

# The Housing Cycle and U.S. Economic Growth: 2002-2008<sup>1</sup>

*RAFAEL FAGUNDES CAGNIN*

## **Introduction**

**L**oss of international competitiveness, high rise in interest rates, an acceleration of inflation and reduction of the national income growth rate characterize the U.S. economy since the late 1960's. These factors, which reflected the corrosion of the post-war political-institutional order, gave rise to an intense process of financial innovations followed by the dismantling of quantitative controls (Glass-Steagal Act of 1933 and the Securities Exchange Act of 1934) that, until then, had constituted one of the principal characteristics of the US financial system. (Belluzzo & Coutinho, 1996; Braga & Cintra, 2004).

It is from this period that the process of American “institutionalization of savings” began - i.e., the increase in the importance of institutional investors as wealth managers and of credit in relation to deposit institutions – and securities market and derivatives growth. To these trends, which increased the level of competition, major American banks reacted by introducing other financial innovations (deposit certificates, repurchase agreements, etc.) in such ways as to circumvent the limits of interest rates to which they were subject (Cintra, 2000).

The competition between banking and non-banking institutions and the introduction of financial innovations such as instruments of funding, investment, and risk management transformed the banking business.<sup>2</sup> On the one hand, the large commercial banks were leaders in aggregating different institutions that, under distinct legal boundaries, went on to offer services for underwriting deposit certificates and stocks, insurance and wealth management through investment funds and pension funds.<sup>3</sup> On the other hand, credit for households became strategic issues for banks. The falloff in profitability in operations with large and medium size companies was compensated in part by higher profit margins from those operations (Freitas, 1997; Cintra & Cagnin, 2007a; Goodhart & Hofmann, 2007; Bhatia, 2007).

For American households, the new financial structure translated into an increase in financial wealth directed to funds (mutual funds, pension funds and money market funds) originating from a movement toward “institutionalizing”

savings. Moreover, the introduction of financial innovations and strategies of banks aimed at households allowed for the expansion of credit offerings. Financial assets valuation came, thereby, to have two effects. On one side, expansion of consumption was stimulated to the detriment of developing savings<sup>4</sup> to the extent that households saw themselves as wealthier (the wealth effect). On the other side, it increased the capacity for indebtedness, once the household's asset enhancement had improved their evaluation for risk by creditors. The creation of new financial instruments allowed economic agents to transform the valuation of their wealth into purchase power without making it necessary to sell assets.

U.S. companies' assets structure also changed in the sense of involving greater participation in financial assets, on the one side, and on the other, the liability of market instruments. Financial assets participation went from 25.8% of total U.S. company assets in 1970 to % 49.3%, in 2005, while the bulk of bonuses for liability instruments went from 46% in 1970 to 57%, in 2005, and bank loans fell from 29% to 12% in the same period.

With this shift, institutional investors assumed greater importance in defining the condition of company finances. Favorable evaluation among these agents, expressed in stock prices and conditioned by the returns generated by corporate administrators, defined winning business strategies. In this manner, a company's decisions about assets investment, sale or purchase began taking into account the impact on stock capitalization, based on the evaluation of its shareholders. To the extent that their expectations came to be frustrated in relation to the share return from a given company, institutional investors, representing the shareholders, sought to reduce their holdings in these assets. The devaluation of shares that resulted from this behavior reduced the value of the company, stimulating merger operations or hostile takeovers with resulting decimation of its directorate. This structure of American corporate governance is thus known as *value-based shareholder system of corporate governance* (Aglietta, 2008; Braga & Cintra, 2004).

In the face of the need to increase income, companies expanded their investments in the sense of incorporating financial assets. As Braga (1997) pointed out, the accumulation of financial assets on corporate balance sheets became a permanent way to define the way private wealth management is conducted in a deregulated, liberalized and sophisticated financial environment. This derives from the greater complexity of decisions for valuing company capital that also runs through productive investments, developing beyond the level of income and jobs, through investment in financial assets, with the less certain effect on economic growth of the aim of capital earnings. These decisions also involved the choice of the amount of leverage and the ways to finance asset operations. In this way, the search for greater profitability in the short run through price oscillations of shares traded on the organized markets, typical of institutional investors, wound up also influencing the management of large corporations.

This article is structured in four sections in addition to this short introduction. Following an analysis of the U.S. economy in the 1990s, the first section seeks to articulate the established conventions of financial markets for expenditure decisions of agents in a finance-led economic dynamic. The second section deals with the financialization of real estate, i.e. the transformation of financial instruments in the construction and acquisition of real estate that allowed the valuation of American housing wealth to assume the role performed by stocks in stimulating consumption and aggregated investment. The interaction between the housing cycle and the economic cycle in the U.S. recovery of 2002 will be treated in the third section. The fourth and final section emphasizes the complexity of debt and credit as it was influenced by the introduction of financial innovations and by the quest for increased profit by financial agents. These elements functioned as a hot wire that transformed the crisis in the subprime mortgages segment into a much deeper financial crisis, reaching security operations, the derivatives and stock markets.

### **The *Finance-Led* Economic Cycle of the 1990s**

The expansion of participation in financial assets in household and corporate portfolios came to exert an important influence on the management decisions of these agents. The characteristics of finance-led economic growth are defined by the interrelations established between the price cycle of financial assets and economic dynamism.<sup>5</sup>

The period between 1992 and 2000 comprised the expansion phase of a finance-led economic cycle in the United States. In spite of not having presented growth rates as robust as in previous periods, this expansionist phase was the longest of the U.S. economy.<sup>6</sup>

Technological innovations introduced throughout the 1990s created synergy between different sectors – such as telecommunications, computer hardware, software, the internet and entertainment – opening new business opportunities whose results were difficult to be grasped *a priori*. This process was accompanied by an expansion of investment and productivity. Gross private investment grew from 11.6% of GDP (Gross Domestic Product) in 1991 to 17.7% in 2000, and investment in equipment and software went from 4.9% of GDP to 9.4% of GDP in this same period. Companies considered it necessary to leverage investments in order to quickly create and occupy a new market so that it could impose its technological standard on later companies. This is a fundamental trait in technology sectors, guaranteeing extraordinary earnings to the company in possession of the dominant standard (Aglietta & Reberieux, 2005).

