THE CRIMES, THE FRAUDS AND THE SWINDLES OF THE SUBPRIME CRISIS[*/*]

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Keywords: financial crisis, subprime crisis, financial crime, financial fraud, criminogenic factors

Abstract: The purpose of the article is to identify the crimes committed in the U.S. during the subprime financial crisis and extract political criminal lessons from them. In order to understand the structural and circumstantial criminogenic factors that operated during each of the five phases of the crisis, our analysis will use Hyman Minsk's and Charles Kindleberger's financial instability modelling as the theoretical framework and, to identify the crimes committed during each phase, will cross-reference the economic causalities identified by the financial literature as essential to the development of the housing bubble and to the outbreak of the crisis with the criminal convictions, administrative penalties and civil settlements resulting from fraudulent behaviours related to the subprime crisis in the U.S. Despite the importance of systemic problems to the outbreak of the crisis, and the recognition that financial crime was not its main cause, we conclude that inherent fragilities of the financial system, associated with the development of a criminogenic environment within many financial institutions, fostered the occurrence of several forms of misbehaviour, among which some had a criminal nature with a common fraudulent core and a similar modus operandi of taking the reward and passing along the risk to others within all stages and levels of the mortgage origination and securitization food chain. The main value of the research is the adoption of Minsky's and Kindleberger's financial instability modelling as the theoretical framework in order to understand the economic causalities that were essential to the development of a financial bubble and the outbreak of the subprime crisis

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[*] Recebido a 18/08/2021. Aprovado para publicação 01/06/2023.

[*] The present work was granted the *Research Award Professor Doutor Augusto Silva Dias* in its 1st edition, by decision of the jury on June 1, 2023.

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and the cross-reference of those causalities with the convictions and settlements in different legal scopes, namely administrative, civil and criminal ones.

Palavras-chave: Crise financeira, crise do subprime, crime financeiro, fraude financeira, fatores criminógenos

Resumo: O objetivo do artigo é identificar os crimes cometidos nos EUA durante a crise financeira do subprime e extrair lições políticas criminais. A fim de compreender os fatores criminógenos estruturais e circunstanciais que operaram durante cada uma das cinco fases da crise, nossa análise usará a teoria da instabilidade financeira de Hyman Minsk e Charles Kindleberger como referencial teórico e, para identificar os crimes cometidos em cada fase, vai cruzar as causalidades económicas identificadas pela literatura financeira como essenciais para o desenvolvimento da bolha imobiliária e para a eclosão da crise com as condenações criminais, penalidades administrativas e acordos civis decorrentes de comportamentos fraudulentos relacionados à crise do subprime nos Estados Unidos. Apesar da importância dos problemas sistêmicos para a eclosão da crise e do reconhecimento de que a criminalidade financeira não foi sua principal causa, concluímos que as fragilidades inerentes ao sistema financeiro, associadas ao desenvolvimento de um ambiente criminógeno em muitas instituições financeiras, fomentaram a ocorrência de várias formas de desvio de comportamento, entre as quais alguns com natureza criminosa tendo um núcleo fraudulento comum e um modus operandi semelhante de receber a recompensa e repassar o risco a outros em todas as fases e níveis da cadeia de criação e securitização de hipotecas. O principal diferencial da pesquisa é a adoção da teoria da instabilidade financeira de Minsky e Kindleberger como referencial teórico para entender as causalidades económicas que foram essenciais para o desenvolvimento da bolha financeira e a eclosão da crise do subprime e o cruzamento destas causalidades com condenações a acordos em diversos âmbitos legais, nomeadamente administrativo, civil e criminal.

"At particular times a great deal of stupid people have a great deal of stupid money... At intervals.... the money of these people – the blind capital, as we call it, of the country – is particularly large and craving; it seeks for someone to devour it and there is a 'plethora'; it finds someone, and there is 'speculation'; it is devoured, and there is 'panic'". Walter Bagehot 'Essay on Edward Gibbon'

I. Introduction

Despite the fact that the subprime crisis was preceded, in the previous three decades alone, by more than one hundred episodes of financial crises[1] in *all* countries around the world but one (the notable exception here is Portugal)[2], the social and economic consequences of the 2007-2008 crisis led the OECD to classify it as "the most serious economic slowdown since World War II"(Keeley & Love, 2010, p. 9) and the European Parliament to label it as "the biggest economic and financial crisis since the depression of the 1930s"[3]. The European Parliament also emphasised that "unemployment rates in all Member States, and especially the southern Member States, have risen significantly as a result of this crisis" and that "the effects of this crisis are particularly serious for vulnerable people"[4]. More than a decade after it's outbreak it is well established that the subprime crisis brought severe economic and social consequences to society virtually in all countries, causing a sharp drop in industrial production around the world, a severe increase in unemployment rates, the collapse in the asset market and a sharp increase in state debt in most countries in the world (fig. 1).

In fact, because of the crisis, in 2009 it was the first time since the Second World War that the global economy shrank, with the world's GDP falling by 2,1% (Keeley & Love, 2010, P. 32; Wolf, 2015, p. 90). Also, it is estimated that, at its peak, this crisis may have created 80 million jobseekers globally causing high rates of involuntary unemployment in many countries around the globe, but especially in the most hardly hit countries, like Greece and Spain, in which unemployment rates reached 28% and 26%, respectively (before the crisis, both had rates around 8%), as well as Ireland (14%) and Portugal (12%; Chang, 2014, P. 90; Wolf, 2015, p. 86-87).

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1 In its 2001 report "Finance for Growth" the World Bank outlines that "recent decades have seen a record wave of crises: by millennium-end, there had been 112 episodes of systemic banking crises in 93 countries since the late 1970s – and 51 borderline crises were recorded in 46 countries. These crises both were more numerous and expensive, compared with those earlier in history, and their costs often devastating in developing countries" (World Bank, 2001, p. 75).

2 According to Reinhart & Rogoff, in the period between the World War II and the subprime crisis "all except Portugal experienced at least one post-war crisis prior to the recent episode". 2009, p. 150-153.

3 European Parliament resolution of 12 March 2013 on the impact of the economic crisis on gender equality and women's rights (2012/2301(INI))

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Even in the United States, with historically low unemployment rates, 5,5 million jobs were lost from October 2008 to the end of 2009, with the unemployment rate reaching 10%, alongside with a $648 billion loss in GDP for the five quarters from the beginning of October 2008, which resulted in an average of $5,800 in lost income for each U.S. household (SWAGEL, 2010). Although emerging economies had a quick recovery starting from 2010 (WOLF, 2015, p. 89-93), the great recession in the aftermath of the crisis hit high-income economies hard and, according to the OECD, in 2012 the GDP *per capita* was below the 2007 level in twenty-two of its thirty-four members, including Greece (-26%), Ireland (-12%), Spain (-7%), the UK (-6%) and the U.S. (-1,4%; CHANG, 2014, p. 89).

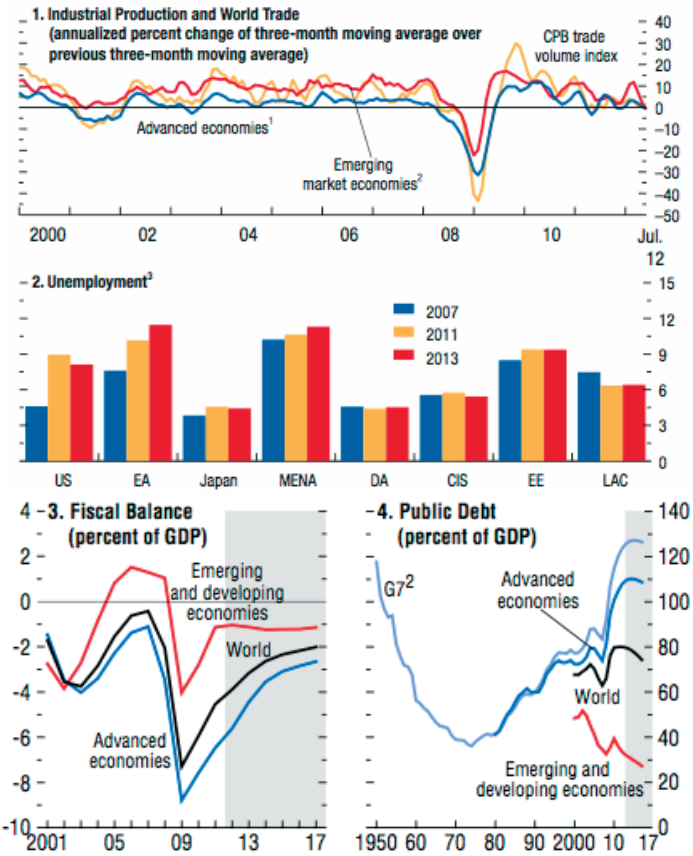

Figure 1 – GLOBAL INDICATORS IN THE AFTERMATH OF THE CRISIS
Source: World Economic Outlook OECD April, July and October/2012, p. 03 and 06

The global reach of the crisis and its disastrous consequences led to many variants of the same questions regarding what happened, why it happened and, as asked by Queen Elizabeth II in November 2008 when visiting the London School of Economics, "why did nobody notice it?"[5][6]. These questions were all inserted in a larger and intense debate about the fundamental flaws in the architecture of the financial system that enabled the development of a bubble and the outbreak of the crisis and the need for its reform within countries and at an international and transnational level. Within the financial and political spectrum, the analysis of the causes and the consequences of the crisis focused on the development of economic policies aimed at limiting its harmful effects in the economy and society (which based bail-out programs and countercyclical measures to jump-start the economy), and the adoption of legal and administrative reforms in the financial system to prevent the recurrence of this type of financial instability[7].

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5 As Martin Wolf explains, "In response to the Queen's question, the British Academy convened a forum on 17 June 2009. Shortly after these deliberations, a reply was sent to her Majesty. In brief, it argued that the big failures lay in not recognizing how large the risks were to the system as a whole, how bad management was, and how big the mess bequeathed by the crisis would turn out to be" (Wolf, 2015, p. 194).

6 Although most economists and policymakers indeed did not realize the existence of a financial bubble until it was too late, it is not correct to establish that *nobody* saw it coming. In fact, not only there were some traders who noticed the development of a housing bubble and started betting against it as soon as 2004, but there was also a paradigmatic alert coming from the then IMF's chief-economist Raghuram Rajan in a study entitled "Has Financial Development made the World Riskier?", presented at the 2005 Jackson Hole Conference (Rajan, 2010, p. 3).

7 While in the U.S., the investigation that took place in the Senate (*Wall Street and The Financial Crisis: Anatomy of Financial Collapse*, 2011) contributed to the creation of the Dodd–Frank Wall Street Reform and Consumer Protection Act (later replaced, in 2017 during the administration of Donald Trump, by the Financial Choice Act), in Europe the conclusions of the High-Level Group on Financial Supervision in the EU, chaired by Jacques de Larosière (aka, the *Larosière Report*) led to the reform of the European financial supervision structure by the approval of the Regulation n.º 1092/2010 on European Union macro-prudential oversight of the financial system and establishing a European; the Regulation n.º 1093/2010, establishing a European Supervisory Authority (European Banking Authority); the Regulation n.º 1094/2010, establishing a European Supervisory Authority (European Insurance and Occupational Pensions Authority); the Regulation n.º 1095/2010, establishing a European Supervisory Authority (European Securities and Markets Authority); and the Regulation n.º 1096/2010, conferring specific tasks upon the European Central Bank concerning the functioning of the European Systemic Risk Board.

