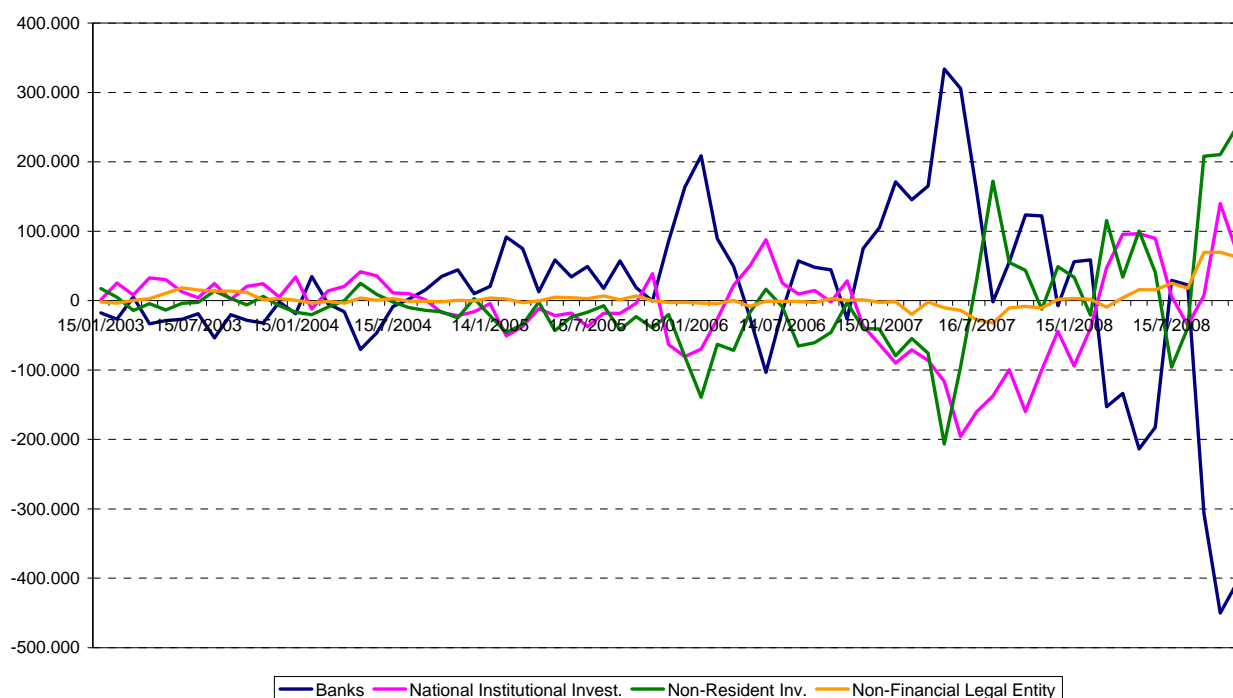
⁵ “One important way firms may have cut the exposure to currency risk has been the growing reliance on financial derivatives to hedge currency risk” (IMF, 2008, p. 55).

⁶ “There is the possibility that off-balance-sheet activities increase the risk exposure, when not used to hedge but to speculate. Very recently, some firms in Brazil and Mexico have incurred significant losses on foreign currency derivative positions when the exchange rate depreciated in October” (IMF, 2008, p. 56).

⁷ Created by financial institutions and the Brazilian Central Bank, Cetip S.A. – Organized Counter of Assets and Derivatives – initiated its operations in 1986. It is an association that administers organized over-the-counter markets, i.e. environments for trading and registering securities, public and private fixed income bonds and over-the-counter derivatives. It is actually an important clearinghouse for the entire financial system, in the terms defined by the legislation of the Brazilian Settlement System (*Sistema Brasileiro de Pagamentos, SBP*, Act 10.214), responsible for the custody of assets and contracts, for the register of over-the-counter transactions, for the processing of financial liquidity and for offering the market an electronic platform (CetipNET) for online negotiations.

Chart 1. Position of the participants in the forward foreign exchange market in US\$ 50,000.00 contracts

Forward foreign exchange market 2003/2008



Source: Prepared by the authors, based on BM&F data.

Indeed, because of the dispositions of the Brazilian legislation, over-the-counter operations have to be registered and are therefore less opaque than in the international market. Prates & Farhi (2008) point out that Cetip data (Table 1) show the existence, in October 29, 2008, of US\$ 94 billion in positions of non-deliverable forward contracts between the market agents and their customers. The table also makes it clear that there were two periods of pronounced increase in the positions: the first in late 2005 and in 2006, and the second as from late 2007, when the international financial crisis had already broken out, aggravating after August 2008.

It is important to emphasize that the data published by Cetip have many specific features. The first of them is that, although the total amount of the operations is known, it is impossible to determine, based on these data, whether each agent is long or short and therefore to identify their net position. The second feature concerns the greater complexity of liquidation before the maturity of the over-the-counter derivatives operations in relation to those taking place in organized markets. Contrarily to the latter, in which it is enough to make the opposite operation for the original position to be considered liquidated and no longer appear as open position, liquidations in over-the-counter markets usually involve an operation which is identical to the original, but with “opposite signs”. These over-the-counter operations are thus registered twice, the first time because of the original position and the second because of the anticipated liquidation until the maturity of the contract. Existing data do not allow us to estimate what the proportion of these operations of anticipated liquidation is. Finally, changes made in May 2009 in the format of register by Cetip showed that the operations were not clearly registered and that, in many cases, the declared values were underestimated (Lucchesi, May 2009).

Table 1. Operations with foreign exchange derivatives in the over-the-counter market

Non-deliverable forward contracts Stock – US Dollars Market – Client	
Date	Contracts Amount (US\$)
03/30/2005	11,920,546,922.39
06/30/2005	11,474,767,753.79
09/30/2005	12,906,739,323.58
12/30/2005	20,132,756,958.96
03/31/2006	23,474,088,026.69
06/30/2006	28,776,493,602.94
09/29/2006	32,176,836,912.64
12/29/2006	30,076,180,458.56
03/30/2007	30,020,028,968.60
06/29/2007	37,509,893,619.81
09/28/2007	42,983,701,780.35
12/28/2007	48,944,903,336.69
03/31/2008	57,392,717,048.35
06/30/2008	54,072,843,514.46
09/30/2008	86,132,477,590.63
10/29/2008	94,715,855,151.75

Source: Cetip.

