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The Financial Crisis and the Global Shadow Banking System

1. Introduction

- 1 The financial crisis that started in the US in mid-2007, as a result of increasing default rates and the devaluation of real estate property and of financial assets linked to the US subprime mortgages, has given renewed strength to the debate about the current architecture of the US and the international financial system, its potential systemic risks and its mechanisms of supervision and regulation. This specific architecture turned a classic credit crisis into a financial and banking crisis of vast proportions, reaching a systemic dimension. In a classic credit crisis, the sum of the potential losses (corresponding to loans granted against poor collateral) would be already known. In the current framework of the financial system, the credit derivatives and the structured products attached to different credit operations have replicated and multiplied these losses by an unknown factor and have redistributed the ensuing risks to an entire network of financial institutions at a global scale. A year and a half after the outburst of the crisis, it is still impossible to measure the losses and to determine their distribution, aggravating the lack of confidence that fueled the spread of the crisis. For this reason, interbank liquidity remains restricted, despite the continuous and voluminous injections of liquidity and the guaranties given by the monetary authorities.
- 2 The unfolding of the crisis has put in question the very survival of many financial institutions, posing a threat to the current financial architecture as well as to the basic principles of the system of banking and financial regulation and supervision. It has also shed some light on many features of this architecture, formerly cloaked in shadows, thus paving the way for an understanding of its real structure. The most important of those features is the interaction between universal banks and other financial institutions, which developed mostly in the obscure over-the-counter (OTC) markets.
- 3 Banks sought different means for moving credit risks off their balance-sheets, aiming at increasing the volume of operations without the need to put aside the capital coefficients required by the Basel Agreements. They did this in various ways: by acquiring protection against credit risks on the derivatives markets, by issuing credit securities whose return is dependent on the amortization paid by borrowers and by creating various Special Investment Vehicles (SIV), conduits or SIV-lites. However, they were only able to do it because other agents were willing to take on the counterparty of such operations, namely to take risks for a return which seemed very high at the time.
- 4 These agents were part of the so-called global shadow banking system, that is a set of institutions which operated as banks without being banks, raising resources in the short term, operating with very high leverage and investing in long-term and illiquid assets. Unlike banks, however, these institutions were loosely regulated and supervised, they did not have reserves of capital, they had no access to deposit insurance, to the rediscount operations or to the last resort credit lines of central banks. As a result, they were highly vulnerable both to an investors' run (withdrawal of resources or mistrust of short-term markets) and to asset imbalance (devaluation of assets as compared to liabilities).
- 5 This article discusses the interaction among different financial institutions, including some features of the center stage of this interaction – the OTC markets – and the use of some financial innovations that resulted in an amplification of the crisis. The article comprises four sections besides this introduction. In the first section, the structure of the global shadow banking system is presented. In the second section, the discussion focuses on the dismantling of these complex

and obscure institutions. In the third section, an analysis is conducted of the opaque network of interrelations between the banking system and the parallel financial system, with an emphasis on OTC markets. In the fourth section, an attempt is made at briefly indicating the possible repercussions of the forced shrinkage of the shadow banking system and the direction of the improvement of regulation and supervision structures.²

2. The participants of the global shadow banking system

- 6 Banks grant loans with the resources they receive from depositors and with their own capital. Above all, however, they create deposits – scriptural currency – by granting credit (Keynes, 1930). They also issue debts in order to raise resources and to grant new loans (Chick, 1986). In general, loans granted span over longer periods of time than deposits or debts. As a result of the creation of deposits and of the time mismatches, the system tends to be highly unstable, subject to periods of euphoria or pessimism and to bank runs. For this reason, institutions were created to guarantee loans, to act as last resort lenders, to regulate and to supervise the system, so as to ensure that banks always have enough assets to face investors' withdrawals.
- 7 In last decades, three simultaneous and complementary processes developed. First, commercial banks, subject to prudential regulation and to mounting competition, greatly increased the amount of credit available. In order to do so, they had to move part of the assets (and therefore of the risks) off their balance sheets, given that their capital was insufficient to meet the requirements established by Basel Agreements. As a result, they no longer acted as credit suppliers and took on the developing role of resource mediators in exchange for certain fees. They consequently breached the previously existing direct relation with borrowers, which used to be closely monitored, as it was seen as an “antecedent indicator” of default risks. Second, banks started managing investment funds, as well as offering services of asset management through their departments, providing hedge as dealers on the derivatives market and offering credit lines through issues of commercial papers and other debt bonds on the capital market (Farhi, 2002). Third, a large variety of institutions came to play a role similar to those of commercial banks without being included in the existing regulatory structure and therefore without detaining the required reserves of capital.
- 8 According to McCulley (2007), executive director of the largest resource manager in the world, Pimco, the global shadow banking system includes all agents involved in leveraged loans which do not have (or did not have, according to the rule in force before the outburst of the crisis) access to deposit insurances and/or to rediscount operations of central banks. These agents are not subject to the prudential regulations of the Basel Agreements (Cintra & Prates, 2008a and Freitas, 2008). This definition encompasses large independent investment banks (brokers-dealers),³ hedge funds, investment funds, private equity funds, the different special investment vehicles, pension funds and insurance companies. In the US, one must further include the regional banks specialized in mortgage credit (which have no access to rediscount) and quasi-public agencies (Fannie Mae and Freddie Mac), created with the purpose of providing liquidity for the US real estate market.
- 9 In the search for instruments to move credit risks off their balance sheets, banks subject to regulation packaged the credits they granted, submitted them to risk rating agencies and issued bonds attached to them with returns proportionate to the cash flow generated by the amortization of the installments. These bonds (CDOs) were divided into various tranches with different risks and returns. The structure of interest distribution came to be known as the interest waterfall, since the water had to fill up the first reservoir, or the senior tranche, to be able to start filling the others (mezzanine and equity tranches). The riskiest portion (equity) – the one which takes on the risks of initial default and which received the name of toxic waste – very frequently came to be a part of the assets of the special investment vehicles. These different legal entities – Special Investment Vehicles (SIV), conduits or SIV-lites⁴ –, created to

purchase structured bonds with resources provided by the issuing of short-term credit (asset-backed commercial papers), were technically not the property of banks, nor their performance appeared on the balance sheets, and they thus became a relevant part of the global shadow banking system, along with many other financial intermediaries. In this way, universal banks could put together larger resources, as well as incomes (fees, shares, etc.), which allowed them to grant new credits and to raise their profits, in a process of increasing leverage.

10 They created and spread credit derivatives (CDS), through which they could buy protection against the credit risks of their loan portfolios. They also resorted to the so-called “structured products”, instruments which result from the combination of a credit bond – debentures, bonuses, negotiable bonds, mortgages, credit card debts, etc. – and the set of financial derivatives (futures, terms, swaps, options and credit derivatives), no matter what the underlying asset is. At a later moment, these banks started issuing “synthetic” versions of these instruments, backed by credit derivatives and not by the loans granted.

11 Unable to raise resources from depositors, the SIVs and other financial intermediaries resorted to the capital market, mainly by issuing commercial papers bought by money market mutual funds. According to the Wall Street Journal, the SIVs had issued US\$ 1,5 trillion in commercial papers until mid 2007 (Reilly & Mollenkamp, 2007). Since they could not create money by granting credit directly, they made use of these short-term resources to assume the counterparty of the banks’ operations, whether on the derivatives market, selling protection against credit risks, or acquiring the credit backed securities or structured products issued by the banks, whose profitability was attached to the amortization of the loans. They thus came to participate in the credit market, raising short-term resources to fund long-term credit (such as 30-year mortgages) and acting as quasi-banks (Kregel, 2008, Guttman & Plihon 2008, and Freitas & Cintra, 2008).