The opening of new business frontiers and the escalation of profit, impelled by productivity earnings, raised the ceiling for stock markets. Difficulties in defining reliable projections from still non-existent business returns, as well as in evaluating the impact of new technologies over more traditional sectors, resulted in the proliferation and intensification of speculative behavior in these

markets. The evolution of inflation allowed the Federal Reserve to keep the fed funds rate stable throughout the second half of the 1990s. The anchoring of inflationary expectations prevented conjunctural, short-term movement in the form of high interest rates from dousing the prevailing optimism in Stock Markets. Low interest rates and optimism over valuation of stock wealth provided incentive for credit expansion, feeding asset market speculation still further<sup>7</sup> (Aglietta, 2008; Aglietta & Rebérioux, 2005).

In a short while, the optimism of the stock markets spread throughout the many sectors of the financial market. Interest rates in general fell and offers of credit increased. An overlapping of the processes of housing wealth valuation and credit expansion generated mechanisms that allowed consumption and investment to expand at average rates (3.5% and 6.8%, respectively) above GDP growth (3.3%) between 1991 and 2000. In their ascent the stocks of financial assets became increasingly represented in corporate and household portfolios; in this way, these agents could more easily have access to credit sources, using the appreciated assets as guarantees.

Elasticity in credit offerings allowed economic agents (holders of financial assets) to obtain purchase power without thereby being obliged to disrupt assets. This purchase power was directed as much toward consumption and investment as to financial markets, reinforcing the tendency to valorization of financial assets

The other side of this process was the fragilization of private agents' balance sheets. Household debt level as a percentage of GDP jumped from 63.3% in 1991 to 72% in 2000 while non-financial corporate debt went from 41.4% to 46.8% of the GDP during the same period. The correlation between household debt and disposable household income grew from 87.9% in 1991 to 112.2%, while the service of this debt, which represented 17.36% of disposable household income in the first quarter of 1991, reached 18.24% in the last quarter of 2000.

The public sector, in turn, showed a tendency toward reduction of its need for financing beginning in 1992. In 1998, it was able to obtain a surplus of US\$ 37.9 billion that was expanded to US\$ 159 billion in 2000. This result was obtained as much by restraint of expenditures, including social, as from the rise in the tax burden.

Despite this tendency, optimism for the flourishing of the “new economy,” began to weaken in the first half of 2000. Portfolio share managers reevaluated the relevance of accepting new businesses typical of the digital era, but which weren't able to show expected profitability. Throughout the decade, some of the new businesses, whether in technology or from the internet (dotcom) which went public, taking advantage of the speculative behavior of financial agents, never managed to become profitable; others never knew how they were going to do it. Moreover, in some sectors, especially those tied to new technologies, the verified downtime capacity was high, signaling a lower performance than expected. In March, 2000, the bull market turned around. Between March and December of that year, the NASDAQ Index fell almost 50%.

The process of reevaluating portfolios was generalized among financial markets. Leveraging operations, in place in previous years, and which to a great extent had taken shareholder stock as collateral, needed to be dismantled. In the quest for liquidity it was necessary to confront the requirements of assumed obligations which caused liquidation of positions and the fall of prices in different markets.

The impact of devaluation of assets over GDP was already sensed in the first quarter of 2000 when the real rate of growth registered a value of only 1%, pulled by the retraction of 6.9% in private investments. Even omitting the second quarter, when the low basis of comparison from the next two quarters began with an expansion of 6.4%, the performance of the other two final quarters of the year was also discouraging. In combination with reduced consumption new contractions in private investments brought this about.

This downward tendency seemed to have exhausted itself when, after the September 11, 2001 attacks, stock quotations began to once more rise. The predominant perception was that the American economy was no longer in recession and was strongly recovering. However, successive falls in stock market quotations brought to light innumerable problems that had gone unperceived in the euphoria of corporate profits during the long cycle of valuing productive and financial assets in the 1990s. With the fall in the excitement level there appeared schemes to stimulate new and accentuated declines in the prices of shares that were susceptible to deep macroeconomic repercussions, which included threatening the incipient growth recovery and provoking a new recessive process.

It would not have been the first time in history that revelations of schemes enacted in times of euphoria would prompt a reversal of investors' feelings to lead to a *crash* (Kindleberger, 1992b)<sup>8</sup>. What was unusual, however, was for this to occur after a long period of falling prices and, therefore, a correction of the excesses committed during the "bubble"<sup>9</sup> formation. Such a peculiarity deepened and intensified the falling stock prices. A crisis of confidence in American stocks by investors had an impact on world stock markets, creating moments of extreme tension. According to data released by the International Federation of Stock Markets, losses in the world markets surpassed US\$ 11.5 trillion, being more than US\$ 5.4 trillion in the United States alone (<http://www.fibv.com>) between March 2000 and June 2002. This crisis of confidence originated in the convergence of various scandals and malfunctions in the United States capital markets such as the evaluations of companies for classification of credit risk, recommendations of financial analysts, accounting problems in company reports, and the role played by auditing and consulting companies.

In sum, the causes of deceleration and recession of the U.S. economy were associated with the reversal of the expanding circuit including the valuation of financial assets, credit, consumption and investment that is characteristic of *finance-led* cycles. Thus, the terrorist attack of September 11, 2001 and the

scandals involving aggressive accounting practices in 2002 contributed to a deepening of the deflationary and recessionary tendencies in asset prices in the U.S. economy.

As in the expansive phase of the cycle, the contracting phase was also marked by its own characteristics. The 2001 recession revealed itself as one of the briefest and smoothest the U.S. economy had yet confronted, although there was no great financial crisis that put the solidity of the system at risk. Many of these characteristics were related to the agility of response by the monetary authority and the Treasury, and with an accentuation of the tendency for appreciation of American housing wealth.

The reduction of the basic *federal funds rate* by the Federal Reserve throughout 2001, a decline of 70%, made it possible to maintain the level of public debt throughout the fiscal expansion. Declining taxes and the expansion of fiscal expenditures ensured the preservation of consumer spending, essential for the recovery dynamic. Consumption still addressed the increase of household liability by the ballast of the valuation of its real estate assets. Housing therefore was a replacement for the role of stock asset wealth in the established circuit of assets, debt and consumption. While household debt maintained its ascending path, corporations began a process of rapid reduction of their liabilities (Cintra & Cagnin, 2007b).