Table 2 shows the losses with derivatives incurred by some of the major companies in emerging economies until October 14, 2008, as a result of the dollar appreciation. Many of them are Brazilian or Mexican. Some are also from China⁸ and from Hong Kong.⁹ In many cases, the losses were above US\$ 1 billion. Furthermore, it can be seen that the branches of the listed firms are several, suggesting that the use of derivatives instruments beyond the hedge of exporting companies was a generalized practice, i.e. it characterized the behavior of numerous corporations from different sectors. In Brazil, special note should be taken of Aracruz, Votorantim Group and Vicunha Têxtil (the latter absent from the table), besides some middle-sized companies, private companies and TAM.¹⁰

⁸ A public Chinese energy company, Shenzhen Nanshan Power, had derivatives contracts for oil, but the Chinese securities regulator had the company cancel these contracts, given the company's exposure to losses, in case the price of oil kept falling. In this case, it is worthwhile noting the China Securities Regulatory Commission's (CSRC) warning that Chinese companies are only allowed to make derivatives operations abroad to hedge their physical position and that speculation is forbidden (Andelini, Oct. 2008). This differed somehow from the Brazilian recommendations and regulations, since there was no actual control of the positions and many companies made transactions with foreign banks abroad in over-the-counter markets, which made it impossible to estimate the total risk.

⁹ For a discussion concerning the size of securities and derivatives markets in Asia, especially during the crisis, see Asia Bond Monitor (2007, 2008 and 2009).

¹⁰ Differently from most companies, TAM registered a R\$ 301.5 million loss in the third quarter of 2008, of which R\$ 268.3 million correspond to losses with fuel hedge. The company had "protected 50% of its fuel consumption at US\$ 110 per barrel, but the quotation of the barrel closed at US\$ 104 for that quarter" (Campassi, Nov. 2008). At the end of 2008, the barrel reached US\$ 43, which increased the company's losses on hedging to R\$ 919 million in the fourth quarter (Campassi and Camarotto, Apr. 2009).

Table 2. Losses with derivatives incurred by companies as a result of the appreciation of the dollar

Company	Country	Sector	Losses (US\$ million)
Citic Pacific	Hong Kong	Infrastructure	-2,400
Controladora Comercial Mexicana	Mexico	Retail	-2,200
Aracruz	Brazil	Paper/Cellulose	-2,130
Votorantim Group	Brazil	Diversified	-1,040
Cemex	Mexico	Cement	-711
Gruma	Mexico	Foods made of corn	-684
China Cosco Holdings Co.	China	Shipbuilding	-577
Air China Ltd.	China	Airline	-450*
Sadia	Brazil	Processed food	-360
Alfa	Mexico	Diversified	-273
Vitro	Mexico	Glass	-227

Source: Prepared by the authors, based on Regalado and Lyons (Oct. 2008), Caminada and Price (Dec. 2008), Mavin (Dec. 2008), Randewich (Oct. 2008) and Diaz (Jan. 2009).

* Losses resulting from hedging contracts for fuel.

Note: not all losses are accounted for. Obviously, many companies are not listed and some derivatives positions are still open.

One of the most serious cases was that of Controladora Comercial Mexicana, the third largest retailer in Mexico, which had to file a petition for reorganization under the bankruptcy law when it could not pay US\$ 1,4 billion to the banks with which it had derivatives contracts. It is worth noting that the Mexican banking system is controlled by large international financial institutions, as Citigroup, BBVA, Santander, HSBC and Scotiabank. One just does not know for sure which of them sold the volatile derivatives to the companies (Randewich, Oct. 2008). Other Mexican conglomerates such as Cemex, Gruma, Alfa and Vitro also suffered significant losses with foreign exchange derivatives by believing in the continuity of the appreciation of the peso in relation to the dollar.¹¹

Although not figuring in the table, many South Korean companies,¹² such as PSM Inc. and Taesan LCD Co. – the latter having petitioned for reorganization in September 2008 following losses caused by the belief in the appreciation of the won –, suffered losses by operating the so-called “knock-in knock-out” (KIKO) foreign exchange option,¹³ a derivative for hedging against the appreciation of the local

¹¹ See, for instance, Thomson (Oct. 2008).

¹² Details on South Korean capital flows, including what concerns the pressure exerted by derivatives operations for the appreciation of the won before the crisis (pp. 16-7), can be found in Kim and Yang (2008).

¹³ According to the International Swaps and Derivatives Association (ISDA, 2009; Noyes, 2009), KIKO contracts refer to foreign exchange options between the dollar and the won with two barriers: “In 2007, many Korean export companies entered into KIKO trades to protect themselves against the threat of an appreciating won reducing their profits on their exports. To reduce the upfront hedging costs, Korean corporations purchased won call options and sold won put options, frequently with knock-out features to further reduce hedging costs. The Korean won depreciated significantly in 2008 against the US dollar, exposing the KIKO buyers to big losses on the won put options which they sold.” Norris (Apr. 2009) also points out some aspects of this modality of option: “that product combined a ‘knock-in’ option that would take effect only if there were a big move in currency prices, and a ‘knock-out’ option that would vanish if that big move took place. The companies bought call options, allowing them to buy the won cheaply, but gave up the right to buy won if the won fell too far. They sold put options, which would force them to buy

currency in relation to the dollar. This option, commonly resorted to by the South Korean exporters, allowed the firm to sell dollars at a fixed won-dollar exchange rate in case the won fluctuated within a range preset in the contract. However, if the value of the won fell below the range, they would have to sell dollars below the market price, thus incurring enormous losses.¹⁴ According to Norris (Apr. 2009), “in 2006 and 2007, when these contracts were being sold, the dollar was steadily falling against most Asian currencies, including the won, and that was the risk companies were worried about. In 2008 and into this year, the won collapsed, going from under 1,000 to the dollar to more than 1,500 at the peak early last month.” More than 520 small and medium-sized exporter companies which had purchased KIKO options were on the verge of insolvency. Many others could face the same situation in the first semester of 2009, if the weakening of the local currency was not reverted and if there was no capital injection into the firms (Jong-Heon, Nov. 2008). As a result, many firms disputed in Court the derivatives contracts, and the preliminary decisions taken by the Courts in favor of the companies raised much polemic.¹⁵

India was also among the emerging economies in which losses were of a large scale. In this country, losses were estimated between US\$ 3 billion and US\$ 3.5 billion in March 2008. Small and middle-sized companies accounted for about 25% of the total amount. *Business Standard* (Jun. 2008) mentions, as examples of companies which had a share in these losses, Axis Bank (6.73 billion rupees), KPIT Cummins¹⁶ (893 million rupees) and Zee Entertainment (115 million rupees). It should be emphasized that the Indian cases here mentioned predate the aggravation of the recent international financial crisis in the second semester of 2008.

won, but only if the currency took a big fall. To make the derivatives even cheaper up front — and more risky in the long run — companies often sold two or three times as many put options as they bought call options.”