12 Besides the SIVs, an array of financial institutions chose to participate in the global shadow banking system. The most important were the large investment banks (brokers-dealers), followed by the hedge funds and other institutional investors, especially insurance companies, pension funds and the Government Sponsored Enterprises (GSE). Investment banks multiplied the hedge funds under their administration, clearing space in their portfolios for products and assets of greater risk and set up highly leveraged structures. Similarly, universal banks also started sponsoring hedge funds, providing them with credit for their operations (including the purchase of “structured products”) as well as copying their business strategies. According to Blackburn (2008: p. 90), “the Wall Street banks not only sponsor hedge funds, but they also look more and more like them as they use their position as prime brokers to leverage their bets and to seek arbitrage.”⁵ The role of the hedge funds is crucial, since they appear at different ends of the leveraging and distribution of financial assets (CDO, CDS, etc.). Furthermore, they are the most difficult agents to be put under the control of the regulatory framework of central banks. In other words, the hedge funds are the least regulated (and thus more shadowy) agents, at the same time as they closely depend on bank liquidity and contribute to increase systemic risk (Aglietta & Rigot, 2008). The GSEs, on their turn, with the implicit guarantee of the public sector, represented the mirror of the highly leveraged off-the-balance vehicles of the private financial segment.⁶ Belluzzo (2008) underscored the reasons and the reach of this strategic option of the global shadow banking system’s agents: “in a scenery of falling stability and returns, the search for higher gains led to an aggravation of the relation between the assets carried on the balance sheets and the institution’s own capital.”

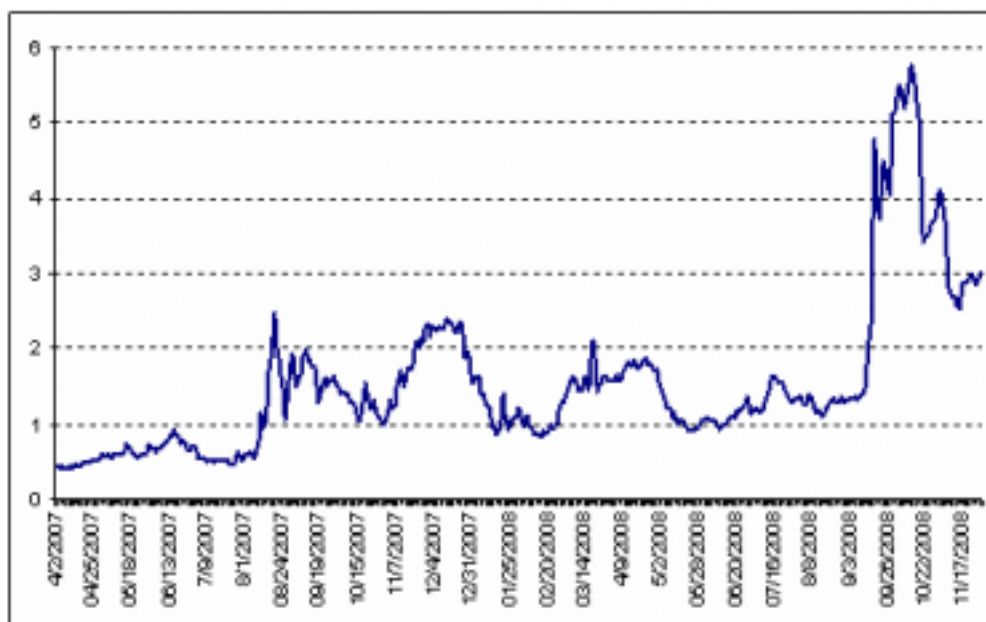
13 It is also important to understand the role of risk-rating agencies in the constitution of the global shadow banking system. These agencies grew rapidly and markedly increased their profits with the spread of asset-backed securities. By helping financial institutions to mount “credit packages” which backed the securities so as to ensure the best possible rating, the agencies had a relevant role in the creation the myth that banking credit assets could be priced

and traded as “low risk” on secondary markets. Besides, they incurred in a serious conflict of interests inasmuch as a substantial part of their profits was derived from such activities.

- 14 Finally investment banks in the City of London – which prevail in the asset market – played a relevant role as a counterpart to the Wall Street financial system since the implementation of the Financial Services Authority as an unified agency (1997) which extended the auto-regulation of the British banking system. According to Gowan (2008: p. 8) London became a satellite for transactions by large US banks: “the place where you could do what you couldn’t do back home: a place of regulatory arbitrage”. London and New York together dominated the issue of shares and bonus, the foreign exchange market, and the transactions in the market for over-the-counter derivatives⁷. In 2007 London accounted for 42.5% of world issues of foreign exchange and interest rate derivatives and New York, 24%. As to credit derivatives the US market share was 40% in 2006 and London, 37% (after reaching 51% in 2002).

3. The melting down of the global shadow banking system

- 15 Between June 2007 and November 2008, there were many especially dramatic events in the course of the crisis, with strong impacts on the global interbank markets.⁸ These moments were mirrored in the behavior of the so-called TED spread – the difference between the rate of the three-month US Treasury papers (on the secondary market) and the Libor rate (London Interbank Offered Rate) for three-month deposits in Eurodollars – an international reference for interbank loans, estimated at US\$ 23.3 trillion in March 2008 by the Bank for international Settlements (BIS) (see Graph 1). In spite of the steep fall of the US basic interest rate and the combined reduction of the interest rates in the main developed economies in October and November 2008, the spread between the US Treasury Bills and the Libor rate remained at a high level. On the one hand, the level of uncertainty remained high on the interbank market. The bankruptcy of the Lehman Brothers investment bank, on September 15th, brought about a freezing of interbank operations and spread the mistrust of the financial system among investors, entailing panic movements on the stocks, exchange, derivatives and credit markets at a global scale. On the other hand, preference turned to the US Treasury papers, the global monetary system’s last resort assets, still under the control of the US State-Nation, resulting in a run for the dollar, despite Wall Street being the epicenter of the crisis. On November 20th, 2008, given the increase in demand, the return of the three-month US Treasury Bills dropped to 0,01%.
- 16 At this moment, the non-banking financial institutions were subject to a real “bank run” against the global shadow banking system, in McCulley’s phrasing (2007b), or “a bank run against non-banks”, according to Kedroski (2007). In moves which were very telling of the importance acquired by the global shadow banking system, the Federal Reserve and the US Treasury extended to many of these institutions (investment banks and GSEs) access to rediscount operations – accepting mortgage credit-backed papers among others – and created credit lines for the money market mutual funds.⁹ The Bank of England also adopted similar measures by means of swap operations. But they proved insufficient to prevent the dismantling of the global shadow banking system. In the process, the institutions, seeking to survive, actively sold the assets for which there still was a market, entailing a significant devaluation of their prices.

Graph 1 - TED Spread - Risk prize among US short-term bonds and the Libor rate (in %)

Source: Federal Reserve. Available at - <http://www.federalreserve.gov/releases/h15/data.htm>.