### **Housing Financialization**

Transformations in the financial structure and practices in the United States narrowed the relations between the housing market and the financial market, setting in motion a process of “housing financialization,” starting primarily in the 1980s. This process allowed, on the one hand, diversification of financial contracts and the expansion of credit stocks through the use of property as collateral and on the other hand, deepening the dependency of price and production cycles in relation to the ups and downs of financial markets (IMF 2006, 2007). According to Dubach (2008), this financing process occurred by means of two mechanisms: the expansion of Real Estate Investment Trusts (REIT) and the use of housing mortgages securitization.

REIT are investment funds for subdividing real estate property, as well as for construction and management. This financing mechanism made real estate investments more liquid and imposed profitability demands on them in accord with the established benchmarks of the financial markets. In spite of having been created in the 1960s, these funds only began expanding in the 1980s. In the 1990s, the REIT market received an important push to the extent that pension funds were authorized to invest in real estate by means of this instrument. On that occasion, there also occurred an internationalizing movement of REIT funds toward Europe and Japan. As Dubach (2008) says, the entry of these funds in Japan played an important role in the development of the Japanese real estate bubble at the beginning of that decade.

While REIT financing has been shown to be more important in the case of commercial properties (in 2005, 51% of REIT in the United States referred to office and commercial buildings), the securitization of housing mortgages performed a central role in the case of residential housing.

Housing mortgage securitization, i.e., transformation of credit portfolios into negotiable securities, has its roots in the housing finance reform headed by the U.S. government at the end of the 1960s. The combination of the acceleration of inflation and the existence of tax rate interest limits on loans and term deposits (Regulation Q) created problems for resource fund raising by the saving & loan institutions (S&Ls) that were responsible for financing housing purchases. The introduction of financial innovations by major banks and institutional investors which were not subject to quantity controls reduced even further the ability of S&L to attract deposits, making it difficult to refinance their asset positions, which to a great extent were comprised of long term mortgages.

New challenges were added to the problems of liquidity in the 1960s and 1970s from the shock of interest rates set by Paul Volcker in 1979 and with the elimination of the limits for interest rates through the Depository Institutions Deregulation and Monetary Control Act of 1980. Because of a time mismatch between their assets and liabilities, the rise of interest rates following their liberalization resulted in higher costs for the S&Ls to raise resources, at the same time that their assets profits continued to be defined by previously established, fixed interest rate, long-term mortgage contracts.

Since the S&Ls were the principal type of mortgage grantor institution, the crisis in these institutions necessarily meant a crisis in housing financing arrangements. The importance of the housing sector in terms of economic growth and creation of jobs as much as social policy created the political conditions that sustained a succession of institutional transformations led by the State.

The American government then went on to encourage *mortgage backed securities* or MBS operations, anchoring the system in four institutions, besides the mortgage banks and saving & loan institutions (S&L): Federal Housing Administration (FHA), Government National Mortgage Association (Ginnie Mae), Federal National Mortgage Association (Fannie Mae) and Federal Home Loan Mortgage Corporation (Freddie Mac).

The entire system was built on the basis of either direct or indirect public guarantees. For this reason, these agencies were able to raise funds in the markets at interest rates much closer to the ten-year rate of the American Treasury (*T-bonds*). It became the consensus in the financial markets that these agencies would receive help from the Treasury in the event of asset instability, whether of a public character of the FHA and Ginnie Mae, or from the importance played by the two other agencies that, in truth, are private companies with shares traded on the Stock Market.<sup>10</sup> Fannie Mae and Freddie Mac to a great extent are responsible for the *sine qua non* condition of the American housing financing

system, i.e., the ability to make liquid the mortgage operations characterized by long term contracts.

It was through the guaranty mechanisms that these institutions deepened the MBS market. In these transactions, housing loans were packaged and passed on to a combination of investors (investment funds, pension funds, etc.) that bought securities, whose guaranty as collateral was the property itself (and the housing credit payments) and which could be negotiated on the secondary market for this type of security.<sup>11</sup> Since the 1930s the Federal Housing Administration (FHA) had provided guaranties for loans at major risk of default, thus benefiting the lowest income portions of the population. The credits guaranteed by the FHA (and also by the Veterans Affairs – VA) were purchased and then securitized, primarily by Ginnie Mae, but also by Fannie Mae. The latter received permission starting in 1968 to buy *conventional mortgages*; in other words, mortgages not guaranteed by the FHA/VA. Starting in the 1980s, Fannie Mae became the major guarantor of mortgages in the United States. Freddie Mac was created to securitize conventional mortgages from its origin in 1970.<sup>12</sup>

With the expansion of mortgage credit and the major liquidity of the secondary MBS market, major private commercial banks also constituted themselves as important actors in mortgage securitization. Given the high participation of Fannie Mae and Freddie Mac, these banks attempted to increase their operations in this market by occupying segments not addressed by them. Since then, mortgages whose contracts did not fit within the requirements of the GSE could be securitized. This factor was incentive for verified diversification of family credit contracts in recent years. The maintenance of low interest levels starting in 2001 prompted financial agents to look for alternative income sources that would effectively mesh with non-traditional mortgage securitization.

Thus an important process of financial innovation took hold, as much in mortgage contracts as for those underwriting them. Among the new expansion of housing mortgage contracts after 2002, the following could be cited:

- *Interest-Only Mortgage (IO)* by means of which the taker need pay only the interest on the value of the loan for a predetermined time. The IO contract is not a new contract, but is in conjunction with an option within traditional *fixed-rate mortgages* (FRM) or *adjusted-rate mortgage* (ARM) mortgages. Thus, with each monthly payment the borrowers has the right to decide to pay only the interest or the interest added to the amortization of the principal. This is a type of contract sought by those borrowers who wish to spend the lowest amount possible during the first months of the debt (because of this, generally, it is tied to an ARM), or from hoping for an increase in future personal income, or when there is the expectation of refinancing the mortgage at the end of the amortization period.