¹⁴ Other traits of ‘knock-in’ and ‘knock-out’ options can be found in Santos (1998). In general, they are called barrier options, which exist or not depending on the strike price reaching a certain value – the barrier.

¹⁵ Rocha (Feb. 2009) mentions the Court decision of the Seoul district in South Korea, which decided to annul the foreign exchange hedge contracts of two of the country’s exporting companies – DS LCD and MonAmi – with Standard Chartered Bank, given the asymmetry of the relation between the bank and the companies and the fact that “such contracts can be claimed at the time of liquidation if the currency variations keep within a reasonable spectrum, which would not have happened with the steep appreciation of the dollar.” Concerning these legal decisions in South Korea involving KIKO options, ISDA voiced its concern that “the Court has set undesirable legal precedents that may harm not only the derivatives industry in Korea but also the country’s financial stability” (ISDA, 2009; Noyes, 2009). According to the association, on March 10, 2009, there were more than 330 pending cases in Justice. In eleven cases, the decision had already been taken, and in four of them the Court had granted the companies the temporary right to suspend the effect of the KIKO contracts pending the final verdict. Norris (Apr. 2009) also points out that the bank’s mistake was to make contracts that could inflict enormous losses on their clients, which would therefore be unable to pay their debts. They should have found a way to limit the losses in the contract, but this “would have called attention to just how large the losses could be.”

¹⁶ It is curious that the company’s website still makes a reference to Lehman Brothers as witness of a model of (little) exemplary business: “A relationship-based and vertical focused business model (Focus on two verticals: Manufacturing & Diversified Financial Services) has helped us grow at a fast pace with top line revenue growth of 10x and increase in market capitalization of 15x over the last 5 years. Our 95 plus active global clients and strategic partnerships with some of the largest & renowned players in their respective areas, Cummins & Cargill (Manufacturing) and Lehman Brothers (Financial Services), are a testimony to our business model” (<http://www.kpiticummins.com/corporate/profile.htm> - accessed on: 12/28/2008).

Some Brazilian cases are worth of brief comments.¹⁷ Sadia, for instance, disclosed a R\$ 777.4 million¹⁸ loss with derivatives instruments in the third quarter of 2008. Most of Sadia's losses were the result of speculative foreign exchange operations and a smaller amount resulted from applications in Lehman Brothers' securities (Barbieri, Oct. 2008). The company's short position in dollars reached US\$ 8.4 billion. The portion of operations with a 12-month term that were liquidated in advance resulted in a R\$ 544.5 million loss. The overall loss with the crisis, in the third quarter of 2008, was R\$ 1.2 billion, all adjustments in the cashbook taken into account (Cruz and Valenti, Oct. 2008).¹⁹ Derivatives were responsible for R\$ 2 billion of the total financial expenditure in the fourth quarter of 2008 and for R\$ 2.6 billion in the year, of which R\$ 706 million concern settled contracts, whereas R\$ 1.9 billion would be paid until September 2009²⁰ (Valenti and Rocha, Mar. 2009).

Aracruz, in its turn, which, among the Brazilian companies, was one of the most exposed to the risk of derivatives operations, set its losses at US\$ 2.13 billion when liquidating 97% of its positions.²¹ After the company's proposal to pay its debt in the course of fifteen years was rejected by the group of creditor banks – including Itaú BBA, Santander, Merrill Lynch, JP Morgan, Citi, Goldman Sachs, Deutsche Bank, Calyon, BNP Paribas, ING and Barclays (Adachi, Nov. 2008b) – and a new round of negotiations took place, an agreement was signed for the settlement of the debt. The period for settlement was fixed at nine years with increasing interests and six months of grace period (Adachi, Jan. 2009). The loss of R\$ 4.2 billion with foreign exchange operations in 2008²² contributed to rise the company's debt from R\$ 3.1 billion to R\$ 9.7 billion (Valenti, Apr. 2009a).

One should also note the losses of Votorantim Group, which amounted R\$ 2.2 billion and were therefore smaller than those of Aracruz. VCP's (Votorantim Cellulose and Paper) R\$ 970 million loss in the fourth quarter of 2008 was the result of expenditure with derivatives, dollarized debts and also equity concerning the merger with Aracruz (*Valor Econômico*, Apr. 2009). Ajinomoto's losses in Brazil at the closure

¹⁷ Many companies which had to resubmit data for the third quarter of 2008 at CVM's request, detailing their derivatives contracts, such as Lojas Americanas, Klabin, São Martinho, Inpar and Alpargatas, reported that they resorted to such financial instruments only for protection, i.e. hedging. Marfrig, Vigor, Abyara, Cesp, CSN and VCP were also notified to correct their balance sheets (Vieira and Fregoni, Jan. 2009).

¹⁸ Due to floating exchange rate, it is very difficult to translate with accuracy these amounts in American dollars. For comparison purposes, we can assume that, on average at that time, R\$ 2 = US\$ 1 [T.N.].

¹⁹ It is worth noting that, on September 30, 2008, after a significant portion of its positions had been liquidated, Sadia still had US\$ 6.37 billion of short positions in dollar. Since its hedging amounted to US\$ 4 billion, its net short position amounted to US\$ 2.37 billion, although the long positions had a shorter deadline, making it necessary to renovate them many times and indicating the imperfection of the hedging system (Adachi, Oct. 2008). In December 2008, the company's exposure to foreign exchange variation with open contracts was reduced to US\$ 678 million, the equivalent of less than three months of export (Barbieri, Dec. 2008).

²⁰ A significant portion of the deadlines for derivatives contracts is concentrated in the third quarter of 2009, since the lifetime of the operation is generally of 12 months and a large operation of US\$ 1.4 billion was made with Barclays on September 10, 2008, five days before Lehman Brothers' bankruptcy was announced. Besides, between January and September 2008, Sadia made 133 derivatives operations of the sort that the commitment is doubled in the event of losses, but not of gain (Valenti, Apr. 2009b).

²¹ On October 9, 2008, the firm's credit rating was marked down from BBB to BB+ by risk rating agency Fitch, below the level of investment grade (Reis, Sciacio and Santaella, 2008). It is however worthwhile pointing out that, after the events brought about by the following crisis, the reliability of these risk rating agencies has deteriorated significantly.

²² This was the second largest loss in history, considering all Brazilian companies. Only Cesp suffered a larger loss, estimated at R\$ 4.89 billion, in 2002 (Vieira, Mar. 2009).

of 2008 amounted to R\$ 180 million in similar foreign exchange operations, of which R\$ 110 million were due to non-deliverable forward (NDF) transactions and R\$ 70 million were due to debt in foreign currency (Cunha, Jan. 2009). Some hedging provisions against exchange rate variation also hit Embraer, which accumulated losses of R\$ 179.3 million in the last quarter of 2008 with these variations (Olmos, Mar. 2009). Vicunha Têxtil incurred losses of lesser proportions, amounting to R\$ 30 million in September 2008 with derivatives transactions, fundamentally short positions in dollars²³ (Lucchesi and Vieira, Oct. 2008).