- 17 With no reserves of capital, with assets whose liquidity vanished since the outburst of the crisis in June 2007 – so that they were no longer given a market price – and facing the rapid shrinkage of their funding source, the **large US investment banks** simply ceased to exist. In March 2008, the bankruptcy of the fifth largest US investment bank had only been avoided by the intervention and by the US\$ 29 billion guarantee offered by the Federal Reserve for its vastly devaluated purchase by JP Morgan/Chase (US\$ 10 per share as opposed to the US \$ 170 per share a year before). The refusal of US monetary authorities to prevent the Lehman Brothers' bankruptcy¹⁰ unleashed the purchase of the Merrill Lynch by the Bank of America, whereas Goldman Sachs and Morgan Stanley were authorized to become financial holding companies, subject to the Basel regulations and with ample access to the monetary authorities' rediscount operations.
- 18 **Institutions specialized in mortgage credit** were badly shaken as much in the United States as in Europe. The first bank run in England since 1860 hit the Northern Rock bank, which raised short-term (3 month) resources on the interbank market to lend them across a long term (twenty years, in average) to real estate buyers (Ndong & Scialom, 2008). With greater risk aversion, the financial institutions cut its credit lines and it was eventually nationalized (after receiving US\$ 98,3 billion from the Bank of England), the same fate of Bradford & Bingley, a bank specialized in real estate credit and mortgages (part of which was bought by Santander). In the US, these institutions specializing in mortgage credit are constituted by a set of regional banks. They take deposits and are therefore collateralized by the Federal Deposit Insurance Corporation (FDIC), but they have no access to the Federal Reserve's rediscount. On July 11th, 2008, the IndyMacBank underwent the FDIC's intervention. Two more immediate effects were registered as a result of its collapse: a) depositors in the US banking system holding deposits that surpassed the limit covered by the FDIC sought to redistribute them among different banks; b) the fears of investors and depositors spread to other similar institutions, causing many new bankruptcies.¹¹ The largest bank among these, the Washington Mutual, opened bankruptcy in September 2008. Part of its assets was purchased from the FDIC by the JP Morgan/Chase bank.

19 The deep loss of trust in institutions with real estate assets also hit two large quasi-public agencies, created in order to provide liquidity for the US real estate market, the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Association (Freddie Mac).¹² These private companies, whose shares are negotiated on the stock market, even though being considered Government Sponsored Enterprises (GSE), managed to fund themselves at a cost which was very close to the T-bonds and operated at a much higher degree of leverage than the other financial institutions – Fannie Mae had a total debt of US\$ 800 billion and Freddie Mac of US\$ 740 billion – whereas the sum of their net worth amounted to only US\$ 71 billion. The two companies carried – by issuing debt or collateralized Residential Mortgage-Backed Securities (RMBS) – in the value of US \$ 4.7 trillion, 32% of the mortgage credit in the US (US\$ 14.8 trillion) and 33% of the GDP, estimated at US\$ 14.3 trillion in June 2008 (see Table 1).

**Table 1 US mortgage debt outstanding, by type of property and holder
US\$ billion / at the end of the period**

	2005	2006	2007	2008 (a)
Total	12,101	13,512	14,603	14,804
<i>By type of property</i>				
One-to four-family residences	9,379	10,452	11,158	11,254
Multifamily residences	688	741	837	875
Nonfarm, nonresidential	1,333	2,210	2,490	2,565
Farm	102	109	117	109
<i>By type of holder</i>				
Major Financial Institutions	4,396	4,781	5,067	5,114
Commercial Banks	2,958	3,403	3,646	3,662
Savings Institutions	1,153	1,074	1,095	1,116
Life Insurance Companies	285	304	328	336
Federal and related agencies	667	689	726	756
Farmers Home Administration	73	76	78	80
Federal National Mortgage Association (Fannie Mae)	367	383	404	421
Federal Land Banks	55	60	67	72
Federal Home Loan Mortgage Corporation (Freddie Mac)	61	66	80	88
Mortgage pool or trusts (b)	5,673	6,575	7,382	7,549
Government National Mortgage Association	405	410	443	510
Federal Home Loan Mortgage Corporation (Freddie Mac)	1,309	1,451	1,717	1,802
Federal National Mortgage Association (Fannie Mae)	1,827	1,973	2,298	2,445
Private mortgage conduits (c)	2,132	2,738	2,918	2,787
Individuals and others (d)	1,365	1,467	1,428	1,386

Source: Federal Reserve, *Statistical Supplement to the Federal Reserve Bulletin*, October 2008. Available at - http://www.federalreserve.gov/pubs/supplement/2008/10/table1_54.htm.

Notes: a) Position in June 2008; b) Stock of mortgage-backed securities issued or guaranteed by the agency in question; c) Including securitized home equity loans; d) Other holders include mortgage companies, real estate investment trusts, state and local credit agencies, state and local retirement funds, credit unions and finance companies.

20 Because of the drop in the price of real estate, given as collateral of the loans, whose value sank below the debts (mortgages) and the 100% increase in default rates, the companies were facing insolvency or, at the very least, they had no more capital to keep operating (Torres Filho & Borça Jr., 2008). The default of subprime mortgages in their portfolio was responsible for about 2% of the agencies' losses, and Alt-A mortgages (requiring less documentation) for about 50%.¹³ On July 30th, 2008, the US Congress authorized the Treasury to inject US\$ 100 billion into each institution and allowed the renegotiation of up to US\$ 300 billion of real estate loans in order to keep owners in their houses and to prevent foreclosures and deflation in real estate prices.

21 This unprecedented measure can be explained by the volume of these companies' liabilities and by the fact that a significant part of their papers had been purchased by foreign central banks. In June 2008, the total of the US federal agencies' debts in foreign hands amounted

to US\$ 1.6 trillion, of which US\$ 1.1 trillion in the portfolios of official creditors and US\$ 564.7 billion in those of private ones.¹⁴ In other words, papers issued by Fannie Mae and by Freddie Mac were considered as risk-free as the US Treasury bonds (US\$ 1.8 trillion) by the managers of international reserves, with the supplementary advantage that they offered slightly higher profits.

22 It is important to note that the first signs of the outburst of a crisis hit the **hedge funds**. Between July and August 2007, many hedge funds managed by commercial and investment banks declared heavy losses with subprime mortgage-backed assets and were subsequently closed down. However, the sequence of events was less destructive for these financial institutions, which managed assets estimated at US\$ 2 trillion and operated with extremely high leverage. Some factors may explain this relative degree of “survival.”

23 First, one has to take into account the fact that, exactly because they are small, a large portion of these institutions is more flexible and rapidly managed to assume defensive positions on the markets. These defensive positions entailed the sale of their assets and the realization of new “short” positions, exerting further pressure on their prices. The Securities and Exchange Commission (SEC) attempted to limit this effect by forbidding the short sale of many companies’ shares, especially those of financial institutions. This movement was followed by supervising authorities on the markets of developed economies (such as the United Kingdom).

24 Second, even though they share the common name of hedge funds, the strategies adopted by them are very diverse. Such diversity is clear in the contrasting results attained by hedge funds. According to the October 8th 2008 issue of the specialized publication *Hedge World*,¹⁵ hedge funds suffered an average 9.41% of losses in the year, which lies much lower than the losses registered by the traditional stock mutual funds, for example. The greatest losses were registered by those concentrating on commodities and energy, amounting to 20.84% in the year, whereas the largest profits were registered by those concentrating on short positions in stocks, 15.14% in the year, in spite of SEC’s having temporarily forbidden the short sales of financial institutions’ shares.

25 Third, it is worthwhile noting a defining feature of hedge funds: requests for withdrawals are only possible on pre-established dates (usually at the end of the quarter) and reimbursements take another three months. This feature did not shield them from the financial chaos experienced by the other institutions, but provided them with complementary time to reduce their positions when a large amount of withdrawals was foreseen. The acceleration of the crisis raised requests for withdrawals in late September 2008, producing a new and gigantic round of deleveraging, casting even darker shadows on the future of such funds. According to *The Economist* (November 2008): “Over the next few quarters the fallout is likely to be brutal. Between 1990 and last year the industry’s assets under management grew almost 50-fold, to nearly US\$ 2 trillion. Now industry executives predict that assets could fall by 30-40%, as clients stampede for the exit. The number of funds, which climbed to over 7,000 (...) could fall by half.”