Because of its damaging consequences, there was yet another scope of debate in the aftermath of the crisis, related to the identification of misconducts and the accountability of wrongdoers with civil and administrative penalties, but especially with criminal ones. Within the scope of the criminal doctrine, there was an intense debate regarding the capacity of the criminal system to prevent and overcome financial crises as well as criminal law's legitimacy to act in the financial sector (SILVA DIAS, 2014, p. 51; RODRIGUES, 2019, p. 11). As outlined by Anabela Miranda RODRIGUES, no other economic crisis has brought such a great challenge to criminalists and raised so difficult questions as: were there crimes during the crisis? Can anyone be held accountable? Which role does criminal law plays when facing crisis with a global reach (RODRIGUES, 2017, p. 16; RODRIGUES, 2019, p. 11)? In the U.S., David O. FRIEDRICHS brought several related questions such as "who or what is to blame for this economic and financial crisis? (...) Given the extraordinary breadth of assigning blame for the financial crisis, how can 'crime' and 'criminality' be disentangled from all for this? Which, if any, are criminal who belong behind bars? Should all the financial institutions and entities involved be criminally prosecuted?" (FRIEDRICHS, 2013, pp. 5-6). Finally, in Spain, Eduardo DEMETRIO CRESPO raised other doubts like "who was responsible for the crisis and who benefited from the it?", "Why didn't economic criminal law played any preventive function whatsoever in order to avoid the most regrettable consequences?", "Are there suitable criminal norms, or can there be so, capable of understanding from the technical legal perspective or theoretical legitimacy the behaviour of the bank representatives who largely led to the catastrophe?"(CRESPO, 2014, p. 11).

In this context, there was a deep discussion about the legitimacy and the effectiveness of the criminal law in the financial system and the complex issue regarding *if* and *how* criminal law can contribute to overcome financial crises (SILVA DIAS, 2014, p. 51) and which role can the criminal enforcement system play when facing financial crises with a worldwide nature (RODRIGUES, 2017, p. 11). The first scope of debate in the aftermath of the crisis was whether the misconducts that led to its outbreak had a criminal nature and, if so, who was responsible for them. This analysis split the penal doctrinal in two opposed positions: on the one hand, there was a view that understood that it would be impossible for any criminal conviction to occur once the outbreak of the crisis resulted from a systemic failure caused by structural problems and, ergo, human misconduct did not constitute the main factor to the crisis(SILVA DIAS, 2014, pp. 51-52; RODRIGUES, 2017, p. 23; RODRIGUES, 2019, p. 18-19; CRESPO, 2014, pp. 11-12). On the other hand, however, there was another doctrinal position that perceived that, even recognizing that systemic problems were essential to the development of the financial bubble and

outbreak of the crisis, there were several misbehaviours that exceeded the limits of mere morality or recklessness reaching the criminal level, which made it possible to punish specific economic agents for their concrete contributions to the crisis (Silva Dias, 2014, pp. 51; Rodrigues, 2017, p. 18).

According to the first view, once the development and outbreak of the crisis resulted from a systemic failure arising from autonomous mechanisms of the financial system, it would be impossible to identify individual "bad apples" operating the economy with a Machiavellian behaviour, because each economic player was guided by the invisible hand of the market and lacked individual control over financial causality (Silva Dias, 2014, pp. 51-52; Rodrigues, 2019, pp. 18-19; Crespo, 2014, p. 11-12). In sum, it was the gear that controlled the pawns and not the opposite (Silva Dias, 2014, p. 52). This perspective understands that although many of the misbehaviours before and during the crisis may have been reckless or immoral, they were not *criminal* in nature once they exploited legal loopholes in the search for profit. This position is well summarized by a speech given by former U.S. President Barack Obama in a press conference on 6 October 2011:

> Well, first on the issue of prosecutions on Wall Street, one of the biggest problems about the collapse of Lehmans [sic] and the subsequent financial crisis and the whole subprime lending fiasco is that a lot of that stuff wasn't necessarily illegal, it was just immoral or inappropriate or reckless. That's exactly why we needed to pass Dodd-Frank, to prohibit some of these practices.
> The financial sector is very creative and they are always looking for ways to make money. That's their job. And if there are loopholes and rules that can be bent and arbitrage to be had, they will take advantage of it. So without commenting on particular prosecutions – obviously that's not my job; that's the Attorney General's job – a I think part of people's frustrations, part of my frustration, was a lot of practices that should not have been allowed weren't necessarily against the law, but they had a huge destructive impact. And that's why it was important for us to put in place financial rules that protect the American people from reckless decision-making and irresponsible behavior.[8]

On the opposite side, even recognising that the human misconduct was not the *main* cause of the crisis and accepting the importance of systemic problems to its outbreak, another doctrinal perspective arouse as a counterpoint to the former. In line with the "widespread consensus that inappropriate remuneration

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8 https://obamawhitehouse.archives.gov/the-press-office/2011/10/06/news-conference-president.

practices in the financial services industry ... induced excessive risk-taking and thus contributed to significant losses of major financial undertakings"[9], as concluded by the European Commission, this point of view understands that the incentive problem was not restricted to reckless behaviours that undermined the resilience of financial institutions in the long-run, but also acted as a breeding ground to the development of new operational possibilities of crime in grey areas of legality (SILVA DIAS, 2014, pp. 46-47; FEIJOO SÁNCHEZ, 2010, pp. 26-27). This position is well translated in the criticism made by former Federal Reserve chairman Alan Greenspan, who recognizes not only that there where frauds during the subprime bubble, but also identifies them as an important issue that needed to be dealt with:

> There are two fundamental reforms we need to get: adequate capital and, two, to get far higher levels of enforcements of fraud statutes, existing ones. I'm not even talking about new ones. Things were being done which were certainly illegal and fairly criminal in certain cases. Fraud, fraud is a fact. Fraud creates very considerable instability in competitive markets. If you cannot trust your counterparties, it won't work. And indeed, we saw that it didn't.[10]

The present analysis is located within the scope of this debate and seeks to identify "incorrect behaviours before which one should consider / question whether in any case they could reach legal-penal relevance" (FEIJOO SÁNCHEZ, 2010, pp. 26-27) and extract political criminal lesson from them. In that context, it is important to clarify that although the goal of this research is to identify the crimes and the frauds committed in the U.S. in each phase of the subprime crisis and extract lessons from them, it is not our goal to find guilty or pinpoint and shame specific economic actors. Rather, our main focus is to identify the crimes and the criminal lessons that can be extracted from the crisis and understand how the criminal enforcement system can contribute to avoid the occurrence of financial crisis in the future.

The importance of this analysis is clear not only because the structure of the financial system and its dominant practices has shown to be delinquent and criminogenic, but also because the harms caused by financial criminality has proven to be exponentially greater than other forms of conventional crime (FRIEDRICHS,

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9 European Commission recommendation of 30 April 2009 on remuneration policies in the financial services sector (2009/384/EC).

10 Apud MAYER/CAVA/BAIRD, 2014, pp. 517-518.

2013, pp. 6-7)[11]. As a consequence, "[i]f we are to diminish the chances of a repeat of the 2008 financial meltdown, and more broadly the global financial crisis linked to this meltdown, we must identify the conditions that were central to this crisis and the policies needed to address them effectively"[12].

The main difficulty in this debate is the lack of conceptual tools in the criminology field to reliably identify financial crimes and the limits between the legal and illegal speculation (Zuñiga Rodrigues, 2012, p. 33). In fact, because the fraudulent character of many misbehaviours was hidden within the complexity of financial engineering manoeuvres, the main focus on the doctrinal and the criminal enforcement system debates was not "who committed this crime?", but rather "was that conduct criminal?" (Rodrigues, 2019, p. 15; Crespo, 2014, pp. 8-9). Considering that the complexity and sophistication of the frauds require an interdisciplinary approach (Friedrichs, 2013, p. 4), in order to overcome this doctrinal struggle and understand both the structural and circumstantial criminogenic factors that operated during each phase of the crisis, our analysis will use Hyman Minsk's and Charles Kindleberger's financial instability modelling as the theoretical framework. To identify the crimes, the frauds and the swindles committed during each phase, we will cross-reference the economic causalities identified by the financial literature as essential to the development of the housing bubble and to the outbreak of the crisis with the criminal convictions, administrative penalties and civil settlements resulting from fraudulent behaviours related to the subprime crisis in the U.S.

II. Structural and circunstancial criminogenic factors of the financial criminality

Several years after the outbreak of the crisis, it is possible to state not only that *there were* several misbehaviours with a criminal nature, as a consequence of the development of a criminogenic environment within many financial institutions

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11 Another reason for this analysis is the lack of debate around financial criminality. As Michel Picard explains "[p]olices forces have focused on criminal organizations for decades by mainly targeting drug trafficking, prostitution and bank robberies, to name but a few. Little focus has been directed at financial market issues, either because this is not seen as prime target or no one has or had the expertise to effectively examine these issues, consequently disregarding any financial related investigative information". Picard, 2008, pp. 383–397.

12 Friedrichs, 2013, p. 16. As the author concludes (ibid., p. 19) "the criminogenic conditions that have had such demonstrably harmful consequences in bringing about a massive financial meltdown should be outlawed to the extent possible".

(MAYER/CAVA/BAIRD, 2014, p. 545), but also, as we shall see below, thousands of people were convicted because of felonies related to the subprime bubble. However, even recognizing that "[t]he subprime mortgage lending frauds have ultimately been one of the root causes of the massive financial crisis of 2008 and beyond, with countless victims" (FRIEDRICHS, 2010, pp. 173), it does not mean that financial crime was the *main* cause of the crisis[13]. It wasn't. If anything, the financial criminality during the crisis was a structural and, more importantly, a circumstantial by-product of the financial system and the prevailing remuneration practices in the financial services industry during the first decade of the twenty-first century[14].

In order to understand both the structural and circumstantial criminogenic factors that acted as a breeding ground for criminal behaviour during the subprime crisis, it is important to acknowledge that the financial sector has several inherent vulnerabilities that jeopardize countless legal assets, like maturity mismatch risks, agency problems, informational asymmetry, and incentive problems, to name a few. Once financial crimes are opportunity driven (Picard, 2008, p. 385/389), some of those intrinsic fragilities *can act* as criminogenic factors that might foster the development of criminal behaviour,[15] depending on the market incentives, the prevailing remuneration practices and the systematic organization of the financial sector in a determined moment (TERRADILLOS BASOCO, 2012, pp. 125-126).

Among the structural fragilities inherent to the financial system, there are three essential vulnerabilities that can act as criminogenic factors. In the first place, once it integrates the services sector, the financial system is based on an *immaterial activity*, which makes it hard for consumers (specially financially illiterate ones)[16] to reasonably

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13 It does not mean either that financial crime cannot constitute the main trigger for a crisis: in Italy, the Cyrio-Parmalat scandal, which caused 14 billion Euros in losses due to accounting fraud, market manipulation and other criminal misconducts; and, in the U.S. the Enron bankruptcy, due to fraudulent manipulations and accounting fraud, are paradigmatic examples of it. FOFFANI, 2012, pp. 13-14, 16-17. TERRADILLOS BASOCO, 2012. CRESPO, CATALAYUD, 2014, pp. 60-61; FALCONÍ, 2012, p. 36-37.

14 As accurately described by David FRIEDRICHS (2013, pp. 6-7), "the structure of the present financial system, its culture, and its collective practices and policies are fundamentally criminal and criminogenic".

15 Following David Friedrichs, we understand that "broadly defined, the concept of 'criminogenic conditions' refers to conditions that promote criminal activities and actions". FRIEDRICHS, 2013, p. 16.