- *Negative Amortization Mortgage* (Neg-Am) which is also known as “*pay-option ARM*”.<sup>13</sup> This contract is an IO mortgage with an additional option joined with an ARM contract. The borrower of this type of loan has each month the right to choose between three options: to pay only the interest or the interest added to the amortization, or to make a “minimum” payment, established by contract, whose value is less than the interest payment. If the minimum payment is chosen, it would be as if the borrower were making a negative amortization. The difference between the minimum and the interest total of that period is incorporated into the principal of the loan. As with IO mortgages the options in Neg-Am contracts also have a time limit for applicability, after which payments should include the sum with reference to both interest and amortization. This type of contract guarantees reduced payments at the beginning, but can grow significantly after the conclusion of the option’s validity. Depending on the contract’s stipulations, monthly payments can be raised more than 40%.
- *Hybrid-ARM*, like many, is intended to reduce payments during the first years of the mortgage. In this contract, during the initial period generally from two to five years, the recipient pays fixed interest rates, consisting of an FRM. After this phase, interest rates become flexible, in general adjusted semi-annually in agreement with LIBOR (*London Interbank Offer Rate*), i.e. it goes on to consist of an ARM. It is worth remembering that from inception monthly payments include the portions pertaining to amortization.
- *Hybrid IO-ARM*, as in the case of the *hybrid-ARM* mortgage, this contract combines fixed and flexible rates, but allows the recipient to make payments for a predetermined period of time on only the sum of the interest,.

Another practice that gained popularity was that of a second mortgage, known as a *piggyback*, issued simultaneously with the principal mortgage. This contract can exempt the taker from a down payment at the mortgage signing. Traditional contracts generally require a down payment of 20%; in other words, the mortgage covers only 80% of the value of the property. In case a greater relation *loan-to-value* (LTV) is desired, the recipient should, in the majority of cases, secure it with a private institution. The great incentive for taking out a second mortgage on the value of the property which is not covered by the first mortgage is taxation. Interest payment expenses for mortgages are tax deductible, while the insurance expenses are not.

One common way to piggyback is by means of a *Home Equity Loan* (HEL), which consists of a line of credit for a specific purpose (generally for improvements to the property or to complete its purchase), using for collateral the value of the property still unused to guarantee the second mortgage.

The maximum loan limit is determined on the basis of an analysis of the credit of the recipient and the existence of mortgages on the property to be taken as collateral. There is generally a fixed rate interest on HELs. Another way to acquire a *piggyback* is by taking out *Home Equity Lines of Credit* (HELOC), which is a type of pre-approved credit that turns a property into a guarantee, similar in a way to the HEL. However, HELOC does not require a specific purpose to be defined for the use of loan resources, which also can be used to complete a first mortgage as well as for consumption in general. *Home Equity Loans* and *Home Equity Lines of Credit* consist of two types of *Home Equity Lending*.

Secondary market contracts also became more sophisticated with the issuing of *multiple-class MBS*, also known as *Collateralized Mortgage Obligation* (CMO). Starting from a conjunction of MBS based on mortgages with different maturity and risk levels, various classes of *securities (tranches)* were issued, which are rated according to the priority of receipt of payment date and absorption of losses resulting from defaults from mortgages used as collateral. Generally there are three classes of *securities*: senior, *mezzanine* and *equity*. Interest-plus-principal payments cascade, in other words, the first goes to the senior class, then the *mezzanine* and, finally, the equity class. In the event of losses, however, the impact on the *securities* is in the reverse order; the senior class would be the last to have its payment committed.

After 2002, the intersection of financial innovations in mortgage contracts and insurance processes made possible expansion of the American house financing system toward operations associated with higher risks. Thus, the segments denominated as *subprime* – which bring together recipients without a credit history or even with a history of default – and *Alt-A (Alternative A)* – which consist of loans to borrowers without proof of income, but with a good history of payment – showed strong growth. According to Zelman *et al.* (2007), the contracting of subprime mortgages jumped from US\$ 213 billion in 2002 to US\$ 640 billion in 2006.

The operations in this segment are neither eligible for the FHA's public guarantee nor to be secured by GSE since they are not within these institutions' parameters. Private agents, however, could be responsible for transforming these credit portfolios into securities, using complex insurance tools known as *special purpose vehicles*<sup>14</sup> (SIV). Major American banks performed an important role in building the credit pyramid that addressed insuring mortgages already insured by *collateralized debt obligation* (CDO)<sup>15</sup> issued by SIV and guaranteed by banks through lines of credit or repurchase agreements (Eichengreen, 2008; Guttmann, 2008).

Thus, management of the housing finance crisis in the 1980s gave rise to an integrated system in securities market whose dynamic allowed strong expansion of housing mortgage credit, with a favorable unfolding for economic growth in the United States starting in 2002, but which was accompanied by financial innovations and a growing accumulation of risk (Cagnin, 2007).

## Housing Market Appreciation and the U.S. Economic Recovery of 2002

The Federal Reserve's low interest rate policy that began in 2001 in order to reduce the cost of the debt stimulated, on the one side, demand for housing credit, expanding the system in toward lower income households, and on the other, was conducive to reducing risk aversion in the financial markets, through expansion of credit offerings and easing the insurance of mortgages, including those with non-traditional contracts. Expansion of the totally private circuit of the system, i.e., from segments of the system without public guarantees (implicit or explicit), created the conditions for the increase in use of these non-traditional contracts.

To the extent that the availability of financing expanded, the demand for housing also heated up. Once that housing supply became relatively inelastic, in the short term the result was a strong rise in prices. It is quite true that, differently from financial assets, whose markets are centralized and organized, the intensity of property appreciation varied in different regions of the United States. Qualitative differences between the properties, such as location and its physical characteristics, and the debt capacity of the buyers, generated heterogeneity in the rhythm of real estate appreciation between regions. The recent rise in prices was most concentrated in metropolitan regions and in some states such as Florida and California.<sup>16</sup> The relationship between these regionalized housing markets and monetary policy was mediated by the financing system. Even if it had not been generalized to the same magnitude between regions, appreciation of housing wealth, from concentration in densely populated areas, presented impacts that could be noticed in the American economy as a whole. (Goodhart & Hofmann, 2007; Greenspan, 2005; Angell, 2004).

The rise in housing prices had an impact on the household assets in a manner similar to the appreciation of stocks throughout the 1990s. However, indications pointed to a greater intensity of this impact in terms of housing. It is estimated that, in 2003, approximately 68% of the American population were housing owners, while 52% had stocks. Moreover, housing property was more diffused both geographically and among different income classes<sup>17</sup> (Nothaft, 2004). Empirical works by Case & Quigley (2001) and Bayoumi & Edison (2002) showed that the impact on consumption from housing appreciation is greater than from the shareholder market.

The effects on household consumption were felt directly as well as indirectly. To the extent that higher housing prices reinforced household assets, consumer expenditures increased and the development of savings was reduced, following a wealth-effect (Mishkin, 2001; Goodhart & Hofmann, 2007).