26 Last but not least, insurance companies assumed relevant positions in the global shadow banking system. Persaud (2002) already drew attention to the fact that low interest rates meant that insurance companies would no longer be satisfied with investing their technical reserves in low-risk assets to reach the required benchmark for performing their operations. In order to obtain the necessary return, they collectively moved to higher levels of risk. This shift of insurance companies’ applications was greatly intensified during the recent period of euphoria. Many insurance companies disclosed substantial financial losses and some mid-size companies went bankrupt. The most spectacular case was that of the largest insurance company in the world, the American International Group Inc. (AIG). Before being rescued by the Federal Reserve, this institution had declared US\$ 321 billion in losses and in write-offs. Furthermore, the company had taken on positions amounting to more than US\$ 460

billion in the sale of protection against credit risks, including US\$ 60.6 billion in protection for subprime mortgage-backed assets (Son, 2008). On September 16th, 2008, the Federal Reserve granted an US\$ 85 billion loan to AIG, later increased to approx. US\$ 200 billion, at very high interests and with shares that gave the Federal Reserve more than 80% of the voting capital¹⁶ as collateral. According to Morris (2008), this unprecedented action stemmed from the large positions taken on by AIG as one of the major sellers of protection on the credit derivatives market.

27 Months after the prices of large banks' stocks had suffered dramatically steep falls, those of the insurance companies followed suit, bringing about the possibility of new bankruptcies and of a strong movement of consolidation in the segment. One must still add the fact that, in spite of the absence of reliable information, it is known that, besides the role it played in the global shadow banking system, the assets' deflation deeply affected pension funds as much as countless mutual funds worldwide.¹⁷

28 Simultaneously, **universal banks** – the counterparties of the global shadow banking system – accounted for growing losses. The estimates are still incomplete and contradictory among themselves (Onaran, 2008).¹⁸ According to the IMF (October, 2008), the losses of mortgages and of mortgage-backed assets could reach US\$ 1.4 trillion. The same document points out that they could still rise if developed economies keep deteriorating. First, default starts spreading to other forms of consumer credit and it is beginning to reach debtors of mortgage credit regarded as less risky than subprime mortgage as well as credit cards owners. Second, it should be noted that the majority of subprime mortgage loans was granted under conditions that specified initially low installments which would however rise sharply after a year or two. According to *Barclay's Capital*, in the last quarter of 2008, there might be approximately US\$ 7 billion in pending loans whose installments will be readjusted. This value will then rise to about US\$ 20 billion in the third quarter of 2009 and might reach US\$ 32 billion in the second quarter of 2010. The average increase in monthly payments will be of about 30% in early 2009 and might reach 80% by the end of 2011 (Bañales, 2008). Third, the major source of potential supplementary losses – resulting from the dismantling of the shadow banking system – is the worsening of the counterparty risk on the financial derivatives market, that is to say, the risk that institutions that accepted to take on the banks' credit risks find themselves unable to meet their obligations. The evolution of this risk will be dealt with below.

29 In the face of the losses, the large banks are being repeatedly forced to search for new and growingly expensive capitals, especially from sovereign wealth funds, in order to reinforce their balance sheets and meet the Basel requirements.¹⁹ This need is recurrent because it comes about every time that the banks are forced to acknowledge new losses. One of the sources of pressure for new capitals comes from the need to relocate on the balance sheets the assets which had been moved to the SIVs, one of the global shadow banking system's entities. Just to mention one example, the Citigroup was forced to close seven SIVs in December 2007, taking on US\$ 58 billion in debts and, on November 19th, 2008, it purchased another US\$ 17.4 billion from other SIVs, further deteriorating its balance sheet. The UBS (2008) pointed out that, since mid 2007, nearly US\$ 265 billion in capital were raised by the banks, of which US \$ 165 billion by US banks and US\$ 97 billion by the European ones.' He underscored that "the segment would still require more capital" and went on to conclude that "to keep raising capital will be ever more difficult as a result of the investors" getting growingly weary (...) and of the fact that new attempts at raising capital will have to be made through the placement of stocks." (UBS, 2008).²⁰ *Bloomberg*, on its turn, estimated a capital injection of US\$ 352,9 billion in the one hundred largest universal and investment banks until August 12th, 2008. In early October, the vast public plans of rescuing banks and extending collaterals to the deposits showed that such estimates were still far from reality and that the balance sheets of commercial

banks, although more solid than those of the participants of the global shadow banking system, were also very debilitated.

4. An opaque network of international financial interrelation

30 The financial architecture dismantled by the crisis developed in the course of the past decades against the background of the complex relation established among financial institutions on the obscure over-the-counter markets. This happened in a context in which ample freedom was given to financial agents. Supervisory and regulatory institutions were convinced that the mechanisms of corporate governance and the banking risk management and monitoring instruments had evolved to a point at which their decisions could be regarded as the most appropriate and efficient to avoid episodes which could entail systemic risk.

31 The inexistence of a clearinghouse as well as the absence of norms and specifications are the basic features common to the assets negotiated on the OTC markets. These instruments are freely negotiated among financial institutions and between these and their clients. As a result, the position of participants is completely obscure. Negotiations on these markets ended up constituting an extended and intricate network of credits and debts among the financial institutions. Not even the regulators manage to picture the crossed risks and the positions of the different financial institutions.

32 Furthermore, the products negotiated on the OTC market have no official price, as they are negotiated at prices not made public by the parties. This lack of transparency in OTC market prices, especially concerning those of little liquidity or in complex and sophisticated packages, may prevent or hinder their evaluation. The accounting practice of mark to market (adjusting to market values), recommended by international supervisory and regulatory organisms in order to enable an evaluation of the value of positions, might not have a clear reference when referring to OTC derivatives, involving the consultation of other financial intermediaries or calculations by means of complex mathematical models. Already in the late 1990s some cases of losses on OTC markets were only identified by companies at the delivery date and not in the course of the operation and were at the origin of many lawsuits against the financial intermediaries of these operations.

33 In the current crisis, the problem resurfaced much more dramatically. By the end of 2006, the Financial Accounting Standards Board (FASB), which regulates the accounting information of financial institutions, introduced a new classification of financial assets to better determine their prices. Level 1 encompasses assets whose prices are established on liquid markets; level 2 includes assets whose prices depend on models with inputs based on the prices of assets negotiated on other markets; level 3 refers to assets whose markets are less liquid and whose prices can only be determined by means of mathematical models. A large portion of the OTC derivatives is to be found in level 2, whereas the mortgage-backed assets or other types of credit and investments in private equity belong to level 3. Investor Warren Buffett declared to *Fortune* that these institutions “are marking to model instead of marking to market. The recent debacle of debt markets has turned this process into one of marking to myth.”²¹

34 The new accounting rules, which ought to ensure the system’s stability and transparency, have contributed to enhance its volatility and lack of transparency, thus triggering a liquidity crisis coupled with a trust crisis. Indeed, level 1 assets only represented about 9% of the total assets of US financial institutions, 91% belonging to levels 2 and 3. It is thus difficult to deny that these financial institutions held an excess of illiquid assets, which the financial crisis re-priced at levels close to zero.²²

35 The extremely high leverage of financial institutions also rests on the negotiation of financial derivatives. By means of these instruments, which require very little initial payment – sometimes none – financial institutions seek to cover their exchange rate, interest rate and other assets’ market value risks as much as they speculate on the tendencies of their prices

or perform arbitrage operations. The expansion of the OTC markets, which had already been developing at fast pace since the late 1980s, speeded up as from the late 1990s with the creation and the intense negotiation of the credit derivatives. These markets also negotiate bonds resulting from the securitization of credits granted by commercial banks combined with some sort of derivative, a combination which receives the name of “structured products.”