16 It is important to mention, following Luís MÁXIMO DOS SANTOS (2009, p. 75), that "experience learning tends to be reduced, as consumers, at least individual ones, do not engage in financial contracts very regularly".

evaluate the quality of financial products before its acquisition and even after the first acts of consumption (Máximo dos Santos, 2009, pp. 73-74). Because it is based on fiduciary products, this activity has a greater potential for manipulation and defrauding (Tiedemann, 1993, p. 264), which enables the occurrence of fraud between counterparts. Secondly, as finance involves transactions in sophisticated and complex instruments, it is also an activity with a particularly intense problem of informational asymmetry, making it easier for the fraudulent character of determined contracts to be hidden within the complexity of financial engineering manoeuvres (Silva Dias, 2014, p. 46).

Finally, as an immaterial activity, once the main parameter of performance evaluation of a financial agent is not the impact on the real economy, but rather the results or profits in a determined period[17], the financial sector also has a severe incentive problem in its remuneration system that may fuel misbehaviour in the form of financial criminality through different forms of fraud in order to meet remuneration clauses, benchmarks or standards. As it is going to be detailed ahead, each of those structural fragilities emerged during the crisis as circumstantial criminogenic factors and acted as a breeding ground to different forms of financial criminality (Friedrichs, 2013, p. 16).

In fact, the development of a remuneration system based on the short term, often linked to the performance of a single year and "accounting standards that allowed the payment of profits on signing the deal, instead of during its lifetime"[18], created a scenario of moral hazard in which the expectation of immediate profit outweighed the assessment of the long-term economic consequences[19]. Associated with the absence of claw-back provisions or penalties in the event subsequent losses (Ferguson, 2012, pp. 20, 42, 77), the prevailing remuneration system led to the breakage of the essential link between credit *decisions* and the *consequences* of its risks (Friedrichs, 2013, pp. 16-17; Friedrichs, 2010, p. 169). This resulted in reckless behaviours that undermined risk management policies of financial institutions and their long-term resilience, as well as immoral behaviours developed within

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17 As Raghuram Rajan (2010, p. 124) describes it, money is the measure of both the work and the worth in the sector.

18 Wolf, 2015, p. 134. In a similar sense, Roman Tomasic (2011, p. 13) concluded that "[t]he financial crisis revealed the enormous risks that had been taken by banks and financial institutions and the effect of the short-sighted bonus culture that had driven much business activity in recent years".

19 As outlined by David Friedrichs (2013, pp. 16-17) "[t]he fact that the government has felt obligated to bail out financial institutions and corporations deemed too big to fail and has, furthermore, imposed no significant negative consequences in relation to the other criminogenic conditions (...) has created a situation of 'moral hazard'".

the limits of legality (ZUÑIGA RODRIGUES, 2012, pp. 28-29) and new operational possibilities of financial criminality (SILVA DIAS, 2014, pp. 46-47).

Concurrently, the context of financial liberalization in the years preceding the crisis – which represented the materialization of the predominant belief in the market's capacity to optimally allocate resources – led to the development of several new financial products, especially the different forms of derivatives that triggered the crisis like collateralized debt obligations (CDOs), synthetic collateralized debt obligations and CDOs squared, as well as credit default swaps (CDSs) (WOLF, 2015, pp. 124-125). Besides contributing to the development of risk-management models that failed to identify the early signs of a financial bubble, the high degree of sophistication and complexity of the financial innovation also enabled new white-collar crime operative techniques (FOFFANI, 2012, p. 11; FERGUSON, 2012, p. 74; FEIJOO SÁNCHEZ, 2010, pp. 20-21; SILVA DIAS, 2014, pp. 58) embodied in different forms of fraud and swindles taking advantage of information asymmetry against agents of lesser financial literacy (FEIJOO SÁNCHEZ, 2010, pp. 18-19. RAJAN, 2010, p. 121). Furthermore, new financial instruments and innovative accounting methods based on "hyperreal" financing arrangements and "fancy finance techniques" aided fraudulent overstating of investments and understating of expenses, which "enabled the emergence of a new generation of illegal financial statement fraud" (REURINK, 2016, p. 13).

Despite having a common fraudulent core and a similar *modus operandi* of "taking the reward and passing along the risk to others" (MAYER/CAVA/BAIRD, 2014, p. 545) at all levels of the mortgage securitization food chain, the different forms of financial criminality were the result of a particular economic context within the development and burst of the financial bubble in the U.S. housing market. In this context, in order to identify and analyse the crimes committed during the subprime crisis, it is necessary to understand that both the development of the crisis and its outbreak are consistent with Hyman MINKY's and Charles KINDLEBERGER's financial instability modelling and, as such, the study of each of MINKY's five stages in a bubble can help identify the criminogenic factors in action in each moment.

III. Theoretical framework: Minsky's and Kindleberger's financial instability modelling

Since the first financial crisis recognized as such – the "tulipmania" that broke out on the Dutch stock market in 1636-37 (CATARINO, 2010, pp. 37-38) – the concrete causalities identified in the financial literature as responsible for successive and different episodes of severe instability led to the development of many theoretical

models to explain the origin, evolution and spread of financial crises (Quelhas, 2012, p. 142). Based on these models, policymakers developed the regulatory framework that shapes the financial system, the supervisory response as well as the regulatory toolbox that guarantee to financial authorities several specific intervention tools ranging from normative powers, authorization regimes and a wide range of prudential supervision powers (Cordeiro, 2006, pp. 252-253; Moreno, 2014, p. 27).

In the late 1990s and in the first half of the subsequent decade, the predominant faith on market efficiency and on the theory of rational expectations, by which the pursue of self-interest would prone movements of supply and demand towards equilibrium, created a widespread idea that modern macroeconomic policy had tamed the problems related to the business cycle. The core belief – well portrayed by Ben Bernanke's speech "The Great Moderation", in 2004[20] – was that macro-economic volatility was a thing of the past that had been overcome, among other reasons, because "monetary policy had become much better" and that regulators "understood much better how the economy works"[21].

However, as became clear after the crisis, this idea blocked policymakers from recognizing the size of the risks to the system as a whole, the inaccuracy of the risk management models and the dimension of the economic consequences (Wolf, 2015, p. 194). As described by Martin Wolf (2015, pp. 195-196), this constituted an intellectual failure once "[t]he economics that dominated academe and has shaped thinking for several decades proved useless in predicting, tackling or even imagining the biggest financial debacle in the world's most advanced economies for eighty years". With the lack of response and interpretative tools to understand the ongoing crisis in the orthodox monetarist theory, policymakers turned to economists outside of the mainstream economics and found in Hyman Minsky's and Charles Kindleberger's *financial instability modelling* a consistent reference to tackle the panic and the following economic recession (Wolf, 2015, p. 196; Martin, p. 232).

Based on Keynes' theoretical propositions to explain the economy's susceptibility to fluctuations, Hyman Minsky analysed the liability structure of economic units and the relationship between operating income of firms and its debt service payments (the cash flow approach) to develop a three-part taxonomy regarding types of finance: hedge finance, speculative finance and Ponzi finance[22]. As Kindleberger (2005, pp. 27-28) describes, a company would be situated in the first

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20 Bernanke, 2004. More information regarding this speech can be found on note 73.

21 Rajan, 2010, p. 101; in the same sense, Krugman, 2008, p. 10.

22 Minsky, 2008, pp. 230-232; also regarding this theme: Quelhas, 2012, pp. 17-19.

type, the hedge finance, if "its anticipated operating income is more than sufficient to pay both the interest and scheduled reduction in its indebtedness". The speculative finance would assemble firms in which the "anticipated operating income is sufficient so it can pay the interest on its indebtedness; however, the firm must use cash from new loans to repay part or all of the amounts due on maturing loans". Finally, the Ponzi finance (named after Charles Ponzi, who operated a financial scam in the 1920s with this base), would group the companies in which the "anticipated operating income is not likely to be sufficiently large to pay all of the interest on its indebtedness on the scheduled due dates; to get the cash the firm must either increase its indebtedness or sell some assets".

According the MINSKY's hypothesis, the economy has endogenous fragility by which "a steady growth pattern evolves into a speculative boom" (MINSKY, 1974, p. 267), as an increase in credit supply in good times during economic booms followed by a sharp decline during economic slowdowns can jeopardize the financial health of companies' balance sheet, by pushing some firms with a hedge finance to the group involved in speculative finance ("if there is a shortfall of income", ID., 2008, p. 231), as well as pushing some companies in this group to a Ponzi finance scheme ("by a rise in interest or other costs or a short fall in income", ID., ibid., p. 231). This, as a consequence, increases the fragility of the financial system and the likelihood of financial crisis (KINDLEBERGER, 2005, p. 25).

By this model, the business cycle and the inherent instability of the economy may create a financial bubble throughout five stages (WOLF, 2015, pp. 121-122; QUELHAS, 2012, pp. 23-28): "displacement", in which a trigger event raises great optimism among investors related to at least one important sector of the economy (KINDLEBERGER, 2005, p. 25-26); "boom" and "euphoria", when fuelled by an expansion of credit, first, asset prices start rising and, second, the belief on an ever rising prices breaks down market discipline and banks and investors extend credit to dubious borrowers; "profit taking", when the financial bubble stops rising and intelligent investors start taking profits; and, "panic", in which a sharp fall in prices causes the burst of the previous bubble, triggering a rush to liquidity by investors, the bankruptcy of highly leveraged financiers and an economic crash followed by a systemic crisis and a recession[23].

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[23] According to KINDLEBERGER (2005, p. 32-33), once the Minsky cycle is complete, the panic will remain until the occurrence of one of the following consequences "prices have declined so far and have become so low that investors are tempted to buy the less liquid assets, or until trade in the assets is stopped by setting limits on price declines, shutting down exchanges or otherwise closing trading, or a lender of last resort succeeds in convincing investors that money will be made available in the amounts needed to

As it is going to be detailed in the next part of this research, the adoption by economists and policymakers of Minsky's and Kindleberger's financial instability modelling to understand the subprime crisis steamed from its own characteristics of development, evolution and outbreak in the U.S. economy, especially because in its main core was a financial bubble. In fact, in this crisis, the displacement event that triggered an economic boom was the Federal Reserve decision, in 2001, to reduce short-term interest rates, which caused an initial rise in housing prices. The initial decline in the cost of funds was associated with an increased flow of cheap foreign capital to the U.S., a National Homeownership Strategy to foster low-income housing loan and the development of different types of financial products, notably derivatives, which induced an economic boom and a period of euphoria that caused prices to run away from fundamentals.

In the fall of 2005, the bubble began to fade when, to tackle inflation, the Fed started to raise the interest rates from which it became increasingly difficult for new mortgages to be sold and default rates in previous mortgages began rising. Although housing prices continued to rise for a while, in the spring of 2006 prices started to fall and the whole momentum of the boom was reversed. The panic started in the U.S. on August 9, 2007, when the French bank BNP Paribas announced the suspension of withdrawals from three of its funds related to U.S. mortgages, giving birth to the first global financial crisis of the twenty-first century. The final stage of the crisis, when the panic became international, started September 15, 2008, when the American investment Bank Lehman Brothers filed for bankruptcy.

IV. The development of the subprime crisis

1. First phase of the crisis: the birth of a bubble

In the late 1990s, the demand in the U.S. economy was heavily sustained by a stock-market bubble related to the sectors of informational technology and communications, which stimulated a boom in corporate investment (Rajan, 2010, p. 5; Wolf, 2015, p. 168). In 2000, when the now called Dot-com bubble bust causing a meltdown on the overvalued tech stocks, the U.S. economy fell into a recession interrupting a growth of 39 straight quarters (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 83). If the economy

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meet the demand for cash and that hence security prices will no longer decline because of a shortage of liquidity".

was already weak, shortly after there was another shock, due to the terrorist attack of September 11th, 2001 (WOLF, 2015, p. 164). Officially, the recession in the aftermath of this crisis was declared over in only eight months and by late 2001, though slowly, both U.S. industrial production and the GDP were rising[24]. Despite a quick recover of output, however, this economic recovery was a jobless one and the unemployment rate rose steadily for two and a half years, while it took thirty-eight months to restore all lost jobs (KRUGMAN, 2008, p. 151; RAJAN, 2010, p. 85; fig. 2).