Besides the large companies, many middle-sized companies were also attracted by the appeal of seemingly easy financial gains. At the end of October 2008, the Cetip Director of Relations with Participants, Jorge Sant'Anna, informed that there were more than 500 companies with positions in foreign exchange derivatives. However, exposure to exchange rate variation had decreased, since, between September 30 and October 24, the company's short positions in dollars decreased from US\$ 40 billion to US\$ 20 billion for the ensuing 90 days (Chiarini, Oct. 2008). According to a survey conducted by *Agência Estado* (Oct. 2008) concerning mainly the first semester of 2008, 37 out of 50 non-financial companies of Ibovespa had open positions with derivatives. On what concerns the banks involved in such operations, Santander (with 60 companies as customers), Unibanco (33 companies) and Itaú (96 companies) were mentioned. The contracts focused especially on target forward transactions and swaps.

Most companies involved are not public traded corporations. As a result, their losses are only disclosed when they file lawsuits disputing the legitimacy of the contracts signed with large financial institutions. Two examples are Arantes Group and Tok & Stok, whose cases were disclosed after they resorted to Court. The losses of Arantes Group with the abovementioned operations were estimated between R\$ 200 million and R\$ 250 million. The difficulty to refinance debt originated above all from the credit crunch made the company petition for an agreement with creditors amounting to approximately R\$ 1.5 billion (Rocha, Jan. 2009). It also made the company stop paying interest for papers issued in the international market. Tok & Stok, in its turn, sought to avoid a loss of up to R\$ 55 million with Itaú BBA due to foreign exchange derivatives contracts. The company claimed that, based on funding amounting to R\$ 29.3 million, the bank set up derivatives operations which associated the loans to the decrease in the exchange rate of the dollar, so that the company would pay interests below the market rate if the rate remained low but would have to pay a much superior rate if the market rate went over approximately R\$ 2 per dollar (*Agência Estado*, Jan. 2009).

Panel 1 summarizes the basic operations involving exporting companies without delving into the specificities of the complex financial derivatives contracts.²⁴ It only presents synthetically how companies dealt with part of their capital attached to exports. One should note the inexistence of limits for losses and the speculative nature of the operations.

²³ The amount of the loss disclosed by the company increased from R\$ 28.1 million to R\$ 32.6 million after the agreement with Citibank regarding the methodology for making the calculus, which was incorporated in its third quarter balance, although published late (*Valor Econômico*, Dec. 2008).

²⁴ Valenti and Fregoni (Apr. 2009) provide a simplified explanation of the operations that resulted in losses for many Brazilian companies. "They are a commitment on the part of the company to sell dollars to the bank at a preset price. When the market price was lower than that in the contract, the company would earn because it had a buyer that was bound to pay a higher value. Hence the function of protecting the exporting revenue: more Reais for the dollars received. However, when the market price was higher than the value stipulated in the contract, the company's commitment to selling dollars to the bank was multiplied by two."

Panel 1. How the operation works

Mechanism	Exporting companies benefit from a financing mechanism called AAE (Advances Against Exchange), by means of which they receive the value of their exports, in Reais, up to 6 months beforehand.
Understatement	Exporting companies apply this amount and their own resources in the financial market to seek compensation for a possible exchange rate understatement. Thus, even if the profit with exports decreases with the appreciation of the Real, companies make money in the financial market and reduce their losses.
Protection	Companies resort to this mechanism to protect their exports, but they were operating beyond the amounts associated with them. Besides, some financial operations had no limits for losses in the case of a depreciation of the Real.
Losses	In practice, companies bet that the Real would keep appreciating, but, given the fluctuations of the currency caused by the financial crisis, they suffered losses.

Source: D'Amorim (Oct. 2008).

Prado (Oct. 2008) discusses the risk inherent to foreign exchange derivatives operations, focusing on the “principle of foreign exchange lock”, a kind of range within which the exchange rate can fluctuate without any of the parties incurring losses. With such a mechanism, one of the parties would only incur losses if the preset minimum or maximum limits were exceeded. This seems to have happened to some companies that did not expect a sudden and sharp depreciation of the Real when they locked their foreign exchange positions below R\$ 2 per dollar.

Lucchesi, Balarin and Valenti (Oct. 2008) investigated the type of operation made by companies such as Aracruz, denominated target forward transactions, in which a company bets twice on the appreciation of the local currency – the Real, in this case – taking on twice the short position in future dollars:

They first sell the dollar to the bank by means of an instrument called non-deliverable forward (NDF). It is the traditional dollar forward sale, by means of which the company sells dollars on a future day for a preset exchange rate. (...) the company also makes another coupled transaction: it sells the dollars again to the bank in the future by means of the risky sale of call option. By this instrument, the bank pays a certain amount to the company for the right to buy the dollars for a preset exchange rate in the future.

Furthermore, banks' proposals to companies for raising funds, involving the sale of dollar call option, hit middle-sized companies, including the real estate ones. “With the surplus of credit, the depreciation of the dollar and the growingly fiercer competition among banks, these products were offered by a growing number of banks to ever smaller-sized companies” (Lucchesi, Balarin and Valenti, Oct. 2008).

Delfim Netto (Oct. 2008) complements the preceding propositions by stating that companies signed contracts whose main clauses were: “1) the establishment of a notional value for the operation; 2) the establishment of a strike value for the exchange rate; 3) the establishment of a lifetime for the contract (from one to two years); 4) the determination of a monthly settlement.” This model of hedge contract is asymmetrical, as expounded by Delfim Netto:

If the dollar is worth more than the strike value, the difference is usually multiplied by two. There is no limit for losses and the contract has to be carried out to its end. Additionally, for 12 months, for example, the monthly evaluation is based on the relation between a spot dollar that fluctuates and a nominal reference dollar, the difference favorable to the bank being multiplied by two, which makes it very hard for the company to get out of the operation. Even if the contract allows for a way-out through the bank itself, the client's loss is expressive and inevitable, given the structure and the lifetime of the operation.