36 High volatility on very leveraged markets may result in losses larger than the institutions’ assets, leading in turn to a sudden perception of supplementary risks, in unknown amounts and distribution. The features of the risk transfer mechanisms introduced new uncertainties by themselves. It is not known whether the risks were diluted across a large number of small speculators or whether they were concentrated in a few portfolios. Therefore, more than a year and a half after the outburst of the crisis, losses remained incommensurable and their distribution remained largely unknown, which in turn contributed to the credit crunch, to a maintenance of high loan rates, to the feeling of unease and, at times, of panic of investors, devaluating financial and real estate assets, besides bringing about a liquidity squeeze on interbank markets.

37 On organized markets, the transfer of gains and losses is performed and guaranteed by the clearinghouses. On OTC markets, the inexistence of such clearinghouses draws attention to the high default risk of the losing counterparty. The potential risks of OTC derivatives are, thus, much higher than those traded on organized markets. The fast expansion of credit derivatives since the turn of the millennium has greatly increased the aggregate risks on OTC markets. These derivatives were born out of the perception of the growing gap between sophisticated interest, exchange and market risks management techniques and the more traditional means available for managing credit risks (securitization, diversification of the portfolio, collaterals, operational limits, etc.). It is known that financial derivatives markets are zero-sum games in which, in the aggregate, the losses of some correspond exactly to the gains of others if transaction costs are excluded. This feature is even more important for credit derivatives, given that in this case the risk concerns the principal of the operation, whereas in the case of other derivatives risk is on the margin (selling for less than previously purchased or buying for more than sold).

38 By resorting to the already existing swap mechanisms, the credit derivatives allowed banks to move risks off their balance sheets at the same time that the global shadow banking system’s financial institutions found new means of risk exposure and profit on the credit market. Those which were most resorted to were the credit default swaps (CDS), which transfer risk credit between the agent that purchases the protection and the counterparty that accepts to sell it. By this mechanism, the holder of a credit portfolio purchases protection (pays a premium) from the protection seller. In exchange, the seller assumes, for a predetermined period of time the obligation to pay the agreed sums in the cases specified in the contract, ranging from default and bankruptcy to a reduction of credit rating or other events which may entail a drop in the portfolio value.

39 Not being credit “originators”, the global shadow banking system institutions mainly assumed the short position in these derivatives, since they could thus “synthetically” reproduce exposure to credit and to their gains. Data collected by the Bank for International Settlements (BIS) indicate: a) the obstinate growth of OTC derivatives, which reached US\$ 683.7 trillion in notional values in June 2008 (practically 11 times the world GNP, estimated at US\$ 62 trillion) and US\$ 20.3 trillion in gross values of substitutions at market price,²³ that is to say, a 28.7% increase in relation to the previous term (see Table 2); b) an extremely rapid increase in notional values and gross values of CDS markets, between June 2007 and June 2008 at a time when deals with structured credit products were practically inexistent. The notional values of CDS reached US\$ 57.3 trillion and the gross value of market price substitution reached US \$ 3.2 trillion.

40 The sharp increase in CDS prices resulting from the crisis can be clearly appreciated in the following calculation: for a 34.6% increase in the notional value of CDS between June 2007 and June 2008, there was a 339.9% increase in their gross value of market price substitution (see Table 2). Furthermore, the rise of notional values of CDS in a period of such turmoil indicates that two phenomena might have occurred, either alternatively or jointly: a) higher prices attracted new speculators willing to assume credit risks for which many sought protection; b) in the impossibility of liquidating positions in advance, agents with a sharper perception of risk negotiated to this end “reverse” operations with other counterparties which

41 The institutions which had taken on short positions on the CDS markets suffered major losses because of the rise of prices initiated in 2007 and which soared sharply as from September 2008. Such risks, resulting from bank credits to families and companies were mostly assumed by non-banking financial institutions. However, the fact that these risks were transferred did not eliminate them and they remained present at the same consolidated amount. This risk transfer only meant that they would no longer appear on the balance sheet of the institution that originated that credit and became the responsibility of the institution that constituted the operation’s counterparty. In an aggregate manner, the financial institutions of the global shadow banking system became the counterparties of banks in these operations, since they chose to access the credit operations regarded as highly profitable. They only had to raise resources on the commercial paper market and purchase credit-backed long-term bonds and/or assume short positions on the derivatives market in order to “synthetically” reproduce a credit operation. In this way, the OTC markets became the center stage of the negotiation of the financial institutions’ assets and liabilities. As such, they became a source of funding and investment for the financial institutions which participated in them.

Table 2 Stock of derivatives negotiated on OTC markets - US\$ billions

Instrument	Notional value			Gross market value		
	2007 Jun.	2007 Dec.	2008 Jun.	2007 Jun.	2007 Dec.	2008 Jun.
Total	516,407	595,341	683,725	11,14	15,813	20,353
Exchange Market	48,645	56,238	62,983	1,345	1,807	2,262
Reporting Dealers ^{1a)}	19,173	21,334	24,845	455	594	782
Other financial institutions	19,144	24,357	26,775	557	806	995
Non-financial institutions	10,329	10,548	11,362	333	407	484
Interest Rate Market	347,312	393,138	458,304	6,063	7,177	9,263
Reporting Dealers ^{1a)}	148,555	157,245	188,982	2,375	2,774	3,554
Other financial institutions	153,37	193,107	223,023	2,946	3,786	4,965
Non-financial institutions	45,387	42,786	46,299	742	617	745
Stock Market	8,59	8,469	10,177	1,116	1,142	1,146
Reporting Dealers ^{1a)}	3,118	3,011	3,479	405	398	376
Other financial institutions	4,473	4,598	5,496	549	578	616
Non-financial institutions	999	861	1,203	161	166	154
Commodity Market	7,567	8,455	13,229	636	1,899	2,209
Gold	426	595	649	47	70	68
Others	7,141	7,861	12,58	589	1,829	2,142
Credit derivatives	42,58	57,894	57,325	721	2,002	3,172
Simple	24,239	32,246	33,334	406	1,143	1,889
Multiple	18,341	25,648	23,991	315	859	1,283
Others	61,713	71,146	81,708	1,259	1,788	2,301
Gross credit exposure	-	-	-	2,672	3,256	3,859

Source: BIS, Semiannual OTC derivatives statistics at end-June 2007.

Note: a) In the BIS’ statistics, reporting dealers are the large international banks and the agents known as broker-dealers in the US. No other non-banking financial institution is included under this term.

42 It was by means of this risk transfer operated by banks that the “miracle” of its multiplication came about. When the risks were transferred from the banks’ balance sheets to other financial institutions by means of securities and structured products, these assets were “repackaged”

and gave birth to other assets which were in turn sold to other institutions. While these operations were kept restricted to transactions on the cash market, it was the original risks which simply changed hands. However, when they were coupled with credit derivatives, these assets originated “synthetic assets”, i.e. assets which replicated the risks and returns of the original assets with no need of owning those. These “virtual” assets (Bourguinat, 1995) are so characterized because they negotiate future obligations of purchase and sale of assets by means of a down payment, which opens up the possibility of selling what one does not own and/or purchasing what one does not want to buy. On the OTC markets, various “virtual” combinations of derivatives-backed credit assets proliferated. “Structured products”, which had enabled unprecedented profit, became, to resort to an expression coined by Warren Buffet, “weapons of mass destruction” (English, 2003).