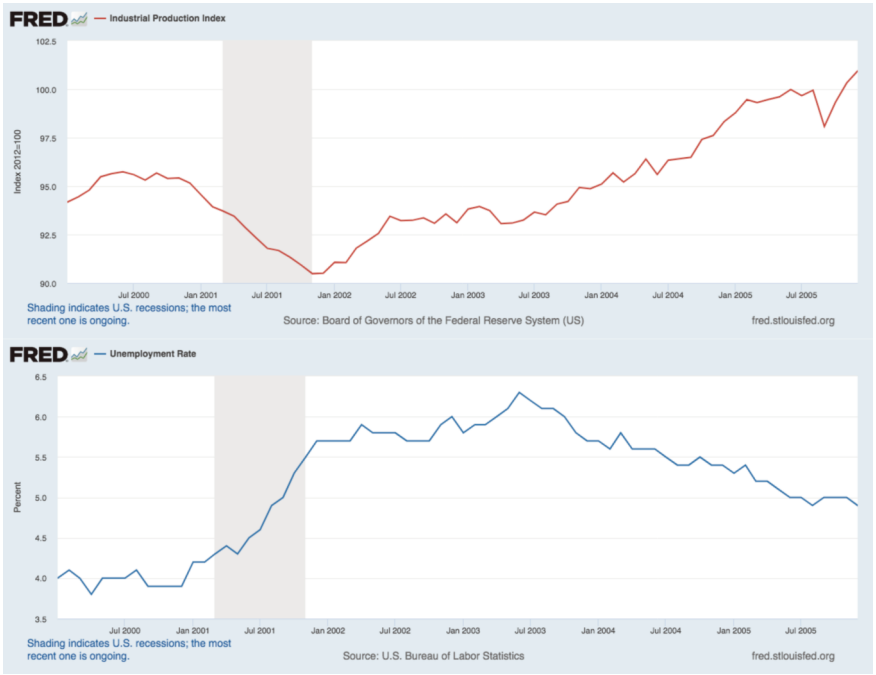

Figure 2 – INDUSTRIAL PRODUCTION AND UNEMPLOYMENT IN THE U.S. ON THE POST-DOT COM BUBBLE

Source: Fred – Federal Reserve Economic Data https://fred.stlouisfed.org/

24 As explained by Paul KRUGMAN, "in the United States the official starting and ending of recessions are determined by an independent committee of economists associated with the National Bureau of Economic Research. The committee looks at a variety of indicators – employment, industrial production, consumer spending, GDP. If all these indicators are going down, a recession is declared. If several of them turn up again, the recession is declared over" (2008, p. 151).

Although, in America, postwar recoveries prior to the 1990s were brief, taking on average two quarters to recover output and eight months to restore employment to preceding levels, the jobless recovery of the 1990-1991 recession – in which whereas production levels took only three quarters to recover, the jobs lost were recovered only after twenty-three months – showed that the United States are singularly not prepared for jobless recoveries. In fact, because of its weak safety net, with unemployment benefits lasting for short periods (on average six months) and a affordable health care system historically tied to jobs, unemployment in the United States is a source of a great deal of uncertainty and anxiety, which makes most American voters less tolerant to downturns[25] than citizens in other industrial countries (Rajan, 2010, pp. 84-85).

The political pressure to create new jobs steaming from the Dot-com bubble recession piled on a wider feeling of being left behind among American voters, rising from a growing inequality of incomes in the preceding three decades, by which between 1975 and 2005 the wages of the 10 percent richer Americans increased 65% more than the growth in earnings of the 90 percent of the general population. Due to this widening in the 90/10 differential, in 2005 the richer received five times more than the bottom 90th percentile, as opposed to three times more in 1975 (Rajan, 2010, p. 24).

One of the reasons that explain this growing inequality lies on the "college premium", the difference in wages between who has a bachelor's degree and who has just a high school one[26]. While acknowledging that educational inequality reduces opportunity, politicians understood that even if better education could make a difference, the impacts would be perceived only in the future. So, in order to address the needs of their voters in the short-term, politicians looked for other strategies and found in easier credit an immediate solution to increase the population's purchasing power. As a matter of fact, easy credit had a payoff structure that was precisely what politicians looked for: whereas the costs would all lie in the future, it would have a large positive impact in the present, achieving simultaneously many goals like pressuring up housing prices – which made householders feel wealthier

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25 Raghuram Rajan argues that this may have costed George H. W. Bush's re-election. Rajan, 2010, p. 85.

26 In that sense, according to Rajan's (2010, p. 24) lesson, "[t]he 2008 Current Population Survey by the Census Bureau indicated that the median wage of high school graduate was $27,963, while the median wage of someone with an undergraduate degree was $48,097 – about 72 percent more. Those with professional degrees (like an MD or MBA) earn even more, with a median wage of $87,775".

fostering an increase in consumption –, as well as creating more jobs and generating bigger profits both in the financial sector and in the real economy (RAJAN, 2010, p. 31).

In this context, in order to address this political pressure and stimulate the economy, the Federal Reserve started to reduce short-term interest rates, cutting it from 6,5% in January 2001 to 1% in June 2003 (RAJAN, 2010, p. 105). The best equipped sector to spend more than its income and lead the economic recovery was the corporate one but, because it had just experienced an investment spree during the Dot-com bubble with a financial deficit that reached 4% of the GDP, in spite of the easy monetary policy, gross business investment was in a downward trajectory: after it peaked at 13,6% in the second quarter of 2000, in the second quarter of 2003 it fell to 10,1%, following which it increased modestly to 11,8% in the second quarter of 2007 (WOLF, 2015, p. 168).

With the corporate sector unwilling or unable to spend more than its savings, the deficits could only be run by the government and householders (by 2003, their combined deficit was around 3%). With tax cuts and unfunded wars in Afghanistan and Iraq, President George W. Bush managed to turn the fiscal surpluses achieved during the Clinton Administration into deficits (FERGUSON, 2012, p. 53). But once the U.S. householder sector has had a tradition of being a net provider of savings rather than an investor, persuading it to play the opposite role was harder. The way to do so, was though the housing sector which would be stimulated by a two branched strategy: the reduction of the interest rates to rock-bottom historic lows, which would generate a rise in house prices and stimulate a residential construction boom and a National Homeownership Strategy (WOLF, 2015, p. 168).

As a consequence of the cut in interest rates, between 2000 and 2003 prime mortgage rates fell by 3% and, as a result, the same monthly payment that afforded a $180,000 house in 2000 could pay off a $245,000 home in 2003 (FERGUSON, 2012, p. 85). Although appealing to a market range, lower interest rates only had the potential to reduce mortgage payments but would not necessarily enable to become house buyers families who could not pay the initial down payment of a mortgage and its monthly debt services or who could not put enough money aside to sustain a moderate drop in house prices and still keep a positive equity (KRUGMAN, 2008, pp. 148-149). Nevertheless, the U.S. government could promote affordable housing for low-income groups throughout two government-sponsored enterprises (GSEs) called Fannie Mae and Freddie Mac.

Fannie Mae was created in the 1930s, still on the ashes of the Great Depression, to fulfil the gap left by the termination, in 1936, of the Home Owner's Loan Corporation (HOLC), institution set after the 1929 crash to buy defaulted mortgages

from banks and restructure them to be sold back in the secondary market. It was born initially as the Federal National Mortgage Association (FNMA, from which it got its name) to provide a financing alternative to banks by buying mortgages insured by the Federal Housing Administration (FHA), packaging and securitizing them. In 1968, Fannie was split in two with the creation of a new privatized Fannie Mae that raised funds by issuing bonds or securitized claims to the public and the creation of the Government National Mortgage Association (GNMA, latter Ginnie Mae) designated to continue to insure, package and promote the securitization of mortgages[27]. Freddie Mac, in turn, was created in 1970 as the Federal Home Loan Mortgage Corporation with a purpose similar to Fannie's and was privatized not long after (Rajan, 2010, pp. 32-34).

Despite having private shareholders that benefited from its profits, as government-sponsored enterprises both Fannie Mae and Freddie Mac had government benefits, like the exemption from state and local income taxes and a line of credit directly from U.S. Treasury, along with public duties to support housing finance (id., ibid., p. 34). In order to fulfil its public mandates, the agencies would purchase mortgages that met certain credit standards and size limits issued by private institutions, removing those loans from the balance sheet of those banks before its maturity period, thus allowing those institutions to offer more mortgage-loans in the market. The agencies would then guarantee these mortgages against default and assemble large pools of this loans to subsequently sell to investors some shares of the payment received from borrowers, a process known as *securitization* (Rajan, 2010, p. 34).

While a singular loan is a highly illiquid asset because of its individual risk of default, the combination of a large pool of loans (be it housing mortgage, automotive, student or credit card loans) creates a new financial asset with a lower risk and higher liquidity – the so-called Asset-Backed Security (ABS) (Chang, 2014, p. 237). The *derivatives* issued by Fannie Mae and Freddie Mac (called so because they are "financial assets that 'derive' their value from the prices of underlying assets, such as stocks or bonds, indices, or interest rates", Wolf, 2015, p. 128) were a specific type of ABS called *collateralized debt obligation*, or CDO, which, once based on mortgage loans were also known as Mortgage-Backed Securities, or MBS (Ferguson, 2012, pp. 351-352, 354). The securitization of mortgages and the commercialization of MBSs were pioneered by Fannie Mae and, until the housing bubble, were concentrated mostly in prime mortgages (Krugman, 2008, p. 149).

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27 This financial engineering will be detailed ahead.

In the beginning of the 2000s, both Fannie Mae and Freddie Mac were regulated by the Department of Housing and Urban Development (HUD), which was created in 1992, during the Clinton Administration, by the Federal Housing Enterprise Safety and Soundness Act. The HUD had powers to determine the amount of funds both agencies were required to allocate to low-income housing and, as a part of the National Homeownership Strategy, this number increased steadily from 42% in 1995, to 50% in 2000 and, finally, was pushed up to 56% in 2004 (RAJAN, 2010, pp. 36-38). As a consequence of this increase in the mandated percentage of assets destined to low-income, the volume of subprime lending by Fannie Mae and Freddie Mac grew from $85 billion a year in 1997, to $446 billion in 2003, after which it stabilized at between $300 and $400 billion per year until 2007. In that period, both agencies combined represented 54% of this market and, although they lost the lead to the private initiative from 2004 to 2006, because of the collapse of the subprime market funding it reached 70% of the market in 2007 (RAJAN, 2010, p. 38; KRUGMAN, 2008, p. 174).

Besides the direct role performed by both agencies in the National Homeownership Strategy, their intervention also provided a collateral effect by contributing for the private initiative to boost the housing market, specially the subprime and Alt-A range. First, once the houses were used as the collateral of the loan, the rise in prices resulting from the capital increase in the low-income housing market would reduce the risk of losses in mortgage loans because if the borrower couldn't meet the debt service or even the initial low payments, with a higher price the lender could simply sell the house and avoid losses (KRUGMAN, 2008, p. 149). Secondly, as government-sponsored money, the private sector knew that the U.S. Treasury would stand behind the agencies' debt (which actually happened in September 2008), which would guarantee the liquidity of both subprime mortgages and Mortgage-Backed Securities issued based on them[28]. As a result, the private initiative took advantage of the creditworthiness of the securities issued by Fannie Mae and Freddie Mac to promote non-agency securities.