It is therefore quite understandable that there should be legal disputes, based on the companies' claims that they were misled by the formulation of the contracts, although their financial departments were also negligent in identifying the risks incurred by growingly embarking upon "unknown" financial operations. These legal contentions usually result in agreements that minimize the losses and profits of both parties.²⁵ Agreements thus became a favorable option, since banks face the threat of not receiving the claimed sums and companies often need loans and refinancing options offered by banks, even for their productive activities, which leads them to avoid default and consequently to a conflictive situation that could damage their image and therefore make it more difficult to obtain funds (Carvalho and Ignacio, Nov. 2008). It will obviously take time for all the legal steps to be followed and for the legal suits to be judged by all possible bodies.²⁶

This requires operations to be more transparent, so that monetary and financial authorities may know exactly what is happening and what agents are involved in "long"

²⁵ According to Carvalho and Ignacio (Jan. 2009), the majority of the companies sought to avoid resorting to Court against banks for compensation for losses with derivatives operations. Deals between the parties have been the most widely adopted solution, although a few companies still choose to take legal action.

²⁶ In some cases, lawsuits filed by companies against banks were initially dismissed. One could, for example, refer to the case of two middle-sized companies – Daiby, which filed a lawsuit against HSBC, and Baumer, which filed an action against Santander. Both sought to avoid the losses stemming from derivatives contracts. Daiby attempted to cancel the obligations resulting from losses due to exchange rate variation in a forward swap contract. Baumer had signed a contract to make derivatives operations with the bank, but Santander gave the company R\$ 1.5 million in exporting credit, which was to be paid in six installments with interests. With the depreciation of the Real, interests increased from R\$ 20 thousand in the first three installments to R\$ 150 thousand and R\$ 310 thousand in the September and October installments, respectively (Carvalho and Ignacio, Oct. 2008). There are, however, companies that succeeded in suspending the effects of derivatives contracts, as Daiby itself, which has already obtained two Court orders from different Courts to suspend derivatives contracts with HSBC and Unibanco, and as another middle-sized company dealing in the food business and located in Paraná. In the contract of the latter company with HSBC, "one of the clauses established that the bank would have a R\$ 100 thousand limit loss, which, in case it was reached, allowed the institution to annul the contract – but there was no limit loss for the company nor the possibility of annulling the contract before one year" (Aguiar, Oct. 2008). The decision in favor of the company was based on the asymmetry between the parties established by the contract, which was judged to place the company "at an exaggerated disadvantage". Similarly, Radicifibras Indústria e Comércio, from São José dos Campos, also managed to get a Court order to suspend the payment of the debt with Santander, involving the foreign exchange derivatives contracts (Góes and Carvalho, Nov. 2008), as well as Doux Frangosul, which received favorable Court orders temporarily suspending the payment of losses over derivatives without being placed in default and credit restriction lists. Doux Frangosul filed injunctive suits against banks UBS Pactual and Merrill Lynch and had to make a judicial deposit of R\$ 2.75 million. Whereas UBS Pactual claims R\$ 20 million from the company, Merrill Lynch claims R\$ 50 million (Bueno, Apr. 2009). Later developments also suggest a few cases, as those of Daiby, as mentioned above, and Vicunha against Merrill Lynch, which proceeded to arbitrage (Carvalho and Ignacio, Nov. 2008; Adachi, Nov. 2008a). Merrill Lynch attempts to be paid R\$ 232.5 million by Vicunha because of the alleged rollover of foreign exchange derivatives on September 12, 2008 (Adachi, Dec. 2008).

or “short” positions.²⁷ As noted by Lessa (Nov. 2008), “all those who had assets or liabilities in foreign currencies should register them in the Central Bank. It is inconceivable that we should go to sleep one day believing that Sadia, Aracruz, Votorantim and Vicunha are in a good situation and wake up in the morning to find out that they themselves do not know the extension of their losses.” For this reason, BNDES (Brazilian Development Bank) offered to help, alongside the private banks, the companies who suffered foreign exchange losses in financial operations, since these companies were considered to be important and it was deemed necessary to avoid the liquidity problems that would make their position untenable (Lage, Oct. 2008). Help was to take the form of a bridge loan and benefit 200 companies, including not only those that bet on the continuity of the appreciation of the Real, but also others that because of the credit crunch needed capital to solve liquidity problems and stabilize cash flows (Moreira, Nov. 2008).

It is also necessary to point out that, according to Audi and Robarts (2008), exporting companies such as Perdigão, JBS, Marfrig,²⁸ Minerva and Bertin,²⁹ though not engaged in speculative positions, had losses stemming from their debts in US dollars, with the depreciation of the Real, although they were mitigated by their exporting revenues. Similarly, Cesp³⁰ and Tractebel, whose refinancing risks, especially in moments of restricted liquidity, were greater, registered losses due to the variation in the exchange rate and their debts in dollars (Gaeta and Prado, 2008). As the other companies,³¹ Oi, which had debts amounting to US\$ 750 million subject to exchange rate variation and without hedge, suffered a loss of R\$ 295 million in the third quarter of 2008, although its net profit was still positive (*Folha de S. Paulo*, Oct. 2008). In the fourth quarter of the same year, the financial expenditure increased by 717%, going from R\$ 82.4 million to R\$ 673.2 million (Rosas, Mar. 2009).

²⁷ The possibility of creating an office for dealing with derivatives risk before the end of the year is already being studied. The project came up in the derivatives subcommittee of the Brazilian Bank Federation’s (Federação Brasileira de Bancos, Febraban) financial committee. Cetip and a few banks also participate in the plan, besides National Association of Financial Market Institutions (Associação Nacional das Instituições do Mercado Financeiro, Andima), Brazilian Central Bank and CVM. According to Cetip Director of Relations with Participants, Jorge Sant’Anna, the derivatives office purpose would be to publicize information about the companies’ negotiations with derivatives, so that the market participants could evaluate the consolidated risks. Its aim would therefore be defined as that of gathering and consolidating information concerning the operations made by companies, including their positions by index – interest, foreign exchange and commodities – and their long, short and free positions also considered in the course of time (Pavini and Carvalho, Mar. 2009).

²⁸ Marfrig, a national and global player in the segment of meat, suffered a net loss of R\$ 52.7 million in the third quarter of 2008 as a result of the impact of the exchange rate on its finances. However, this was not related to derivatives operations, but rather to the company’s debt in dollar (Lopes, Nov. 2008).

²⁹ The company’s R\$ 681.8 million loss in 2008 was the result of the depreciation of the Real, affecting its long-term indebtedness and its financial expenditure. The company’s exposure to the dollar in the past year equaled two months of exporting (Rocha, Mar. 2009).

³⁰ Given the currency devaluation and its high indebtedness in dollar (about 60% of its total debt), Cesp registered a R\$ 565.7 million financial loss, resulting in a total loss of R\$ 114 million for the company in the third quarter of 2008 (Goulart, Nov. 2008).