43 In the construction of this pyramid, original risks were multiplied by an n factor and its distribution became unknown. The bank credit risks, which were moved off the balance sheets, became counterparty risks, depending on whether the agents who assumed them in the pyramid were able to make the payments.

44 The introduction and massive expansion of credit derivatives on the OTC markets, i.e., the transformation of the constituent parts of bank assets into negotiable assets made the banking system and the global shadow banking system interpenetrate in a practically inextricable way.²⁴ The losses incurred by the global shadow banking system’s institutions eventually found their way back to the banks’ balance sheets. Some banks (such as Citibank, for example) had included sales options in credit securities (giving the holder the possibility of reselling the asset at a pre-established price). These options were exercised, forcing banks to repurchase the assets when their liquidity disappeared and their prices tended to zero. The different SIVs were guaranteed by the sponsoring banks. In other cases, these new intermediaries had pre-approved credit lines with universal banks which were amply used after the outburst of the crisis.

45 First, besides the losses inflicted on protection sellers by the rise in CDS prices, credit derivatives were coupled with losses entailed by credit events included in the CDS contracts. This definition proved to be too broad, including, besides bankruptcy, needs of recapitalization. This caused protection given by credit derivatives with, say, GSE, mortgage banks and AIG bonds as underlying assets to be exercised, forcing protection sellers to meet the obligation of paying the pre-established sums to those who bought these protections. Thus, on October 6th, 2008, the settlement of contracts bound to GSE reached a volume estimated at between US\$ 200 billion and US\$ 500 billion. In spite of the Treasury’s securities, this settlement generated a loss estimated at between US\$ 2 billion and US\$ 5 billion to the protection sellers. The settlement of credit derivatives bound to Lehman Brothers on October 10th, 2008, generated much higher losses. But its **unwinding was much more orderly than previously feared, as the huge non-cleared exposure revealed itself to be much smaller after netting.**

46 Second, losses resulting from the global shadow banking system institutions’ counterparty risk still remain to be estimated. A large portion of these institutions – which had assumed the counterparty of risks transferred by the banks – is in no position to meet the obligations they took on, which keep rising at a demoniac pace. Its creditors, the universal banks, are in turn in no position to forego these payments. In short, the complex and obscure role played by these institutions and by the financial instruments negotiated on the OTC markets multiplied the risks and caused their distribution to be unknown. This hinders and delays a negotiated solution for the crisis.

5. Concluding remarks

- 47 Given the magnitude of losses and public resources involved in the attempt to reestablish trust, the fragility of the deregulated, liberalized and loosely supervised financial system, which nourished the expansion of the global shadow banking system, became evident. The rescue of mortgage agencies (Fannie Mae and Freddie Mac) and of the insurance company American Insurance Group (AIG), the disappearance of five large Wall Street investment banks (Bear Sterns, Lehman Brothers, Merrill Lynch, Goldman Sachs and Morgan Stanley), the bankruptcy of many mortgage banks, investment funds, hedge funds and private equities funds have speeded up a process of shrinkage of this gigantic “parallel financial system” which gave birth to ever more complex and obscure innovations.
- 48 The bankruptcy of insolvent institutions and the disappearance of the more exotic instruments’ liquidity are gradually promoting an intense process of deleveraging and a forceful reconfiguration of the global financial system.²⁵ It further enhances the need of the alignment of all financial institutions under the regulation and the supervision of the Federal Reserve System and other central banks (in the United Kingdom, the European Union, in Switzerland, Japan, Canada, etc.). The systemic risk of a breakdown of the entire financial system makes the adoption of a broader system of regulation and supervision more and more inevitable. This ought to imply a consolidation of the different regulatory agencies, both in Europe and in the United States. The crisis laid bare the obsolescence of the decentralized supervisory structures, due to the degree of interconnection among the different financial institutions (banks, pension funds, insurance companies, investment funds) and markets (credit, capitals and derivatives). It is worthwhile noting that this issue has already been approached by the US government. One of the pillars of the proposal for restructuring the regulatory structure of the US financial system, forwarded to the Congress in March 2008, was exactly the consolidation of the country’s different regulatory agencies. Furthermore, according to this proposal, the Federal Reserve would have increased powers, as, along with financial holdings, it would also supervise investment banks, insurance companies and investment funds (including the hedge funds).
- 49 In this way, the new rules for the structure of financial systems appear to head towards an improvement of Basel II at a global scale, in what has been termed “supervised self-regulation”, with some rule concerning the degree of leverage, stress tests for new instruments and corporate governance reflecting the fiduciary responsibilities of financial institutions (Guttmann, 2008 and Cintra & Prates, 2008b). Financial institutions – internationally active or not – will be framed in the rules of risk-weighted capital and in ever more sophisticated risk monitoring and management systems. The OTC derivatives market and above all the credit derivatives will be provided with a clearinghouse.²⁶

Bibliographie

Aglietta M. & Rigot S., *La réglementation des hedge funds face à la crise financière : une contribution au débat*, Université Paris-Ouest la Défense / EconomiX et Cepii, 2008 (mimeo).

Aglietta M., Moreau L., Roche A., *De la crise financière à l’enjeu d’une meilleure évaluation des crédits structurés*, Université Paris-Ouest la Défense / EconomiX et Cepii, avril 2008.

Aglietta M., *Macroeconomia financeira*, vol. 1 e 2, São Paulo, Edições Loyola, 2004.

Bañales J. A., “Reflexos da crise imobiliária nos EUA são sentidos até hoje”, Washington, August 9 2008 (EFE), reproduzida na *UOL-Online*. Available at – <http://economia.uol.com.br/ultnot/efe/2008/08/09/ult1767u126198.jhtm>

Barros L. C. M. de, “Muito pouco, muito tarde...”, *Folha de S. Paulo*, São Paulo, September 19th, 2008, p. B2.