Although Fannie Mae and Freddie Mac issued Mortgage-Backed Securities for decades, "non-agency" securities – that is, MBSs issued with loans that did not meet the agencies' standards – were relatively recent, dating to the beginning of

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[28] In fact, as described to the Financial Crisis Inquiry by Jim Callahan, former Salomon Brothers trader and CEO of PentAlpha, the question regarding securitizations handled by Fannie and Freddie, "was not 'will you get the money back' but 'when'". NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 68.

the 1990s as a side effect of the *savings and loans crisis* of the 1980s. After the occurrence of a financial disaster involving savings and loan associations and U.S. mutual funds[29], in 1989 the U.S. Congress instituted the Resolution Trust Corporation (RTC) to take over $402 billion in loans and real state assets from thousands bankrupt banks and thrift institutions (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, pp. 68-69). Although in the following years the RTC managed to sell $6,1 billion of its mortgages to Fannie Mae and Freddie Mac, most of the loans in its balance sheet did not meet the agencies' standards and so the RTC officials turned to the private sector to enhance the asset recovery values (Federal Deposit Insurance Corporation, 1998, pp. 408-409), which managed to securitize $25 billion mortgages and helped investors to become more familiar with this specific financial engineering (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, pp. 69-70).

Once "private-label" securities did not meet agency's standards and were not guaranteed by government-sponsored enterprises, the solution found to overcome investor's concern regarding the risk of those assets was to integrate the rating services[30] into the financial engineering to analyse and rate the underlying pool of mortgages, the transaction structure, the expected cash flows and the projection of potential losses (Federal Deposit Insurance Corporation, 1998, p. 410; National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, pp. 68-69). In a further effort to make those assets more appealing to private investors, the payments were subject to another layer of financial engineering by being divided into "tranches" that received the amount of principal and interest payments in different orders. The earliest MBSs were commonly divided into two tranches: one less risky, that received the payment of principal and interest first and was guaranteed by an insurance company; and one more risky tranche, which did not have any guarantee and endured the initial losses (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, pp. 70-71).

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29 About the savings and loans crisis, see Kindleberger, 2005, pp. 172-175. About the frauds committed during this crisis, see Friedrichs, 2010, p. 175-177 and Black, 2013, pp. 171-173.

30 As a consequence, according to the conclusion of the FDIC report, "[a]lmost all mortgage-backed securities are either guaranteed by a government-sponsored entity (Fannie Mae, Freddie Mac, or Ginnie Mae), or rated by national credit rating agencies (Standard & Poor's Rating Services, Moody's Investors Services [Moody's], Duff & Phelps Credit Rating Co., or Fitch Investors Services, L.P.) on the basis of private credit enhancement" (Federal Deposit Insurance Corporation, 1998, p. 411).

This structure was successful at first and helped the subprime market to increase its value during the mid-1990s from $70 billion in 1996 to $135 billion in 1998. However, because the riskier tranches usually were kept by the originator of the mortgages, allied to the fact that the value of many subprime assets proved to be inflated, adverse conditions following the Russian debt crisis and the collapse of the Long-Term Capital Management hedge fund, in 1998, caused a disruption in the subprime market. As a consequence of the "flight to quality" and the decline in demand for riskier assets following the Russian crisis, the interest rates for subprime originators rose causing problems in many institutions that depended on short-term financing, which, in turn, resulted in 8 of the top 10 subprime lenders to file for bankruptcy, to cease operations or be sold to other firms (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, pp. 74-75).

This episode contributed to a change in the structure of the securitization processes with the addition of more tranches with different risks and payment streams, tailored according to investors' demands. Generally, those securities were divided in *senior tranches*, the safest ones, normally rated triple-A by rating agencies; *mezzanine tranches*, the ones situated between the safest and the riskier; and *junior tranches*, also known as "equity", "residual", or "first-loss", because received only the cash flow that was left over after all the other investors already received their shares (fig. 3).

Each tranche would have a different priority claim over the flow of payments, a different interest rate and a different repayment schedule. While the riskier tranches would pay higher interest rates, holders of upper seniority tranches expected the payments flows to be uninterrupted (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, pp. 149-150). Obviously, this scheme still posed risks, so as the last feature to make it more appealing was the introduction of a *credit default swap* (CDS), by which a financial guarantor charged an annual fee and compromised to repay any losses if a default was verified.

This new structure with multiple tranches became increasingly more common in the late 1990s and beginning 2000s and, by 2004, the two tranched mortgage-backed securities practically vanished (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 133). Despite the overall market acceptance of these multitranche structures, though, tranches rated other than triple-A could be hard to sell, even offering higher returns. So, in order to meet market's expectations, financial intermediaries started to buy low-investment grade tranches, such as BBB or A, to repackage them into yet another security – the so called "CDO squared" –, following the idea that pooling several low-graded mortgage-backed securities together would create additional diversification benefits and, thus, increase its safety (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, pp. 127-128; fig. 4).

Financial institutions packaged subprime, Alt-A and other mortgages into securities. As long as the housing market continued to boom, these securities would perform. But when the economy faltered and the mortgages defaulted, lower-rated tranches were left worthless.

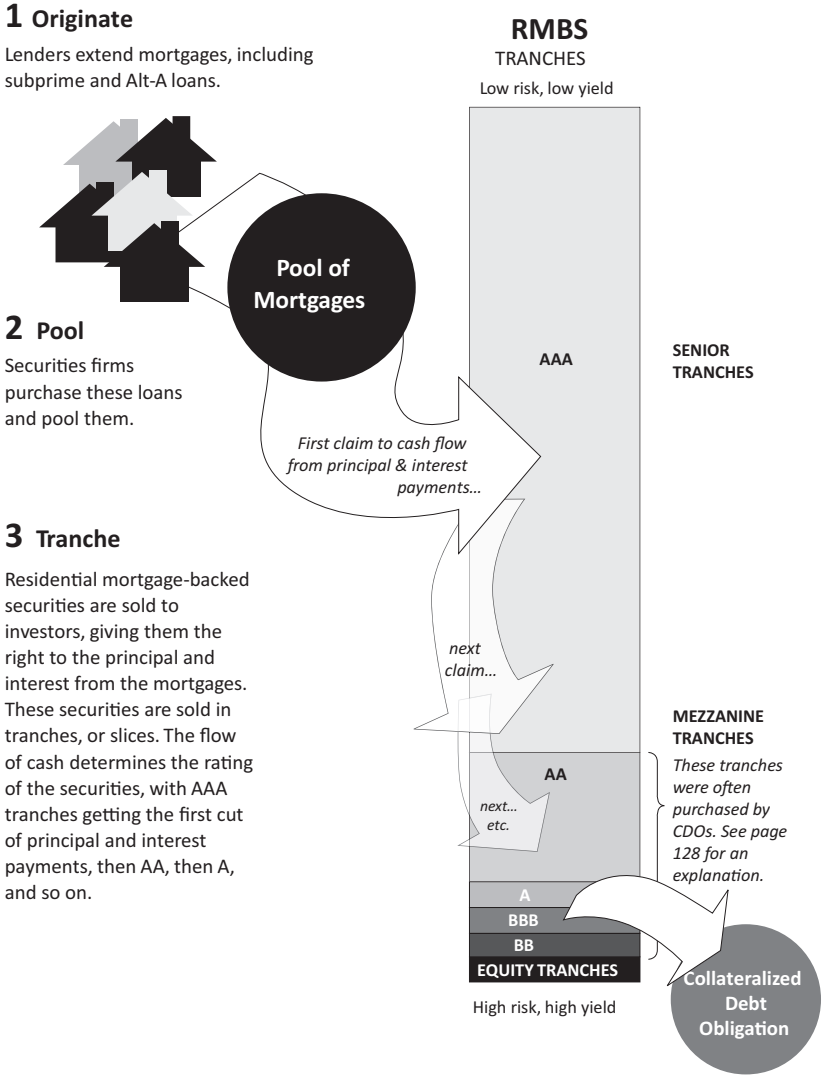

Figure 3 – MORTGAGE-BACKED SECURITIES (MBS).
Source: National Commission on The Causes of The Financial and Economic Crisis in The United States (2011, p. 73)

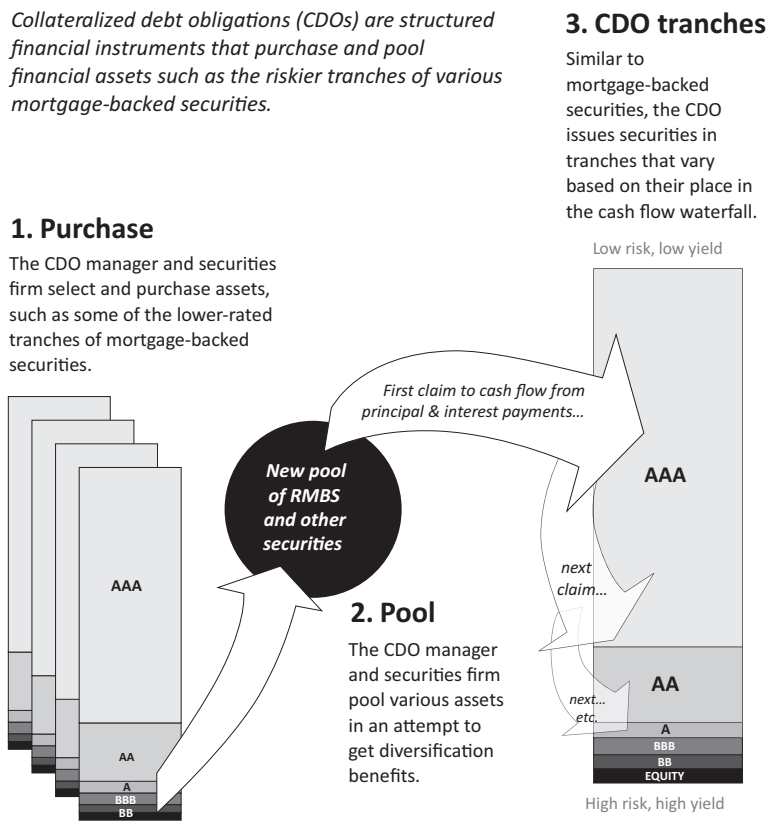

Figure 4 – CDO SQUARED

Source: National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 128.

Rating agencies generally agreed with that logic and, as a consequence, nearly 80% of these new CDOs were rated AAA, even though they were based on lower-rated tranches of previous mortgage-backed securities. As a consequence, by 2005 the MBSs creators became the dominant buyers of mezzanine tranches, which pushed up the prices of these tranches and pressured the whole chain of mortgages securitization, inflating even more the housing bubble (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, pp. 132-133).

More than fostering the consolidation of the private sector in the low-income housing market, financial innovation performed a central role to increase the supply of credit to the real state sector. Because of the securitization process

nearly 60% of all MBSs' tranches issued during the housing boom were rated AAA, while typically less than 1% of all corporate bonds are classified as such by rating agencies (Rajan, 2010, p. 134; Krugman (2008), 150). In fact, in January 2008, while only 12 companies around the world were rated triple-A, there were nearly 64.000 structured finance instruments with this rating grade (Wolf, 2015, p. 172). Those high-rated assets were especially attractive because offered a higher return than corporate securities with similar valuation (Rajan, 2010, p. 135.)[31], which also helped to expand the market range of this type of securities to different kinds of institutional investors that can only buy the safest bonds, such as pension funds, charity foundations and insurance companies (Krugman, 2008, p. 150; Chang, 2014, p. 238). As a last outcome, the combination of higher return with an apparent lower risk also contributed to channel foreign cheap capital from a global savings glut to the United States.