Indirect effects, in turn, depended on the financing structure that in the United States showed great agility for converting household asset appreciation into purchase power by means of credit. Two mechanisms allowed households to gain credit based on housing equity: extraction of *home equity* (also known as

*cash-out*) from the refinancing of mortgages, and loans of the HEL type (*home equity lending*).

1) *Cash-out* consists of the extraction of *home equity* by the refinancing of old mortgages. The reduction of loan rates after 2001 intensified refinancing operations which, to some extent, involved an increase of the principal, with reference to the incorporation of portions of appreciation of the house in the new contract. Canner et al. (2002) estimates that the absolute value of the extractions between 2001 and 2002 had totaled US\$ 131.6 billion, of which US\$20.7 billion could have been used by households to increase their consumption level.

2) As previously stated, *home equity* loans could be of two types: *home equity lines of credit* or *home equity loans*, and the release of resources for the first type were not dependent on a specific end. These types of contracts had grown since the middle of the 1990s, especially at the end of the decade and in the following years.

Refinancing volume peaked in June, 2003, closing the year with a record value of US\$ 2.5 trillion. After that, *cash-out* was replaced in importance by *home equity lending* as a mechanism for extraction from *home equity*, highlighted in contracts of the *home equity lines of credit* type. Interest rates on these contracts became preferable to other types of debt, just as had the possibility of deducting the total paid interest from taxes.<sup>18</sup> In turn, the flexibility in the use of resources caused them to be more desirable than *home equity loans* (Angell, 2004).

Credit institutions also showed interest in increasing the offering of resources by means of *home equity lines of credit*. A predominance of flexible interest rates and the use of properties as guarantee facilitated the management of risks. In addition, expansion of borrowers' debt capacity through property appreciation opened up new earning opportunities for lenders. In this sense, innovations were introduced in the competition for new recipients of this type of credit and in an attempt to raise the level of use of pre-approved credit. Some of the principal innovations consisted of contracts whose credit limit was automatically increased, according to the appreciation of the properties, or then a reduction based on continued payment of interest to the extent that it raised the level of use of this credit line; besides the existence of interest-only payments and hybrids (first years fixed interest and after a certain period increasing interest).

Thus, after the favorable impact on purchase power by means of the *cash-out*, concentrated throughout 2001 and in the subsequent months of economic recovery, the level of consumption could be also stimulated by other means of credit related to housing appreciation, compensating for the decline in refinancing operations.

The impact on housing appreciation from the reduction of interest rates also allowed reduction in the weight of the debt load beyond household income. By refinancing mortgages, households began to benefit from the reduction in interest rates. If the fixed rate mortgages (FRM) provided the possibility of refinancing to reduce the cost of the debt combined with

monetary expansion, this effect was more direct in the case of the contracts with adjustable rates (ARM).

Housing appreciation also stimulated the level of demand from the rise in housing investments. After the verified contraction in the 1980s, from the beginning of the following decade the activity of housing construction began to heat up again, especially after 1998. In 2005 more than two million new residences (US\$ 482 billion) were constructed, practically twice the number in 1991.

The behavior of the housing market provided leverage for housing investments, whose average participation in the GDP growth rate between 2002 and 2005 was around 14.8%. This type of investment grew 4.8% and 8.4% in 2002 and 2003, while many private investments contracted 9.2 % in 2002 and presented growth of only 1% the following year (see Table 1).

Table 1 – GDP rates of growth and the components of aggregated demand – 2000 to 2008

	2000	2001	2002	2003	2004	2005	2006	2007	2008				Year
									I	II	III	IV	
GDP	3.7	0.8	1.6	2.5	3.6	2.9	2.8	2.0	0.9	2.8	-0.5	-6.3	1.1
Family consumption	4.7	2.5	2.7	2.8	3.6	3.0	3.0	2.8	0.9	1.2	-3.8	-4.3	0.2
Private Investment	5.7	-7.9	-2.6	3.6	9.7	5.8	2.1	-5.4	-5.8	-11.5	0.4	-23.0	-6.7
Non-residential	8.7	-4.2	-9.2	1.0	5.8	7.2	7.5	4.9	2.4	2.5	-1.7	-21.7	1.6
Residential	0.8	0.4	4.8	8.4	10.0	6.3	-7.1	-17.9	-25.1	-13.3	-16.0	-22.8	-20.8
Exports	8.7	-5.4	-2.3	1.3	9.7	7.0	9.1	8.4	5.1	12.3	3.0	-23.6	6.2
Imports	13.1	-2.7	3.4	4.1	11.3	5.9	6.0	2.2	-0.8	-7.3	-3.5	-17.5	-3.5
Government spending (Consumption and investment)	2.1	3.4	4.4	2.5	1.4	0.4	1.7	2.1	1.9	3.9	5.8	1.3	2.9

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

Notes: (1) Data with seasonal adjustment.

(2) The values of four quarters of 2008 refer to the growth rates adjusted by year in relation to the previous quarter

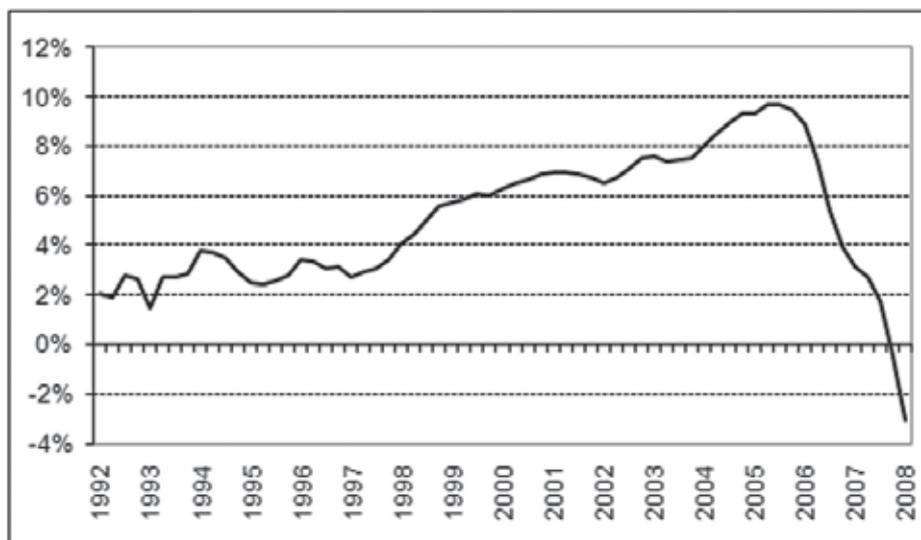
### Financial Innovations and the “Subprime Crisis”

The role of housing appreciation in stimulating consumption and investment in the United States was, however, accompanied by an accumulation of risks, influenced to a great extent by the increasing complexity of relations between debt and credit brought on by financial innovations.