³¹ Barros (Apr. 2009) mentions a study by the Foundation for Administrative Development (*Fundação do Desenvolvimento Administrativo*, Fundap) in which the performance of 239 non-financial Brazilian companies in 2008 was analyzed. The conclusion was that the results of these companies could be explained more for financial than for operational reasons. Although they registered an increase in operational profit in relation to the previous year, both services and industry registered a sharp increase in financial expenses, so that the net profit of both segments decreased along the year. The fall in profitability resulted, for companies in the services segment, mainly from the high amount of commitments in foreign currency and, for industrial firms, from speculation with derivatives operations in the forward foreign exchange markets (Fundap, 2009).

The total amount of these losses for Brazilian companies and for those from other emerging economies was disclosed in a moment of aggravation of the international crisis and of a sharp increase in risk aversion. In this context, the macroeconomic impacts of these losses were significantly aggravated. First, they resulted in a sudden increase of volatility and in the devaluation of national currencies, which were already suffering the impacts of the international crisis. Second, these losses came to constitute a credit risk, since banks might not be paid by the companies. As nobody knew precisely which companies and which banks were involved, this came to be an additional factor for restricting liquidity in interbank operations and for a drastic reduction in credit for legal persons in emerging economies, including those countries whose banking system was not involved in the complex operations which resulted in the international financial crisis. Third, companies lost credibility as a result of little transparent operations on opaque markets. This meant that it became increasingly difficult to get new loans or renew old loans – frequently, at higher interest rates –, not only because firms that incurred losses with derivatives lost credibility in the eyes of banks for conducting “unknown” operations, but also because they largely jeopardized future profits which were meant to be used to pay their debts.

4. Concluding remarks

As from the 1970s and especially the 1980s, the processes of liberalization and deregulation of the financial and foreign exchange markets became widespread on both national and international scales. That allowed the intensification of the process of “financialization” of the economy.³² Guttman (2008, pp. 12-4) points out that, in the case of non-financial institutions, this trend is above all related to the overriding logics of maximizing the shareholder’s value. In this context, the company’s priorities are dictated by short-term goals, to the detriment of long-term activities which comprise, among others, productive investments. The result are “significant increases in the portfolios of financial assets of the non-financial corporations (...), financial gains (interests, dividends, capital gains) becoming more important by the same measure.” However, short-term results are associated with the appearance of growingly complex instruments, such as the different modalities of derivatives. Although the development of such instruments has made high speculative and patrimonial gains possible (Tavares and Belluzzo, 2002, p. 153), the system became more unstable, subject to systemic risks, given the high degree of leverage, and to more frequent and intense fluctuations in the assets prices.³³

The importance of finance in the action of the large corporations has been enhanced not only by the movement of liberalization and deregulation of capital flows, but also by the constitution of global networks of transnational companies operating in different markets and currencies. These companies initially came to participate in the financial minuet through operations in the different currency markets of the countries in which they operated and through hedging operations. They subsequently sought to attain high non-operational profitability through the use of speculative instruments. The companies thus became participants in the financial sphere and managers of such assets by means of extremely diversified mechanisms, looking for assets operations in the search for capital gains, investments in financial assets and/or funding for companies

³² For a critical approach of the financial globalization and its implications, see Chesnais (1998).

³³ Guttman (2008, pp. 15-6) emphasizes precisely these aspects when discussing the avalanche of financial innovations created in the markets: “Key innovations, although giving the general credit system flexibility and ability to react to the needs of creditors and debtors, also stimulated the assets bubbles, the underestimation of risks and the excessive leverage.”

associated with their conglomerate or network for developing technology. According to Braga (1997, p. 216):

as an imposition of the competition and of risk management, the purpose was to structure finances which not only provide an adequate debt structure, or liabilities (to immobilize capital), but at the same time produce a proper creditor/asset-holder position which ensures mobility, flexibility, innovative agility and speed in benefiting from lucrative opportunities in the various national markets, both productive and financial.

The majority of the large companies thus set up sophisticated financial departments capable of managing the risks of extremely diversified assets, sheltering them when expectations of appreciation are negative or exposing them when a positive evolution seems to be likely and ever more frequently taking on new risks in cash investments. This movement was, however, not restricted to the large corporations. Both companies in emerging economies and smaller companies in developed economies adopted the same style of financial management.

The recent financial losses of productive companies underline the process of “financialization” and the growing role taken on by speculation. The use of derivatives as a means of protection was shadowed by their use for speculation. In the context of international financial crisis and of conspicuous volatility in the assets prices, the financial losses made the poor choices of companies evident all over the world and especially in emerging economies. Companies, attracted by the expectation of high returns for the risks incurred, ventured themselves in the derivatives markets, taking on clearly risky positions. In the case of exporting companies, short positions in dollars were far above the revenues derived from exports in dollars, which aggravated the risk of uncovered losses. It is worth pointing out the important role of banks as counterparts in these positions, especially regarding the asymmetrical contracts which regulated these operations, which are subject to being disputed in a Court of law.

As a result of this situation, the State comes once again to the fore in one of its main roles, that of maintaining the system’s liquidity and avoiding its rupture. Although aid was primarily directed to financial institutions, the financial weaknesses of the companies dealt with in the course of the article demand State intervention so as to ensure that they are able to produce and, as a result, to avoid further reductions in employment and income. After the disaster occasioned by the belief in the “rationality of the agents” present in the theoretical outline of efficient markets, it has become fundamental to reconsider the regulation and supervision mechanisms which have proven to be faulty in the scenario of deregulated finances.

5. Bibliographic references

- ADACHI, V. Sadia promete enquadrar risco de câmbio em seis meses. *Valor Econômico*, São Paulo, 10.31.2008. EU & S.A., p.D3.
- _____. Merrill Lynch levará Vicunha à arbitragem. *Valor Econômico*, São Paulo, 11.5.2008. Legislação & Tributos, p.E2 (a).
- _____. Perda da Aracruz fica em US\$ 2,13 bi. *Valor Econômico*, São Paulo, 11.5.2008. Finanças, p.C10 (b).
- _____. Começa arbitragem entre Vicunha e Merrill Lynch. *Valor Econômico*, São Paulo, 12.15.2008. Finanças, p.C12.
- _____. Aracruz fecha acordo com credores. *Valor Econômico*, São Paulo, 1.20.2009. Finanças, p.C1.
- AGÊNCIA ESTADO. Entenda as operações de derivativos e suas conseqüências. *Agência Estado*, São Paulo, 10.28.2008.