In the ending of the 1990s and the beginning of the twenty-first century, the world had a huge pool of savings divided in three categories of net capital exporters looking for a safe and dynamic destination: China and other emerging Asian countries which, as a consequence of the financial crisis occurred in Latin America and Asia during the 1990s and early 2000s[32], cut off investment[33] and undervalued their currencies to increase its reserves in foreign money and directed their investments to assets abroad – notably the U.S. –, in order to avoid exchange crisis and internal slumps (Krugman, 2008, p. 177); developed countries with export-oriented economies and a high savings rate due to aging populations, notably Japan and Germany (Wolf, 2015, pp. 159-160; Reinhart/Rogoff, 2009, pp. 209-210); and oil exporters, like Gulf countries, Russia and Norway, with increased surpluses arising from an increase in oil prices due to a combination of stagnant supply and a growth in demand from fast-growing emerging countries, particularly China (Wolf, 2015, pp. 151-152).

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31 As Raghuram Rajan (p. 39) summarizes, "[l]ow risk and high return – what more could the private sector desire?".

32 Especially the Tequila crisis in 1994 (Mexico), the Asian financial crisis of 1997, the Russian crisis of 1998, the Brazilian crisis of 1999 and the crisis in Argentina in 2002.

33 The fact that in the Asian countries more seriously hit by the crisis, especially Indonesia, Malaysia, the Philippines, South Korea and Thailand, the investment was reduced by 10% of the gross domestic product, justifies the argument that at least a part of the savings pool in the global economy was a "investment dearth" rather than a "savings glut". It is important to point out, though, that China was a mixed picture once in the 2000s it had both an increasing savings and investment rate. Wolf, 2015, pp. 161-162.

Even though this excess of saving in the global economy was allocated to two groups of capital-importing economies, that is, the U.S. and the peripheral Europe[34] – Western, Southern and Eastern European countries –, more than two thirds of all savings of the surplus countries were invested in America (WOLF, 2015, p. 160; REINHART/ROGOFF, 2009, p. 210). As a consequence, the values of GSE securities (MBSs issued by Fannie Mae and Freddie Mac) held by foreign parties grew steadily from about $186 billion in 1998 to $348 billion in 2000 and $875 billion by 2004 (NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 104). This contributed for the profits of American financial firms to soar as well as for the growth of the U.S. financial sector, which doubled its size from nearly 4% of GDP in mid-1970s to almost 8% by 2007 (REINHART/ROGOFF, 2009, p. 210). Allied to an easy monetary policy and a public incentive to the housing market throughout government-sponsored enterprises, the intense flow of foreign capital to the U.S. economy completed the incentives for a increase in supply of credit, especially housing mortgages, which caused an huge increase in prices in the real state sector[35].

2. Second and third phases of the crisis: the boom and the Euphoria

After the bust of the Dot-com bubble and the beginning of a recession in the U.S., the Federal Reserve started to cut short-term interest rates in order to stimulate the economy. This "displacement event" led to an initial increase in housing prices and a decrease in the cost of credit, making buying houses particularly attractive (WOLF, 2015, p. 158. KRUGMAN, 2008, p. 148). With prices in the real state sector picking up, as more householders perceived mortgages to be affordable, there was a boost in home construction – sector that incidentally was already favoured by lower interest rates with which constructors borrowed (RAJAN, 2010, p. 105). This, in turn, ended pressuring up even more housing prices. Although house prices were already in an upward trajectory during the 1990s, rising on average at an annual rate of 5,2% between 1995 and 2000, in the five years that followed, the appreciation rate rose to 11,5% per year on average, with real house prices soaring

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34 Not by accident, those two groups of large capital importers were the economies most hardly hit by the crisis.

35 In fact, according to the conclusion of Raghuram RAJAN, "[t]he borrowing was not driven by a surge in demand: instead it came from a greater willingness to supply credit to low-income households, the impetus for which came in significant measure from the government" (2010, p. 40).

by more than 12% in 2005 alone (Reinhart/Rogoff, 2009, p. 207). As outlined by Carmen Reinhart and Kenneth Rogoff, the housing boom preceding the crisis was so extraordinary that "[b]etween 1996 and 2006 (the year when prices peaked), the cumulative real price increase was about 92 percent – more than three times the 27 percent cumulative increase from 1890 to 1996!" (id., ibid,, p. 102)[36].

Even though homebuyers knew, from long experience, that it is not possible to purchase a house without financial conditions to meet the debt service of the mortgage, this extreme appreciation in housing prices caused a profound change in lending practices by enabling an overuse of adjustable-rate mortgages (ARM), that is, mortgages with an affordable low payment rate for the first years followed by periodically adjusted rates (Krugman, 2008, pp. 148-149; National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 105). With housing prices in the rise, when the time came for borrowers to make higher payments, the increased value of the property would allow them to refinance once again with a low rate, in a scheme by which a seemingly endless run-up in prices would postpone the higher and unaffordable monthly payment to the future by being repeatedly swept into a new and larger refinanced loan (Reinhart/Rogoff, 2009, p. 213; Rajan, 2010, pp. 127-128). It was indeed a sweet deal and it resulted in an increased use of adjustable-rate mortgage: by 2001, only 4% of new prime mortgages chose ARMs, proportion that rose to 10% in 2003 and 21% in 2004. Among subprime borrowers, ARMs were already the dominant practice but still increased from 60% to 70% of mortgages (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 85).

Despite seeming appealing and secure, however, this model had fundamental flaws once it could only work as long as housing prices were rising, making it possible for a refinancing contract, and provided that interest rates remained low, allowing the refinance deal to have affordable payments. Obviously, it was supposed that lenders would have integrated these conditions into the evaluation of the risk,

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[36] It is important to mention, however, that this growth was uneven, as the FCIC shows: "In Florida, average home prices gained 4,1% annually from 1995 to 2000 and then 11,1% annually from 2000 to 2003. In California, those numbers were even higher: 6,1% and 13,6%. In California, a house bought for $200,000 in 1995 was worth $454,428 nine years later. However, soaring prices were not necessarily the norm. In Washington State, prices continued to appreciate, but more slowly: 5,9% annually from 1995 to 2000, 5,5% annually from 2000 to 2003. In Ohio, the numbers were 4,3% and 3,6%. Nationwide, home prices rose 9,8% annually from 2000 to 2003 – historically high, but well under the fastest-growing markets" (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 85).

reinforcing market discipline in order to avoid losses. Yet, they did not and ended up relaxing their standards because of two central reasons: in the first place, lenders came to believe in an ever-rising house prices[37], mostly influenced by an asymmetrical monetary policy, the so called "Greenspan Put", by which the Federal Reserve made it clear that it would not intervene to tame an unsustainable rise in asset prices, but would keep liquidity conditions to prop up prices again if things went wrong – that is, the Fed was "ready to pick up the pieces if a bubble bust" (RAJAN, 2010, p. 102).

The second reason why lender's concern regarding the quality of the loans and the real possibility of repayment decreased was simply because most lenders did not hold the mortgages through its maturity and, so, did not face the risk of losses if the loans defaulted (KRUGMAN, 2008, p. 149). This was possible because of the advances in the securitization processes by which even riskier mortgages, when assembled in a large pool of loans, could integrate a highly rated tranche of a Mortgage-Backed Security (KRUGMAN, 2008, p. 149). Obviously, not all mortgages issued during this period were securitized and sold to investors in the secondary market and it was possible to identify two different approaches in the business: on the one hand, there were originators who made loans to hold through maturity (strategy known as *originate-to-hold*), which had a strong incentive to follow market discipline, underwriting mortgages carefully and taking into consideration all risks. On the other hand, however, there were brokers that issued loans to sell for securitization purposes (the *originate-to-distribute* approach) in which there were virtually no risks if mortgages defaulted other than reputational ones (NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 89).

With the U.S. financial system flooded with cheap foreign capital eager for high rate assets and investors who would buy MBSs easily without asking too many questions, the originate-to-distribute approach increased considerably, undertaking more than half of all mortgages issued in the years preceding the crisis and boosting the rate of loans securitization (in 2000, nearly half of all subprime mortgages were securitized – 52% –, a few years later, in 2003, it reached 63%: NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 88). In that context, as Raghuram RAJAN teaches, "[t]he private financial sector did not suddenly take up low-income housing loans in the early 2000s out of the goodness of its heart, or because financial innovation permitted it to do so" (RAJAN, 2010, p. 42): with lower interest rates

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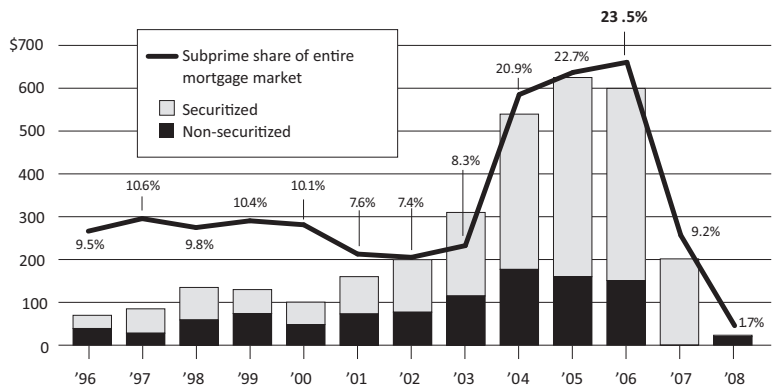
37 As JP Morgan's CEO Jamie Dimon told to the Financial Crisis Inquiry Commission, "In mortgage underwriting, somehow we just missed, you know, that home prices don't go up forever and that it's not sufficient to have stated income". NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 111.

and the Greenspan Put guaranteeing to traders that "the Fed would not limit their gains, but if bets turned sour, the Fed would limit the consequences"(ID., ibid., p. 113), investors started to move to longer-term riskier assets with higher returns (ID., ibid., p. 109).

As other highly rated assets had lower returns, investors craved for mortgage-backed securities, especially the ones with higher yields, notably loans made to the subprime and Alt-A range and to borrowers who failed to meet stronger standards or who had little or no documentation ("no-doc loans"). As a result, the amount of subprime mortgage skyrocketed, reaching $310 billion in 2003 (nearly doubled from 2001; NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 88) and almost half of the $3 trillion in MBSs issued in the next four and a half years until mid-2007 (FERGUSON, 2012, p. 55; fig. 5). Although until 2003 more than half of the securitization was issued by Fannie Mae and Freddie Mac, in 2004 the private initiative caught up reaching 58% of the market and, with a growth of more than 30% in the two years that followed, private-label MBSs took the lead reaching a market share of 63% and a value of $1,15 trillion in 2006, out of which 71% were subprime or Alt-A (NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, pp. 102, 105).

In 2006, $600 billion of subprime loans were originated, most of which were securitized. That year, subprime lending accounted for 23.5% of all mortgage originations.



NOTE: Percent securitized is defined as subprime securities issued divided by originations in a given year. In 2007, securities issued exceeded originations.

Figure 5 – SUBPRIME MORTGAGE ORIGINATIONS

Source: National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 70.

In a scenario in which higher risk meant bigger profits, both brokers and financial intermediaries started not only to focus its efforts in low-income mortgages, because of its higher return, but also favoured the volume of mortgages issued in detriment of its quality, rushing to originate and package loans without checking the creditworthiness of the borrower (RAJAN, 2010, p. 44; NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 117). In addition, the association of a remuneration system based on the short-term, with payments made commonly by the signature of the deal instead of during its maturity, and the absence of claw-back provisions or compensation clauses in the event of subsequent losses, there was a breakage of the essential link between credit decision and its consequences (FERGUSON, 2012, pp. 42, 77), which caused prices to run away from fundamentals and market discipline to be broken down resulting in the deterioration of credit quality and the ultimate subprime fiasco.