The growth of involvement with non-traditional contracts and the greater possibility of expanding the loan-to-value relation marked the development

of the housing finance system in the United States after 2001, expanding the risks implicit in household mortgage debt.<sup>19</sup> Credit institutions anticipated that borrowers, in assuming mortgages of these types, that property valuation tendencies would be maintained or that the future interest taxes would be reduced so that the mortgages could be favorably refinanced. The spread of these subprime and Alt-A segments made the payments further dependent on these assumptions.

After 2006, however, the end of the period of low interest rates that characterized the first years of the existence of non-traditional mortgage contracts had been reached. Thus, the interest rates on these debts, which during their first years were around 2%-3% per year, jumped to 10%-15% per year. Combined with the rise in the fed funds rate, this movement was reflected in the increase in default levels from these operations. The increase in the number of mortgage defaults and the hardening of credit conditions determined the reversal of the cycle of prices of housing after the middle of 2006 (see Graphic 1). With the depreciation of collateral, the possibility of refinancing mortgages where the borrowers were more vulnerable (*subprime* and Alt-A) became limited, thereby reinforcing the tendency to a high default rate (Guttmann, 2008; Freitas & Cintra, 2008).



Source: Office of Federal Housing Enterprise Oversight (Ofheo).

Note: Variation of the *Purchase-Only Index* with annual adjustment.

Graphic 1 – U.S. Housing Price Index – 1992 to 2008  
(variation in relation to the same quarter of the previous year).

Due to the interconnections created by securitization techniques, the crisis in the *subprime market* (relatively small in spite of the strong growth) of the

residential financing system expanded throughout 2007 cascading to the various financial markets.

With payment delays of *subprime* mortgages, the risk classification of *mortgage-backed securities* that joined these credits to the previously mentioned suite of mortgages had to be lowered by evaluation agencies. This review process by the agencies – which previously had classified these titles as low-risk – generated two effects: it obliged pension funds and insurance companies to remove these assets from their portfolios, since for regulatory reasons they could only carry low-risk assets, and, by generating a lack of confidence about risk evaluations, put into question the price structure of all MBS not issued by the GSE (Guttman, 2008; Kregel, 2008).

The disorder introduced into the MBS market rippled to the markets in which these titles served as guarantees. Losses in the *subprime* markets seemed not limited to agents with positions in the riskiest tranches of *collateralized debt obligations* contracts. Thus, the CDO markets also went through a process of revising and lowering the risk classification, still further accentuating the climate of uncertainty in the financial markets (Dodd, 2007).

The crisis also reached the *asset-backed commercial paper* market. The paralysis of these markets created difficulties in obtaining short term resources by financial agents. The reincorporation of SIV assets onto bank balance sheets occurred due to the existence of repurchase agreements in the event of depreciation of portfolios or, then, by the growing use of credit lines available to them (Eichengreen, 2008).

The decline of assets value of major American and European financial institutions, sometimes followed by bankruptcy or the intervention of the Federal Reserve and/or national European treasuries, led to credit contraction and the strong decline in the world's principal Stock Markets.

According to the World Federation of Stock Markets, depreciation of global stockholder wealth came to around US\$ 28.3 trillion in 2008 (-46.5% in relation to 2007). Besides this, global financial institutions had already recorded more than US\$ 800 billion in liabilities. Successive declarations of asset losses by the large banks in the United States and Europe deepened the state of uncertainty in the interbank markets. At this juncture, the inability to estimate the risks of their counterparts brought a halt to these markets, requiring the intervention of the central banks of the developed countries.<sup>20</sup>

The deepening of the financial crisis and the difficulty of the central banks in reestablishing liquidity conditions blocked the established connection between appreciation of assets, credit and growth that had come to characterize the American economy and, as a consequence, the world's, as dynamic in recent decades. The economic performance data of the United States in the last quarters of 2008 has already shown the negative effect of this destruction of wealth on aggregated family consumption narrowing, respectively, to 3.8% per year and 4.3% per year in relation to previous quarters, pulling the national output down

with it. Gross investments grew only 0.4% per year in the third quarter and plummeted 23% per year in the following quarter. The bad performance of the economy in the second half of the year was based on accumulated output growth of only 1.1% in 2008, the lowest since 2001 (0.8%) (see Table 1).

In this way, a credit crisis with classic characteristics in the housing mortgage sector in the United States, primed by the rise in borrower default level, was transformed into a much deeper financial crisis, threatening the functioning of different insurance operations on a global level. In the face of a regime of *finance-led* growth, depreciation of wealth and contraction of credit yielded results creating the conditions for a recessive process the dimensions of which still remain uncertain.

## Notes

- 1 For commentaries and suggestions the author thanks Marcos Antonio M. Cintra, exempting – the remaining errors.
- 2 In contemporary finances, financial innovations play an important role in the strategies for increase of institutional assets, as well as in generation of its liabilities. Diversification of the mechanisms for fund raising highlighted by insurance practices, allowed banks and many institutions to define the growth rhythm of their assets so that they could then compose the structure of their liabilities (Minsky, 1984).
- 3 Removal of the ban on branch banking activities occurred in 1994 by means of the Riegle-Neal Interstate Banking and Branching Efficiency Act, which allowed expansion of branches and interstate banks. After 1999, *bank holding companies* began further liberalization of their operations, allowing them to retain insurance and investment banks in their corporate structure. The reduction of imposed legal restrictions on American financial institutions, especially on banks, made *de jure* a situation that was already *de facto*, reinforcing tendencies toward flexibility in the financial system (Freitas, 1997; Braga & Cintra, 2004).
- 4 According to the Bureau of Economic Analysis of the United States Department of Commerce, interest on savings in American families was reduced from an average of 8.7% of disposable income between 1970 and 1979 to an average of 4.5% between 1990 and 1999 and to 2.5% between 2000 and 2005.
- 5 The system of *finance-led* growth is observable above all in the United States and also in Great Britain, as a by-product of their institutional characteristics, as well as the central position of the dollar in the international monetary system. Thus this system cannot be generalized to the totality of national economies – nor even extended to developed nations – even though some aspects that characterize them, from the effect of financial deregulation, commercial openings and flexing of work relations, can be verified in various countries. For a synthesis of different approaches on the *finance-led* system, see Clévenot (2008).
- 6 According to National Bureau of Economic Research (NBER) data, there were 120 months of growth, at an average rate of 3.7% between 1992 and 2000. The unemployment rate fell by 4%, in 2000, below the conventional minimum rate of 6% at the time, referring to *nairu* (*non-accelerating inflation rate of unemployment*)
- 7 The NASDAQ Index (National Association of Securities Dealers Automated Quotations System) went from 373.8 points at the end of 1990 to reach a historic peak of 4,696.7 points in February 2000. The Dow-Jones Index of the New York Stock Market jumped from 2,633 points in December 1990 to 11,215 points in August 2000.
- 8 See also Galbraith (1988, p.119): “At any given time, there exists an inventory of undiscovered embezzlement in, or more precisely not in, the country’s banks and businesses. This inventory - perhaps it should be called the bezzle - varies in size with the business cycle. In good times, people are relaxed, trusting, and money is plentiful. And even though money is plentiful, there are always many people who need more. Under these circumstances, the rate of embezzlement grows. The rate of discovery falls off, and the bezzle increases sharply. In a depression all this is reversed.”
- 9 Speculative “bubble” as defined in Kindleberger (1992a, p.199): “A *bubble may be defined loosely as a sharp rise in the price of an asset or a range of asset in a continuous process, with*