- Belluzzo L. G. M., “Salvação de moribundos”, *Carta Capital*, Ano XIV, n. 505, São Paulo, July 23rd, 2008, p. 54-55.
- BIS, *78th Annual Report*, Basle, Bank for International Settlements, June 30th, 2008.
- Blackburn R., “The Subprime Crisis,” *New Left Review*, n. 50, London, Mar./Apr. 2008, p. 63-106.
- Borio C., “The Financial Turmoil of 2007–?: A Preliminary Assessment and Some Policy Considerations”, *BIS Working Papers*, n. 251, Basle, BIS, March 2008.
- Bourguinat H., *La Tyrannie des marchés : essai sur l'économie virtuelle*, Paris, Economica, 1995.
- CRMPG III, *Containing Systemic Risk: the Road to Reform*, The Report of the Counterparty Risk Management Policy Group III, August 6, 2008. Available at – <http://www.crmpolicygroup.org>
- Cagnin R. F., *O mercado imobiliário e a recuperação econômica dos EUA após 2002*, Campinas, IE/Unicamp (Dissertação de Mestrado), 2007.
- Chang J., “Bancos devem recomprar US\$ 48 bi em ARS”, *Financial Times* de Nova York, reproduzido em *Valor Econômico*, August 15th, 2008, p. C2.
- Chick V., “The Evolution of the Banking System and the Theory of Saving, Investment and Interest”, *Economies et Sociétés*, série « Monnaie et production », n° 3, p. 111-126, août-septembre, 1986.
- Cintra M. A. M., Cagnin R. F., “Evolução da estrutura e da dinâmica das finanças norte-americanas”, *Econômica*, v. 9, n. 1, Rio de Janeiro, p. 89-131, December 2007.
- Cintra M. A. M. & Prates D. M., “Basel II in Question: the Unfolding of the US Real Estate Crisis”, Paper presented at *Workshop on Financial Liberalization and Global Governance*, Rio de Janeiro, May 8th and 9th, 2008a. Event organized by IBase and by Ford Foundation. Available at – <http://www.ibase.org.br>
- Cintra M. A. M. & Prates D. M., “The Financing of Developing Countries in the Face of the Global Financial Crisis”, Paper presented at *Workshop on Financial Liberalization and Global Governance: the Role of International Entities*, Rio de Janeiro, November 13th and 14th, 2008b. Event organized by IBase and by Ford Foundation Available at – <http://www.ibase.org.br>.
- Coutinho L. G. & Belluzzo L. G. M., “Desenvolvimento e estabilização sob finanças globalizadas”, *Economia e Sociedade*, n. 7, Campinas, IE/Unicamp, p. 129-154, 1996.
- Economist (The), *The Incredible Shrinking Funds*, London, Oct. 23rd 2008 (From print edition). Available at – http://www.economist.com/finance/displaystory.cfm?story_id=12465372.
- English S., “Apocalypse Is nigh, Buffett Tells Berkshire Faithful”, *The Daily Telegraph*, March 3, 2003.
- Farhi M., *Novos instrumentos e práticas na finança internacional*, Campinas, Instituto de Economia e São Paulo, Fapesp (Relatório de Pesquisa de Pós-doutoramento), 2002.
- Freitas J. T., *Estabilidade financeira em países em desenvolvimento e Acordos de Basiléia*, Campinas, IE/Unicamp (dissertação de mestrado), September 2008.
- Freitas M. C. P. de & Cintra M. A. M., “Inflação e deflação de ativos a partir do mercado imobiliário americano”, *Revista de Economia Política*, vol. 28, n. 3 (111), São Paulo, Editora 34, 2008.
- Fundap, *Panorama e perspectiva das economias avançadas: sob o signo da crise*, São Paulo, Grupo de Conjuntura da Fundap, November 5th, 2008.
- Gowan, P., “Causing the Credit Crunch: the Rise and Consequences of the New Wall Street System”, Presented at *Simpósio Internacional Perspectivas do Desenvolvimento para o Século XXI*, November 6-7, 2008, Rio de Janeiro. Event organized by Centro Internacional Celso Furtado.
- Guttman R. & Plihon D., *Consumer Debt at the Center of Finance-Led Capitalism*, Paris, January 2008 (mimeo).
- Guttman R., *A primer on finance-led capitalism*, Hofstra University, New York, CEPN, Paris, May 2008 (*Revue de la Regulation*, n°3/4).
- IMF, *Global Financial Stability Report*, Washington, D. C. International Monetary Fund, April 2008 and October 2008.
- Kedrosky P., *The First non-bank bank run*, September 3, 2007. Available at – http://paul.kedrosky.com/archives/2007/09/03/the_first_nonba.html.

Keynes J. M., *Treatise on money*, (1930 1st edition), The Collected Writings of John Maynard Keynes, vol. V e VI., Moggridge, D. E. (Org), London, Macmillan, 1971.

Kregel J., “Minsky’s cushions of safety: systemic risk and the crisis in the U.S. subprime mortgage market”, *Public Policy Brief No. 93*, The Levy Economics Institute of Bard College, January 2008. Available at – <http://www.levy.org>.

McCulley P., “Credit, markets, and the real economy: is the financial system working? A reverse Minsky journey”, *Global Central Bank Focus*, April 2008a. Available at – <http://www.pimco.com/LeftNav/Featured+Market+Commentary/FF/2008/Global+Central+Bank+Focus+4-08+Credit+Markets+and+the+Real+Economy.htm>.

McCulley P., “The Paradox of Deleveraging”, *Global Central Bank Focus*, July 2008b. Available at – http://media.pimco-global.com/pdfs/pdf/GCB%20Focus%20July%2008_web.pdf?WT.cg_n=PIMCO-US&WT.ti=GCB%20Focus%20July%2008_web.pdf.

McCulley P., “Teton Reflections”, *Global Central Bank Focus*, August/September 2007b. Available at – <http://www.pimco.com/LeftNav/Featured+Market+Commentary/FF/2007/GCBF+August+September+2007.htm>.

McCulley P., *Comments on housing and the monetary transmission mechanism*, September 2007a. Available at – http://www.econbrowser.com/archives/2007/09/comments_on_hou.html.

Minsky H. P., *Stabilizing an unstable economy*, New Haven, Yale University Press, 1986.

Morris, C. R., “Why Paulson Blinked on AIG”, *Washington Independent*, September 18, 2008.

Ndong S. O. & Scialom L., “Northern Rock: the anatomy of a crisis – the prudential lessons”, presented at the North American Economic and Financial Association Conference, June 30 – July 1, Honolulu (mimeo).

Onaran Y., “Banks’ subprime losses top \$500 Billion on writedowns (Update1)”, *Bloomberg*, August 12th, 2008.

Persaud, A., *Where have all the risks gone*, London, Gresham College, 2002. Available at – <http://www.gresham.ac.uk>.

Reilly D. & Mollenkamp C., “Conduits’ in need of a fix”, *The Wall Street Journal*, August 30th, 2007.

Son H., “AIG’s loss, need for cash add to pressure on Sullivan”, *Bloomberg*, May 9th, 2008. Available at – <http://www.bloomberg.com/apps/news?pid=20601103&sid=ajcZuCY3lvxw&refer=news>.

Torres F. E. T. & Borça Jr. G. R., “A crise do *subprime* ainda não acabou”, *Visão do Desenvolvimento*, n. 50, Rio de Janeiro, BNDES, July 14th, 2008. Available at – http://www.bndes.gov.br/conhecimento/visao/visao_50.pdf.

UBS, *Global banking crisis*, UBS Investment Research, August 1st, 2008.

Notes

1 This article is based on data available until November 2008.

2 Given the scope of this text, a theoretical approach of the financial and institutional innovations will not be attempted, nor will a dynamic analysis of the crisis be developed taking account of the processes of inflation and deflation of securities and financial assets, which are characteristic of the *finance-led cycles*. For these matters, see, among others, Minsky (1986), Coutinho & Belluzzo (1996), Aglietta (2004), Kregel (2008), Guttman & Plihon (2008), Freitas & Cintra (2008) and Aglietta et al. (2008).

3 They operate as intermediaries between a purchaser and a seller, generally charging a fee, and act on their own account and risk in the negotiation of securities.

4 These entities tend to be characterized by the size and the composition of their assets and liabilities. In general, conduits tend to be larger and less risky, while SIVs and SIV-lites operate with high leverage. All of them have some sort of total or partial liquidity facility insured by the sponsoring institutions.