Along with all the harmful consequences caused by reckless and immoral behaviour, however, the economic context and the market incentives that led to the subprime crisis also worked as the breeding ground for many different types of financial criminality, which not only piled up on the economic debacle following the outbreak of the crisis but deepened its consequences. For instance, "mortgage origination fraud is believed to have been a major contributor to the collapse of the subprime mortgage market in the United States and the subsequent global financial crisis of 2007–2008" (REURINK, 2016, p. 25). With a common fraudulent core of taking the compensation and passing along the risk along the mortgage origination, securitization and distribution chain, the first range of crimes was located at the initial point of this process within the relationship between brokers and borrowers, under the form of mortgage fraud which, as we shall see, was strongly influenced by the prevailing remuneration practices and the process of mortgage analysis and concession.

2.1. Economic boom, euphoria and crime

In order to identify the first range of crimes most commonly committed during the development of the subprime crisis and understand the circumstantial criminogenic factors that fuelled them, it is important to recall that the financial system has structural fragilities that can act as breeding ground to different forms of financial crime and, as a consequence, "fraud is an inherent element of the fragility of finance ... [that] should be seen as an exacerbating consequence of the fragility of a system based on trust and so liable to excesses of both trust and mistrust" (WOLF,

2015, pp. 122-123). As mentioned earlier, once it is based on an immaterial activity and on fiduciary products, the financial activity has a special potential for manipulation and defrauding between counterparts, which, associated with an incentive problem in its remuneration system, may foster different kinds of swindle and crime.

As a by-product of the financial system, thus, financial criminality is the consequence of both structural fragilities of the sector and the circumstantial opportunities[38] and incentives in a determined market and a particular moment, developing its operational pattern based on the systematic organization of the sector (Terradillos Basoco, 2012, pp. 125-126). Because of the importance of trust in the development of credit relations[39] and once finance often implicates complex instruments whose quality cannot be fully assessed until things go wrong, the level of fraudulent behaviour is highly influenced by the economic moment and, so, "[i]n Minsk's good times, when people are prone to believing just about anything, the level of fraud rises, but it mostly remains invisible. In bad times, when people want their money back, the fraud is revealed" (Wolf, 2015, p. 122).

As Charles Kindleberger outlines, during the progress of economic booms and euphoric periods, the increase in wealth – specially to other's – may foster greed in some agents inducing them to "skate close to the edge of fraudulent behaviour because of an apparent increase in the reward–risk ratio" and to seek for profit by "cutting corners and bending rules and deceiving the public" (Kindleberger, 2005, p. 168) throughout different forms of fraud, embezzlement and defalcation. Furthermore, because during an economic euphoria the levels of trust in counterparts are high and investors' caution is thrown to the wind – with lenders becoming less risk-averse, makings loans that previously seemed too risky and, overall, believing even in the most dubious borrowers (Kindleberger, 2005, p. 73) –, the level of violations of both moral and legal norms increases, with many believing that they

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38 As described by Michel Picard "Opportunity is a flexible characteristic of financial crimes and varies depending on the type of criminals involved. Types of financial crimes committed can vary as much as the criminal organizations and criminal businessmen involved. But, in general, the opportunity crystallizes when a weakness in a procedure has been discovered. Opportunities appear when a risk exists. Therefore, in the financial environment, as well as in many other environments, a criminal or fraudulent transaction is usually the result of a risk management failure" (Picard, 2008, p. 385).

39 According to the lesson of António José Avelãs Nunes, the word "*credit* comes from the Latin *credere*, which means to believe, to trust in". As a consequence, even if the lender is not absolutely sure that the borrower will be able to pay on time, he "has to trust it enough to, according to his economic calculation, be willing to grant the credit" (Avelãs Nunes, 2001, p. 117-118).

"can make a big fortune and keep it if the rule-breaking is undetected; [and that] they may still get to keep half of it if they're caught" (ID., 2005, p. 168).

The subprime crisis was no exception and, just like other economic booms and euphoria moments, the excess of optimism and the expansion of credit also fostered reckless and immoral behaviours, as well as the occurrence of financial criminality (WOLF, 2015, p. 123). Although some Ponzi-like fraudulent schemes[40] are based on the creation and development of an artificial financial bubble to deceive fools into investing on an unsustainable scam (KINDLEBERGER, 2005, p. 190), the widespread mortgage frauds perpetrated during the subprime mania were based on a spontaneous financial bubble, developed within the U.S. housing sector, and used the rise in housing prices and adjustable-rate mortgages (ARM) to mislead new borrowers into buying houses, as a consequence of the prevailing remuneration system received by brokers.

2.2. Housing bubble and mortgage fraud

The initial point of the mortgage origination and securitization process was the broker who sold mortgages to homebuyers and, generally, had two types of relationship with lenders: either integrating the staff of the company or being outsourced independent brokers. Once the intervention of independent brokers lowered costs by avoiding the payment of full-time sales team and the creation of individualized branches while also permitted a faster expansion and a wider geographical reach, during the boom the numbers of mortgages originated by them increased from 55% in 2000, to 68% in 2003, when it reached its peak (NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 91). For brokers, especially independent ones, the remuneration system was centrally based on fees coming from the borrower, the lender, or both (ID., 2011, p. 90). Once paid when signing the deal and with no claw back clauses related to the performance of the mortgage during its maturity, brokers had no interest

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40 As described by Arjan REURINK, "Ponzi schemes are often characterized as investment scams wherein investors' returns are generated by capital coming in from new investors rather than the success of the underlying business ventures", scheme usually portrayed as "stealing from Peter to pay Paul". As the author explains, "[t]he circular nature of Ponzi schemes requires that new investors keep coming in and earlier investors stay invested; as soon as new investors stop joining or earlier investors want to redeem their investments, the scheme starts to collapse" (REURINK, 2016, pp. 40-41).

in the credit relation other than the up-front fees and, as a consequence, the loan's performance matter little (Rajan, 2010, p. 130).

Traditionally, mortgage decisions were based on the four C's: *credit* quantity, quality and duration; *capacity* for paying for it, based on the amount and stability of income; *capital* availability to pay debt service, closing costs and maintaining reserves; and *collateral*, that is, the value and condition of the property financed by the mortgage and used to guarantee the credit (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 67; Mayer/Cava/Baird, 2014, p. 547). Previously, the judgment call for a mortgage concession depended on a careful and meticulous analysis of the prospective borrower, with both a personal interview and a detailed review of employment and income paperwork, to assess whether the homebuyer was able and willing to meet the debit service and how the strength in one aspect of the valuation could balance off potential weaknesses in others (Rajan, 2010, p. 129).

However, with the introduction and a wide adoption by lenders of automated systems of standardized data for mortgage underwriting, replacing the slow and bureaucratic manual applicant review process, all that seemed to matter for a loan to be approved was the numeral credit scores of the borrower (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 72; Rajan, 2010, p. 129). Regardless of its greater efficiency, thought, in an automated system the information that summarized credit quality was easily identifiable and manipulated and, so, brokers knew which numbers they needed to emphasize to have a prospective loan approved (Rajan, 2010, p. 129). Once the fees were proportional to the amount of the loan and the interest rates paid by the borrower – in the case of the last, being commonly paid a "yield spread premium" on higher-interest loans (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 90) –, brokers had a huge incentive to focus on nothing else other than the hard pieces of information that would get a good-looking numerical credit score and the higher possible fee.

Because many financial intermediaries like independent mortgage lenders and both investment and commercial banks usually did not hold to these loans and as rating agencies mainly focused on the credit numbers, the second defense line of credit assessment (the first located in the relationship between broker and borrower) was neglected which resulted in the overall deterioration of the quality of the mortgage credit in the U.S. "even though the hard numbers continued to look good till the very end" (Rajan, 2010, p. 129). Yet, this was not the only consequence and, so, the mortgage procedures and prevailing remuneration system for brokers also fostered the occurrence of predatory lending and created the

breeding ground for different types of mortgage fraud in which "the purpose is to induce a lending institution to make a loan it would have otherwise refused" (REURINK, 2016, p. 25). According to the FBI, the misconducts related to lending practices in the housing sector fostered two types of fraud, namely, Fraud for Housing and Fraud for Profit, emphasizing that "[e]ach mortgage fraud scheme contains some type of 'material misstatement, misrepresentation, or omission relied upon by an underwriter or lender to fund, purchase or insure a loan'"[41] and that "[t]hese schemes involve falsifying a borrower's financial information—such as income, assets, liabilities, employment, rent, and occupancy status—to qualify the buyer, who otherwise would be ineligible, for a mortgage loan"(FEDERAL BUREAU OF INVESTIGATION, 2011, p. 17).

As the agency explains, the first form of swindle – also known as "Fraud for Property" – is committed *by the borrower* throughout "misrepresentations regarding his income or employment history to qualify for a loan" in order to "acquire and maintain ownership of a house under false pretences" (FEDERAL BUREAU OF INVESTIGATION, 2005a, p. D1). As such, this type of fraud involves usually a single loan and "although applicants may embellish income and conceal debt, their intent is to repay the loan" (FEDERAL BUREAU OF INVESTIGATION, 2011, p. 17). The second form of scam – also referred to as "Industry Insider Fraud" –, on the other hand, is committed *by brokers* against borrowers, and involves different forms of equity skimming, falsely inflating the value of the property, or issuing loans based on fictitious properties in order

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41 In its 2010 Mortgage Fraud Report, the FBI mentions that "[m]ortgage fraud perpetrators include licensed/registered and non-licensed/registered mortgage brokers, lenders, appraisers, underwriters, accountants, real estate agents, settlement attorneys, land developers, investors, builders, bank account representatives, and trust account representatives" and also explains that the mortgage fraud origination occurrences include different types of wrongdoing like "loan origination schemes, foreclosure rescue, real estate investment, equity skimming, short sale, illegal property flipping, title/escrow/settlement, commercial loan, and builder bailout schemes". FEDERAL BUREAU OF INVESTIGATION, 2011, p. 4. About each type of fraud, see pages 17-22 of the aforementioned report.
This view was initially mentioned in testimony of Chris Sweckeder, then Assistant Director of the Criminal Investigative Division Federal Bureau of Investigation, before the House Financial Services Subcommittee on Housing and Community Opportunity, in October 7th, 2004 (Available at https://archives.fbi.gov/archives/news/testimony/fbis-efforts-in-combating-mortgage-fraud).
Afterwards, it was repeated in the 2005 "Mortgage Fraud Operation 'Quick Flip'" press release and in all "Financial Crimes. Report to the Public" from 2005 to 2011. For more information regarding each individual report and its source, see the Official Agencies and Public Organisms References at the end of the paper.

to receive a fee. Even recognizing the existence of many mortgage fraud schemes, the FBI emphasized that the main focus of its efforts during the first decade of the twenty first century were the crimes perpetrated by insiders, once it represented 80% of the existing investigations and mortgage fraud reports[42].

Still according to the agency, the intervention of independent brokers was one of the criminogenic factors for the occurrence of this type of fraud once "[t]he increased reliance by both financial institutions and non-financial institution lenders on third-party brokers has created opportunities for organized fraud groups, particularly where mortgage industry professionals are involved"[43]. By then, the main scam practices were associated, first, to misleading borrowers into accepting a loan using deceptive or high-pressure sales tactics, especially the occurrence of predatory lending practices; and second, fraudulently modifying the terms of the mortgage by overstating the value of house, counterfeiting signatures or deceitfully modifying the interest rates regime, all in order to guarantee a higher fee.

In that context, at the core of the practices of predatory lending – which, as the FBI explains, is a practice that usually targeted the most vulnerable people and "typically effects senior citizens, lower income and challenged credit borrowers [and] forces borrowers to pay exorbitant loan origination/settlement fees, sub-prime or higher interest rates, and in some cases, unreasonable service fees" (Federal Bureau of Investigation, 2005a, p. D2) – was the abuse of asymmetry of information between the insider and the borrower-victim, exploiting a Ponzi-like scheme throughout the offer of adjustable-rate mortgages (ARMs) (Krugman, 2008, p. 147; Ferguson, 2012, p. 56).