*the initial rise generating expectations of further rises and attracting new buyers – generally speculators interested in profits from trading in the asset rather than in its use or earning capacity. The rise usually followed by a reversal in expectations and a sharp decline in price of the resulting in a financial crisis”.*

- 10 From that point on, Fannie Mae and Freddie Mac are considered *Government-Sponsored Enterprises* or GSE.
- 11 The collateral guarantee or collateralized expanded owing to a broad spectrum of operations known as *asset-backed* or *loan-backed securities*. Between 1980 and the third quarter of 2006, the assets of federal agencies increased from US\$ 309 billion to US\$ 6.7 trillion, accumulating 12.6% of the total assets of the American financial system. During this period, the assets of the *Asset-Backed Securities* issuers (ABS – *securities* guaranteed by assets) reached US\$ 3.3 trillion, a non-existent market in 1980.
- 12 The major part of *mortgage backed securities* issued by *Government-Sponsored Enterprises* (Fannie Mae and Freddie Mac) is bought by large universal banks. A traditional residential mortgage implies a capital requirement of 4%, while a standardized mortgage issued and/or guaranteed by Fannie Mae and Freddie Mac requires only 1.6%, which makes it possible to carry more liquid instruments, reducing risks and capital (Basilea Agreement, 1988).
- 13 This contract, commonly known as Neg-Am in the 1980s, came to be known as *pay-option* ARM after the end of the 1990s, when its usage intensified.
- 14 *Special purpose vehicles* consist of subsidiaries created by financial companies or institutions, above all the major banks that try, thereby, to reduce the volume of capital required by prudent regulation. The SIV acquires assets that their controllers do not wish to retain on the balance sheet, financing purchase by means of issuing titles or short term bank debt. Eichengreen (2008) emphasizes that these SIV can be similar to *hedge funds*, assuming high degrees of leverage and mis-matched terms.
- 15 For greater detail about the CDO market, see IMF (2006, 2007).
- 16 According to Ofheo, the regions that had the greatest residential appreciation were: New England, Pacific and the Middle Atlantic.
- 17 According to Poterba (2001), in 1998 only 10.4% of families with annual income less than US\$ 25 thousand owned stocks. Among the rich, with income greater than US\$ 250 thousand per year, nearly 84.5% owned stocks. According to Henwood (1997), among families that owned stocks directly (in other words, excluding ownership of stocks through funds), the richest 5% had 94.5% of the stocks in 1992.
- 18 Housing appreciation could also stimulate mortgage refinancing even without changing the loan interest rate as in the *home equity* extraction. However, the costs with payment of taxes and fines owing to pre-payment make *home equity lending* type credit contracts more advantageous.
- 19 According to Zelman et al. (2007), participation in mortgages of the *Interest Only* and Neg-Am types in the total of mortgages issued in 2006 was from 23%, a growth of 22 p.p. in relation to 2001.
- 20 About the interventions of the Federal Reserve and central banks of other developed countries, see Freitas & Cintra (2008) e Guttman (2008).

## Bibliography

- AGLIETTA, M. *Macroéconomie financière*. 5.ed. Paris: La Découverte, 2008.
- AGLIETTA, M.; REBÉRIOUX, A. *Corporate governance adrift: a critique of shareholder value*. Cheltenham, U.K.: Edward Elgar, 2005.
- ANGELL, C. Home Equity Lending: growth and innovation alter the risk profile. *FDIC Outlook*, Winter 2004.
- BASLE COMMITTEE ON BANKING SUPERVISION. *International convergence of capital measurement and capital standards*. Basle: BIS – Bank for International Settlements, 1988.
- BAYOUMI, T.; EDISON, H. Is wealth increasingly driving consumption? Netherlands Central Bank, *DNB Staff Reports*, n.101, 2002.
- BELLUZZO, L. G.; COUTINHO, L. “Financeirização” da riqueza, inflação de assets e decisões de gasto em economias abertas. *Economia e Sociedade*, Campinas, n.11, 1996.
- BHATIA, A. V. New landscape, new challenges: structural change and regulation in the U.S. financial sector. *IMF Working Paper*, Aug. 2007.
- BORIO, C.; LOWE, P. Asset prices, financial and monetary stability: exploring the nexus. *BIS Working Papers*, Basel, n.114, 2002.
- BOYER, R. Feu le regime d’accumulation tire par la finance: la crise des subprimes en perspective historique. *Revue de la Régulation*, n.5, 2009.
- BRAGA, J. C. S. Financeirização global – o padrão sistêmico de riqueza do capitalismo contemporâneo. In FIORI, J. L.; TAVARES, M. C. (Org.) *Poder e dinheiro*. Uma economia política da globalização. Vozes: Petrópolis, 1997.
- BRAGA, J. C. S.; CINTRA, M. A. M. Finanças dolarizadas e capital financeiro: exasperação sob comando americano. In: FIORI, J. L. (Org.) *O poder americano*. Petrópolis: Vozes, 2004.
- CAGNIN, R. F. *O mercado imobiliário e a recuperação americana após 2002*. Campinas, 2007. Dissertação (Mestrado) – Instituto de Economia, Universidade Estadual de Campinas.
- CANNER, G. et al. Mortgage refinancing in 2001 and Early 2002. *Federal Reserve Bulletin*, Dec. 2002.
- CASE, K. E.; QUIGLEY, J. M. *Stock market wealth, housing market wealth, spending and consumption*. Berkeley Program on Housing and Urban Policy, paper W01’004. 2001.
- CINTRA, M. A. M. A dinâmica do novo regime monetário-financeiro americano: uma hipótese de interpretação. *Estudos Avançados*, São Paulo, n.39, p.103-41, 2000. Disponível em: <[http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0103-4014-2000000200010&lng=pt&nrm=iso&tlng=pt](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-4014-2000000200010&lng=pt&nrm=iso&tlng=pt)>.
- CINTRA, M. A. M.; CAGNIN, R. F. Evolução da estrutura e da dinâmica das finanças norte-americanas. *Econômica*, Rio de Janeiro, v.9, n.1, p.89-131, 2007a.
- \_\_\_\_\_. Euforia e pessimismo: os ciclos de asset s, de crédito e de investimento da economia americana, após 1982. *Novos Estudos Cebrap*, São Paulo, v.79, p.23-44, 2007b.