5 For more information on the imitation of hedge funds’ strategies by universal banks, see Cintra & Cagnin (2007). According to *The Economist* (2008), “And funds-of-hedge-funds, which act as intermediaries for private banks, some institutions and individuals who are merely affluent, have become

- hugely important. They supply more than 46% of industry assets under management, compared with only 5% in 1990.”
- 6 GSEs also have an active participation on the interest rates swap markets and on the credit derivatives markets (see <http://www.ofheo.gov/Media/Archive/docs/reports/sysrisk.pdf> and *The Economist*, “End of Illusions”, July 17th 2008).
- 7 The Chicago Mercantile Exchange dominates the exchange traded derivatives.
- 8 For a more detailed chronology of the main events of the crisis, see, among others, BIS (2008: p. 109-110), Borio (2008), Fundap (2008).
- 9 Up to now, hedge funds, insurance companies and pension funds had no access to these operations.
- 10 According to Barros (2008). “When it broke, the Lehman Brothers investment bank had US\$ 650 billion in bonds, against a US\$ 20 billion capital.” A posteriori, its bankruptcy was acknowledged as having dire effects, since it helped escalate uncertainty and the liquidity squeeze. See, for example, “Lehman’s Demise Triggered Cash Crunch Around Globe”, *The Wall Street Journal*, October, 29th, 2008. The fact that, after a sequence of events, the US Treasury decided to recapitalize the banks, following the example of the EU, has been seen as a confession of this error.
- 11 The FDIC’s collateral, which reached US\$ 100 million per account, were raised to US\$ 250 by the so-called “Paulson Plan”, passed by the US Congress in early October 2008.
- 12 After the 1982 crisis, the US real estate credit system has been based on four savings institutions: the Federal Housing Administration (FHA), the Government National Mortgage Association (Ginnie Mae), the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac). The whole system has been built on direct or indirect public collaterals. For more information on the US real estate credit system, see Cagnin (2007).
- 13 For further information, see <http://www.fanniemae.com/media/pdf/webcast/080808transcript.pdf>.
- 14 According to the US Treasury, the largest holders of the US agencies’ debts were China and Japan.
- 15 See *US hedge funds losses balloon*, available at http://www.hedgeworld.com:80/news/read_newsletter_aa.cgi?section=indx&story=indx1307.html.
- 16 “A.I.G.’s Bailout Terms Revealed”, September 30th, 2008, available at <http://dealbook.blogs.nytimes.com/2008/09/30/aigs-bailout-terms-revealed/?ei=5070>.
- 17 On November 20th, 2008, the American Treasury announced the liquidation of an investment fund and, “as a unique and exceptional measure”, the release of US\$ 5.6 billion in public funds to pay the investors. The agreement gave the fund 45 days to continue the sale of its assets at their liquid accountable value or less. At the end of this period, the Treasury “will purchase all remaining assets at their liquid accountable value”, in order to ensure that every investor receives a value which corresponds to their initial investment.
- 18 One of the difficulties lies in the very way of accounting for the losses. For some, banks are dressing up their balance sheets, hiding losses behind mathematical formulas for assessing more complex assets and with no liquidity at market prices. For others, banks should not mark to market all of their losses, since they would not have the means to absorb them with the available capital.
- 19 Besides the losses in their credit portfolios, new problems arose from the repeated drops in the quotation of papers, bringing to light alleged misdeeds which had remained unnoticed across the banking profits euphoria. At times of low liquidity and high losses, investigations of the SEC made many banks cut deals of dozens of billions of dollars. The case involved papers called auction rate securities (ARS), long-term debt instruments whose interests were established at auction. Banks were accused of luring their clients into selling them as extremely safe assets, even when their market had ceased to exist. Until August 14th, 2008, some banks (Citigroup, UBS, Merrill Lynch etc.) had committed themselves to repurchasing US\$ 43 billion in ARSs, whereas others must follow the same path, laying additional pressure on their reserves of capital (Chang, 2008).
- 20 This obligation results from the Basel Agreements, which restrict the possible ratio between shareholders capital and capital originating from the issuing of interest bearing papers.
- 21 See Buffett Warren, Marking to myth. Available at <http://money.cnn.com/galleries/2007/fortune/0708/gallery.crisiscounsel.fortune/index.html>.
- 22 It should be noted that financial institutions regard the practice of marking to market as partially responsible for the immense losses they have suffered. The rescue plans in the US and in the euro zone, implemented in mid October 2008, suspended the practice of marking assets to market, which demands that institutions evaluate investments according to the price they would be given if immediately sold.

Changes allowed banks to reclassify some assets as long-term investments (loans and receivables), giving them time to price the assets and to estimate how much they lost with the turbulence. This raised fierce polemic, since many believe that it will only generate more mistrust.

23 There are two forms of aggregation of derivatives. The first of them is the notional value, which corresponds to the value of the underlying assets. The second is called “net market values”, corresponding to the replacement cost of all contracts at current market prices.

24 As suggested by Blackburn (2008. p. 81), “credit derivatives help mask the differences between commercial and investment banks.”

25 After disclosing a drop of 24% in its quarterly profits, registering the lowest level of credit card use and the highest level of default among its clients, American Express started facing difficulty to issue new debt certificates and thus to raise funding. In the face of this, the Federal Reserve approved its conversion into a commercial bank on November 11th, 2008. This enabled the company to benefit from the monetary authority’s low cost funding programs. The same happened with the GM Bank. These decisions might mean the end of financing companies which operate in a single line of business and depend on financial markets to raise capital.

26 The report of the Counterparty Risk management Policy Group III (CRMPG III, 2008), for example, recommended: a) the creation of a clearinghouse for OTC derivatives; b) demands that the counterparties in some OTC operations be “sufficiently sophisticated to understand operations and their risks”; c) changes in the accounting of credit-backed assets – including those that already exist – which would cease to be considered “off-balance sheet” and would be included on the balance sheets. This last recommendation would entail a sharp increase in regulatory capital and would force institutions to raise large amounts of capital. However, “costly as these reforms might be, this cost will be a fraction of the hundreds of billions of dollars in credit liquidation that financial institutions had to face in the past months, not to mention the distortions and the economic shifts brought about by the crisis.”

Pour citer cet article

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Abstract / Résumé

The financial crisis triggered by increasing default rate, real estate devaluation and financial asset depreciation associated with the US subprime mortgages brought back the debate about the framework of the US and international financial systems, their potential systemic risks, and their regulatory and supervisory mechanisms. Credit derivatives and structured products

backed by real estate credit replicated and multiplied risks by an unknown factor besides redistributing them at a global scale. A large number of poorly regulated and badly supervised financial institutions – no capital requirements, no access to deposit insurances, rediscount operations, and last resort credit lines by central banks – became the counterparty of the credit risk transfer from the banking system and started to hold increasing risks. The intermingling of these institutions and markets engendered a global shadow banking systems and markets.

Keywords : investment banking, ratings agencies, financial crisis, mortgages, brokerage, banks

La crise financière et le *Global Shadow Banking System*

La crise financière liée à l'augmentation des impayés et la dévaluation des biens immobiliers et des actifs financiers fondés sur les prêts hypothécaires américains à haut risque (subprime) a remis à l'ordre du jour le débat sur l'architecture du système financier américain et international, ses potentiels risques systémiques et ses mécanismes de surveillance et de réglementation. Dans la configuration actuelle, les produits dérivés de crédit et les produits structurés basés sur des prêts au logement reproduisent et multiplient les risques par un facteur inconnu et les redistribuent à l'échelle mondiale. Une large gamme d'institutions financières fort peu réglementées et contrôlées, ne comptant pas sur des réserves de capitaux, n'ayant pas accès à l'assurance sur les dépôts, aux opérations de réescompte et aux lignes de crédit de dernier ressort des banques centrales est devenue la contrepartie du transfert des risques de crédit du système bancaire et a assumé des positions très risquées. L'interpénétration de ces institutions a donné naissance à un *global shadow banking system*. L'article discute l'interaction de ces institutions financières, y compris certaines caractéristiques de son principal scénario – les marchés de gré à gré – et les innovations financières qui ont amplifié la crise. Compte tenu de la complexité et de l'opacité de ces institutions et marchés, il souligne la nécessité de l'amélioration de sa surveillance et réglementation.

Mots clés : agences d'évaluation, banques d'investissement, Crise financière, courtage, banques, hypothèques

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