- _____. Tok & Stok é vítima dos derivativos. *Agência Estado*, São Paulo, 1.25.2009.
- AGUIAR, A. Nova liminar suspende contrato de derivativos. *Valor Econômico*, São Paulo, 10.31.2008. Legislação & Tributos, p.E1.
- ANDERLINI, J. Estatal chinesa é forçada a cancelar derivativo. *Financial Times*, Pequim. In: *Valor Econômico*, São Paulo, 10.23.2008. Finanças, p.C14.
- ASIA BOND MONITOR. Emerging East Asian Local Currency Bond Markets: A Regional Update. *Asian Development Bank*, November 2007.
- _____. Emerging East Asian Local Currency Bond Markets: A Regional Update. *Asian Development Bank*, November 2008.
- _____. Emerging East Asian Local Currency Bond Markets: A Regional Update. *Asian Development Bank*, First Quarter 2009.
- AUDI, M. and ROBARTS, A. Sadia – FX-related profit warning; and implications for Brazilian food companies. *Banco Santander*, Latin American Equity Research, New York, 9.26.2008.
- BARBIERI, C. Sadia tem prejuízo de R\$ 777,4 mi no trimestre. *Folha de S. Paulo*, São Paulo, 10.30.2008. Dinheiro, p.B10.
- _____. Após prejuízo, Sadia reduz exposição cambial. *Folha de S. Paulo*, São Paulo, 12.9.2008. Dinheiro, p.B4.
- BARROS, G. Especulação engole lucro do setor produtivo em 2008, diz estudo. *Folha de S. Paulo*, São Paulo, 4.12.2009.
- BOURGUINAT, H. *La Tyrannie Des Marchés: Essai Sur L'conomie Virtuelle*. Paris: Ed. Economica, 1995.
- BRAGA, J. C. Financeirização global. O padrão sistêmico de riqueza do capitalismo contemporâneo. In: TAVARES, M. da C. and FIORI, J. L. (Orgs.). *Poder e dinheiro: uma economia política da globalização*. Petrópolis, RJ: Vozes, 1997, pp.195-242.
- BUENO, S. Frangosul obtém liminares para adiar pagamento de perdas com derivativos. *Valor Econômico*, Porto Alegre, 4.8.2009. Agronegócios, p.B11.
- BUSINESS STANDARD. Forex derivatives loss at \$3 bn: Fitch. *Business Standard*, Mumbai, 6.6.2008.
- CAMINADA, C. and PRICE, L. Aracruz fails to settle \$2.13 billion derivative loss. *Bloomberg*, 12.12.2008.
- CAMPASSI, R. TAM reduzirá custos para economizar até R\$ 400 milhões no próximo ano. *Valor Econômico*, São Paulo, 11.11.2008. EU & S.A., p.D3.
- CAMPASSI, R. and CAMAROTTO, M. TAM alonga prazo de contratos de combustível. *Valor Econômico*, São Paulo, 4.1.2009. EU & S.A., p.D7.
- CARVALHO, L. de and IGNACIO, L. Bancos saem na frente na disputa dos derivativos. *Valor Econômico*, São Paulo, 10.24.2008. Legislação & Tributos, p.E1.
- _____. Empresas negociam com os bancos perdas em contratos de derivativos. *Valor Econômico*, São Paulo, 11.5.2008. Legislação & Tributos, p.E1.
- _____. Empresas ainda negociam com bancos. *Valor Econômico*, São Paulo, 1.28.2009. Legislação & Tributos, p.E1.
- CHESNAIS, F. (Coord.). *A mundialização financeira: gênese, custos e riscos*. São Paulo: Xamã, 1998.
- _____. Mundialização: o capital financeiro no comando. *Revista Outubro*, n.5, 2001. Publicado originalmente em *Les Temps Modernes*, 607, 2000.
- CHIARINI, A. Exposição a derivativos cai à metade: US\$ 20 bi. *Agência Estado*, São Paulo, 10.29.2008.

- CRUZ, P. and VALENTI, G. Sadia tem o maior prejuízo da história depois de derivativos. *Valor Econômico*, São Paulo, 10.30.2008. EU & S.A., p.D5.
- CUNHA, L. Ajinomoto tem perda de R\$ 180 mi com câmbio. *Valor Econômico*, São Paulo, 1.20.2009. Finanças, p.C1.
- D'AMORIM, S. Minoritários recorrem contra perda cambial. *Folha de S. Paulo*, São Paulo, 10.18.2008. Dinheiro, p.B4.
- DELFIN NETTO, A. *Hedge* tóxico. *Valor Econômico*, São Paulo, 10.14.2008.
- DIAZ, C. B. Mexico's Alfa posts quarterly loss as markets hurt. *Reuters*, Cidade do México, 1.29.2009.
- DODD, R. and GRIFFITH-JONES, S. *Report on derivatives markets: stabilizing or speculative impact on Chile and a comparison with Brazil*. Santiago: ECLAC and United Nations, May 2007.
- FARHI, M. Derivativos financeiros: *hedge*, especulação e arbitragem. *Revista Economia e Sociedade*, IE/Unicamp, Campinas (13), pp.93-114, Dec. 1999.
- FOLHA DE S. PAULO. Crise financeira compromete balanço da Oi. *Folha de S. Paulo*, São Paulo, 10.31.2008. Caderno Dinheiro, p.B8.
- FUNDAP. *O desempenho das empresas não financeiras em 2008*. Technical Note – Grupo de Conjuntura da Fundação do Desenvolvimento Administrativo (Fundap), May 2009.
- GAETA, A. and PRADO, M. Utilities – Financial exposure in uncertain times – are dividends safe? *Banco Santander*, Latin American Equity Research, São Paulo, 10.8.2008.
- GÓES, F. and CARVALHO, L. de. TJ suspende contrato de derivativos. *Valor Econômico*, São Paulo, 11.28.2008. Legislação & Tributos, p.E1.
- GOULART, J. Dívida em dólar leva Cesp a registrar prejuízo de R\$ 114 milhões. *Valor Econômico*, São Paulo, 11.17.2008. EU & S.A., p.D11.
- GUTTMANN, R. Uma introdução ao capitalismo dirigido pelas finanças. *Revista Novos Estudos*, Cebrap, n.82, pp.11-33, Nov. 2008.
- HSBC. It's not easy to ease. *Latin America Insight*, HSBC Global Research, February 2009.
- IMF. *Regional Economic Outlook: Western Hemisphere*. Washington, D.C.: World Economic and Financial Surveys, International Monetary Fund (IMF), October 2008.
- ISDA. ISDA expresses concern over KIKO case rulings. *News Release, International Swaps and Derivatives Association (ISDA)*, Hong Kong, 4.1.2009.
- JONG-HEON, L. South Korean firms suffering cash crunch. *UPI Asia*, 11.18.2008.
- KIM, S. and YANG, D. Y. Managing capital flows: the case of the Republic of Korea. *Asian Development Bank Institute (ABDI)*, Discussion Paper n.88, Tokyo, February 2008.
- LAGE, J. BNDES anuncia ajuda para exportadoras. *Folha de S. Paulo*, São Paulo, 10.25.2008. Dinheiro, p.B1.
- LESSA, C. A economia financeira e a lógica do cassino. *Valor Econômico*, São Paulo, 11.19.2008. Opinião, p.A11.
- LOPES, F. Marfrig tem prejuízo com desvalorização cambial. *Valor Econômico*, São Paulo, 11.13.2008. EU & S.A., p.D5.
- LUCCHESI, C. Derivativo exótico tem novo registro. *Valor Econômico*, São Paulo, 5.26.2009. Finanças, p.C3.
- LUCCHESI, C.; BALARIN, R.; VALENTI, G. Alavancagem de empresas puxa dólar a R\$ 2,311. *Valor Econômico*, São Paulo, 10.8.2008. Finanças, p.C1.