- CLÉVENOT, M. La difficulté à nommer le nouveau régime de croissance. *Revue de la Régulation*, n.3/4, 2008. Disponível em: <<http://regulation.revues.org/index6983.html>>.
- DODD, R. Subprime: tentacles on a crisis. International Monetary Fund. *Finance & Development*, Dec. 2007.
- DUBACH, N. A. *Immobilier: l'Asie, la bulle et la mondialisation*. Paris: CNRS Editions, 2008.
- EICHENGREEN, B. Dix questions à propos de la crise de prêts subprime. Banque de France. *Revue de la Stabilité Financière*, n.11, fév. 2008.
- FREITAS, M. C. P. A natureza particular da concorrência bancária e seus efeitos sobre a instabilidade financeira. *Economia e Sociedade*, Campinas, n.8, 1997.
- FREITAS, M. C. P. de; CINTRA, M. A. M. Inflação e deflação de assets a partir do mercado imobiliário americano. *Revista de Economia Política*, São Paulo, v.28, n.3 (111), p.414-33, 2008.
- FMI. *Global Financial Stability Report*. Washington, DC: International Monetary Fund, Apr. 2006.
- \_\_\_\_\_. *Global Financial Stability Report*. Washington, DC: International Monetary Fund, Apr. 2007.
- GALBRAITH, J. K. *1929: o colapso da Bolsa*. São Paulo: Pioneira, 1988.
- GOODHART, C.; HOFMANN, B. *House prices and the macroeconomy*. New York: Oxford, 2007.
- GREENSPAN, A. *Mortgage banking*. California: American Bankers Association Annual Convention, 2005.
- GUTTMANN, R. *Central banking in a debt-deflation crisis: a comparison of the Fed and ECB*. Hofstra University, New York: CEPN; Paris XIII, 2008. Disponível em: <[http://www.univ-paris13.fr/CEPN/texte\\_guttman\\_210308.pdf](http://www.univ-paris13.fr/CEPN/texte_guttman_210308.pdf)>.
- HENWOOD, D. *Wall Street*. New York: Verso, 1997. Disponível em: <<http://www.wallstreetthebook.com/WallStreet.pdf>>.
- KINDLEBERGER, C. P. Bubbles. In: EATWELL, J.; MILGATE, M. (Org.) *The new Palgrave dictionary of money and finance*. New York: Palgrave Macmillan, 1992a.
- \_\_\_\_\_. *Manias, pânico e crashes: um histórico das crises financeiras*. Porto Alegre: Ortiz, Gazeta Mercantil, 1992b.
- KREGEL, J. Minsky's cushions of safety: systemic risk and the crisis in the U.S. subprime mortgage market. *Public Policy Brief*, n. 93, The Levy Economics Institute of Bard College, Jan. 2008. Disponível em: <<http://www.levy.org/vdoc.aspx?docid=974>>.
- MINSKY, H. P. Financial Innovations and financial instability: observation and theory. In: \_\_\_\_\_. *Financial innovations: their impact on monetary policy and financial markets*. Boston: The Federal Reserve Bank of St. Louis, Kluwer-Mighoff, 1984.
- MISHKIN, F. S. The transmission mechanism and the role of asset prices in monetary policy. *NBER Working Paper Series*, n.8617, 2001.
- NOTHAFT, F. The contribution of home value appreciation to U. S. economic growth *Urban Policy and Research*, v.22, n.1, Mar. 2004.

POTERBA, J. M. *The Rise of the Equity Culture: US Stockownership Patters, 1989-1998*. 2001. (Mimeogr.). Disponível em: <[www.mit.edu/faculty/index](http://www.mit.edu/faculty/index)>.

ZELMAN, I. et al. Mortgage liquidity du jour: underestimated no more. *Sector Review*, Credit Suisse, 2007. Disponível em: <<http://billcara.com/CS%20Mar%2012%202007%20Mortgage%20and%20Housing.pdf>>.

*ABSTRACT* – Since the 1980's and after, American finances had passed through deep changes that reinforced the role of capital markets in wealth and credit management in the U. S. In this new finance structure decision concerning household and corporation expenses suffered from important influences on theirs assets from price cycles, resulting in finance-led economic cycles. The article assesses the last two economic cycles in the United States, during which period the value of residential property replaced the role previously fulfilled by the shareholder value to stimulate the aggregate expenditure and investment.

*KEYWORDS*: U. S. ECONOMY, FINANCE-LED, HOUSING FINANCE, SUBPRIME CRISIS.

*Rafael Fagundes Cagnin* is an economist, Master in Economic Theory from State University of Campinas with support from CNPq, Doctorate in Economics at the University of Paris XIII (North) with support from the Alfsan Program. @ – rfcagnin@gmail.com

Received on 5.24.2009 and accepted on 5.26.2009.

Translated by Cary Wasserman and Valéria Wasserman. The original in Portuguese is available at [http://www.scielo.br/scielo.php?script=sci\\_issuetoc&pid=0103-401420090002&lng=pt&nrm=iso](http://www.scielo.br/scielo.php?script=sci_issuetoc&pid=0103-401420090002&lng=pt&nrm=iso).