- LUCCHESI, C. and VIEIRA, A. Vicunha Têxtil admite prejuízo. *Valor Econômico*, São Paulo, 10.23.2008. Finanças, p.C6.
- MAVIN, D. Chinese companies stung by derivatives losses. *Financial Post*, Hong Kong, 12.16.2008.
- MOREIRA, A. BNDES prevê ajuda para 200 empresas. *Valor Econômico*, São Paulo, 11.13.2008. Brasil, p.A3.
- NORRIS, F. Bad trades, except in Korea. *The New York Times*, 4.2.2009. Business.
- NOYES, K. “KIKO” cases: misconceptions and undesirable legal precedents. *International Swaps and Derivatives Association (ISDA)*, April 2009. Available in: <http://secure.webex.com/g2.asp?id=H8MY4GH2> (accessed on: 4.5.2009).
- OLMOS, M. Embraer suspende dividendo e reduz remuneração da gestão. *Valor Econômico*, São Paulo, 3.30.2009. EU & S.A., p.D3.
- PAVINI, A. and CARVALHO, M. C. Mercado monta central de risco de derivativos. *Valor Econômico*, São Paulo, 3.17.2009. Finanças, p.C8.
- PLIHON, D. A ascensão das finanças especulativas. *Revista Economia e Sociedade*, IE/Unicamp, Campinas, n.5, Dec. 1995.
- PRADO, M. C. R. M. do. Fábricas que viraram pó. *Valor Econômico*, São Paulo, 10.9.2008.
- PRATES, D. and FARHI, M. A crise financeira internacional, o grau de investimento e a taxa de câmbio do real. *IE/Unicamp*, Nov. 2008 (unpublished paper).
- RANDEWICH, N. Mexico banks say derivative losses not their fault. *Reuters*, Cidade do México, 10.22.2008.
- REGALADO, A. and LYONS, J. Perdas cambiais são fantasma latino. *The Wall Street Journal Americas*. In: *Valor Econômico*, São Paulo, 10.22.2008. Finanças, p.C3.
- REIS, F.; SCIACIO, A.; SANTAELLA, V. Aracruz – Placing under review due to uncertainty surrounding extent of losses related to FX derivatives. *Banco Santander*, Latin American Equity Research, São Paulo, 10.10.2008.
- ROCHA, A. do A. Arantes perde com derivativo e pede recuperação judicial. *Valor Econômico*, São Paulo, 1.13.2009. Agronegócios, p.B10.
- _____. Câmbio leva Bertin a perda de R\$ 681 milhões. *Valor Econômico*, São Paulo, 3.18.2009. Agronegócios, p.B12.
- ROCHA, J. L. C. da. Hedge cambial e o precedente internacional. *Valor Econômico*, São Paulo, 2.9.2009. Legislação & Tributos, Opinião Jurídica, p.E2.
- ROSAS, R. Financeiro reduz lucro da Oi em 91%. *Valor Econômico*, São Paulo, 3.6.2009. EU & S.A., p.D3.
- SANTOS, J. E. dos. *Dicionário de derivativos: inglês-português*. São Paulo: Atlas, 1998.
- SAXENA, S. and VILLAR, A. Hedging instruments in emerging market economies. In: *Financial globalisation and emerging market capital flows. BIS Papers*, n.44, Basel, Dec. 2008, pp.71-87.
- TAVARES, M. da C. and BELLUZZO, L. G. Desenvolvimento no Brasil – relembrando um velho tema. In: BIELSCHOWSKY, R. and MUSSI, C. (Orgs.). *Políticas para a retomada do crescimento – reflexões de economistas brasileiros*. Brasília: Ipea, Cepal, 2002, pp.149-184.
- THOMSON, A. Empresas do México perdem com derivativos. *Financial Times*, Cidade do México. In: *Valor Econômico*, São Paulo, 10.17.2008. Finanças, p.C12.
- VALENTI, G. Balanço de 2008 traz desafio às empresas. *Valor Econômico*, São Paulo, 1.19.2009. EU & S.A., p.D5.
- _____. Auditoria discorda do registro das dívidas da Aracruz. *Valor Econômico*, São Paulo, 4.1.2009. EU & S.A., p.D3 (a).

- _____. Sadia fechou operação bilionária cinco dias antes do início da crise. *Valor Econômico*, Concórdia/SC, 4.7.2009. EU & S.A., p.D4 (b).
- VALENTI, G. and FREGONI, S. Onze empresas terão de corrigir balanço. *Valor Econômico*, São Paulo, 1.23.2009. EU & Investimentos, p.D1.
- _____. Ex-diretor da Sadia diz que conselho sabia das operações. *Valor Econômico*, São Paulo, 4.9.2009. EU & S.A., p.D3.
- VALENTI, G. and ROCHA, A. do A. Contratos provocam prejuízos recordes. *Valor Econômico*, São Paulo, 3.30.2009. EU & S.A., p.D3.
- VALOR ECONÔMICO. Derivativo da Vicunha. *Valor Econômico*, São Paulo, 12.10.2008. Finanças, Destaques, p.C1.
- _____. Derivativo e passivo em dólar explicam perdas da VCP. *Valor Econômico*, São Paulo, 4.1.2009. EU & S.A., p.D3.
- VIEIRA, A. Perda da Aracruz é a 2ª maior da história. *Valor Econômico*, São Paulo, 3.30.2009. EU & S.A., p.D3.
- VIEIRA, C. and FREGONI, S. A pedido da CVM, empresas detalham contrato. *Valor Econômico*, São Paulo, 1.26.2009. EU & S.A., p.D6.
- WORKING, H. New concepts concerning futures markets and prices. *American Economic Review* 52, pp.431-459, June 1962.