As mentioned before, in order to reach a wider market range, brokers offered loans with teaser initial rates, which required little of even no payment in the first

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42 It is worth mentioning that this percentage was initially mentioned in the 2005 Report and replicated until the 2007 Report. Starting from the 2008 until the 2010-2011 Report, thought, it no longer mentions the proportion and only states that "[c]urrent investigations and widespread reporting indicate a *high percentage of* mortgage fraud involves collusion by industry insiders, such as bank officers, appraisers, mortgage brokers, attorneys, loan originators, and other professionals engaged in the industry". (Italics mine).

43 Federal Bureau of Investigation, 2005a, p. D1. Regarding the involvement of organized criminal groups in the mortgage fraud schemes, it is worth mentioning that in its 2010 Report the FBI states that "[t]here have been numerous instances in which various organized criminal groups were involved in mortgage fraud activity. Asian, Balkan, Armenian, La Cosa Nostra, Russian, and Eurasian organized crime groups have been linked to various mortgage fraud schemes, such as short sale fraud and loan origination schemes" (Federal Bureau of Investigation, 2011, p. 5).

two or three years – the hybrid adjustable-rate mortgages such as 2/28s and 3/27s – and enabled borrowers to meet the monthly payments and demonstrate they could manage the payment schedule (NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, pp. 105-106). Eventually, though, interest rates would rise sharply, increasing the monthly payment by two or even three times. With a higher debt service, if the borrower managed to establish a creditworthiness with its lender, had a higher income or somehow a stronger collateral (for example by the appreciation of the property), they could refinance the loan with a similar or possibly a better interest rate, postponing the unaffordable payment to the future. If unable to refinance, however, the borrower would have to sell the house to repay the mortgage; if neither selling the house nor meeting the higher payment were possible, however, the borrower would have to default (ID., p. 106).

Although it was clear for some buyers that the monthly payments would eventually become unaffordable in a foreseeable future, the brokers mislead the borrowers (often fraudulently) about the real possibility of handling the mortgage arguing that once house prices were rising "by the time borrowers had to make higher payments, their house prices would have risen, and they could refinance once again into low rate" (RAJAN, 2010, p. 127). In this context, the fraudulent behaviour of brokers against the house buyers arouse not only from the lack of adequate information regarding the specificities of the mortgage deals but specially from the quality of information disclosed about the overall evolution of the housing market and its impact on the contract, particularly regarding the real possibility of refinancing, with the misleading idea that *because* the housing prices were rising it would be possible to refinance, instead of providing the real full disclosure that the possibility of refinancing existed only *as long as* prices went up, condition that, as we now know, did not keep up.[44]

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[44] In this context, it is important to emphasize that several decisions made by borrowers were not sufficiently informed. As Arjan REURINK teaches, because "[f]inancial information acts as the linchpin for financial market transactions ... [t]o assess the current status and future performance of the issuer and ultimately to establish the perceived value of a financial instrument, both accurate information and the expertise necessary to interpret that information are essential. Therefore, no type of financial market participant can make proper decisions with regard to engaging or not engaging in financial contracts and to buying or disposing of financial instruments unless they
– are adequately informed about the specificities of the contracts and instruments under consideration;
– are adequately informed about the status of the issuer of those rights;

By using this omission to mislead the buyers, thus, brokers explored the housing bubble as a "natural Ponzi scheme in which people keep making money as long as there are more suckers to draw in" (Krugman, 2008, p. 147) and profited abusing the widespread lack of financial literacy among house buyers, especially low-income ones: as the study of two Federal Reserve economists estimated (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 90), at least half of borrowers who used adjustable-rate mortgages underestimated how costly the rates could reach, while more than one third did not fully understand how much their interest rates could reset at one time[45]. As a consequence, with Wall Street investment and commercial banks eager for raw material to securitize and sell and an inflating bubble increasing housing prices, the short-term remuneration system created the incentive to keep the volume of mortgage origination up, even if it meant abusing the asymmetry of information throughout fraudulent behaviour (Mayer/Cava/Baird, 2014, p. 547).

However, misleading borrowers into an unnecessary of unsuitable mortgage was not the only scam used by brokers to profit and, once the fees received were proportional to both the amount of the loan and the interest rates in the mortgage, the fact that many borrowers did not understand the most basic aspects of the contract also fostered the fraudulent adulteration of contractual provisions, deception and misrepresentations of loan terms. As a consequence, there were several reports of overvaluation of houses, forged signatures, creation of phony

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– are adequately informed about the broader market dynamics that might have an impact on the contract or instrument in the future; and

– have at least a certain degree of competence necessary to interpret and extract meaning from all this information with regard to the future performance of the contract" (Reurink, 2016, p. 4).

45 As a matter of fact, even recognizing that borrowers in general "appear to have a reasonably accurate understanding of the broad terms of their mortgages", the mentioned study, carried out by Brian Bucks and Karen Pence, concludes that "ARM borrowers seem to underestimate significantly how much their interest rates can increase", concluding that "[b]eyond underestimating the possible extent of their interest rate changes, many ARM borrowers in the SCF [Survey of Consumer Finances] report that they don't know these contract terms. Thirty-five percent of ARM borrowers did not know the value of the per-period cap on interest rate changes. Similarly, 44 percent of respondents reportedly did not know the values of one or both of the two variables used to calculate the lifetime cap on interest rate changes. Specifically, 41 percent of respondents did not know the maximum interest rate that could be charged over the life of the loan, and 20 percent did not know the interest rate at origination". Bucks/Pence, 2008, pp. 221-223.

paperwork and insertion of illegitimate fees (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 90). In fact, as Mayer and others describe (Mayer/Cava/Baird, 2014, p. 548),

> if a customer wanted a fixed-rate loan, and if more money (and higher commissions) could be made by selling him an adjustable rate mortgage, it was a fairly simple matter to put a few fixed-rate loan documents on the top of the stack at closing, and bury the real documents (the ones with the upward-accelerating adjustable rate that would kick in two or three years later) near the bottom of the stack.

Furthermore, with the expansion of the market, one of the main issues regarding fraudulent behaviour against prime and subprime borrowers alike was the occurrence of fraudulent inflated appraisals, by which "[p]erpetrators will either falsify the appraisal document or employ a rogue appraiser as a conspirator in the scheme who will create and attest to the inflated value of the property" (Federal Bureau of Investigation, 2011, p. 18). Although it is important to recognize that by then the real state sector in the U.S. was developing a bubble and that periods of boom and euphoria can lead asset prices in general to run away from fundamentals (Rajan, 2010, p. 110)– which indeed happened –, in this context the overvaluation of houses was also heavily driven by pressure against appraisers, reportedly driven most frequently by brokers[46] – whose fees where proportional to the value of the contract – as well as from real state agents and even lenders and borrowers (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 91). As a consequence, the levels of appraisers that reported felling pressured to restate, adjust or change property valuations increased from 55% in 2003 to 90% in 2006, with over two-thirds (68%) reporting that the lack of compliance with this kind of demand led to losing the client, and 45% reporting not getting paid at all for the appraisal (October Research Corporation, 2006, pp. 4-6).

Inflated appraisals were especially harmful for borrowers, which would not only have to pay a larger loan and higher interest rates but would "also experience a personal financial loss when the true value is later discovered" (Federal Bureau

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[46] According to the 2007 National Appraisal Survey conducted by the October Research Corporation (2006, p. 5), conducted as a follow-up to the 2003 National Appraisal Survey, among all appraisers who related felling pressure to restate/adjust/change property valuations, 71% reported receiving uncomfortable pressure from mortgage brokers, 56% from real estate agents and 35% from consumer and lenders.

of Investigation, 2011, p. 19) ending up with a negative equity, that is, a mortgage that is worth more than the house itself[47]. Although inflated appraisals offered a higher risk of losses for lenders in the case of default, once that risk was passed along to investors within the securitization processes, besides hurting the borrower, inflated appraisals also harmed who subscribed the MBSs issued based on these over valuated mortgages because, if the house is worth less than the loan, there is no way for it to be repaid fully. In fact, as Paul Krugman (2008, p. 169), "homeowners with negative equity are prime candidates for default and foreclosure, no matter what their background. For one thing, some of them may simply 'walk away' – to walk out on their mortgage, figuring that they will end up ahead financially even after losing the house".

Regardless of the operational pattern of each type of fraud, it is important to recognize that all forms of fraud for profit identified during the housing bubble were inserted in a wider context of misconduct typical of the financial sector, characterized as the deliberate sale of unsuitable financial products for consumers with lower financial literacy, exploiting informational asymmetry to profit at the expense of the misplaced trust, practice known as *misseling* (Lima Rego, 2018, p. 219; Reurink, 2016, p. 53). As a consequence of the immateriality of the financial activity and because it is based on fiduciary products, the poor quality of a financial advice by an industry insider can be translated either into the commercialization of financial products or services that are unsuitable and inappropriate to the personal characteristics and objectives of a determined consumer (*personal misseling*) or the advertising and sale of unrealistic, misleading or exaggerated future performance of a financial product or service (*aggregate misseling*) (Lima Rego, 2018, pp. 219-220).

Even recognizing that not all practices of misseling have a criminal nature[48],

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47 In fact, because of an overvaluation in housing prices during the bubble – although not necessarily due to fraudulent appraisals –, Paul Krugman (2008, p. 169) estimates that, by 2008, there were "probably around 12 million American houseowners with negative equity", not far from the 11,1 million estimated by CoreLogic in the fourth quarter of 2010, which represented 23,1% of all residential properties and approximately $750 billion (Federal Bureau of Investigation, 2011, p. 8).

48 Raghuram Rajan (2010, pp. 125-126) exemplifies different forms of misseling which, even morally questionable, are not fairly criminal: "Did the trader make her returns by being more astute than others like her, or did she make it by front-running her clients (trading ahead of a large client order so as to make money when that client's order moved prices)? Did the mortgage broker make his fees through offering a variety of sensible options to the professional couple who were looking to upgrade their house, or by urging

it is important to acknowledge that the informational asymmetry between the financial costumer and the industry insider may act as the breeding ground for fraudulent behaviour. And, in that sense, during the booming phase of the housing bubble, fraudsters took advantage not only of the insider's knowledge and experience within a wide range of sectors like construction, finance, house appraisal, brokerage, sales, law and business, to exploit the vulnerabilities of the mortgage and the banking sectors – as the FBI outlines, using its "high level of access to financial documents, systems, mortgage origination software, notary seals, and professional licensure information necessary to commit mortgage fraud" (Federal Bureau of Investigation, 2011, p. 5) – but also abused of every possible form of informational asymmetry to profit against the most vulnerable victims. It is not by chance, thus, that one of the favoured victims of predatory lending practices were immigrants[49], which not only had little domain over financial complexities but would be easily fooled due to the lack of understanding of the English language itself[50]. As Charles Ferguson (2012, p. 58) describes,

> [t]here was also a lot of flat-out fraud, often very cruel, committed against immigrants who didn't speak English and/or had no financial experience. They were simply lied to – about the size of the loan, the size of the payments, the real interest rate – and told to sign documents they couldn't understand or even read. (...)
> Illegal immigrants were particularly easy to defraud because they were afraid to go to the police. The presence of large numbers of non-English-speaking illegal immigrants was unquestionably one reason that so much of the bubble was concentrated in the states of California, Arizona, and Florida, as well as parts of New York populated by recent immigrant

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an elderly couple to refinance into a mortgage they could not afford? Although the former course is preferable in each case, the latter is easier for the trader or broker; and because the wrong choice also makes money, has few immediate consequences, and sets off new alarm bells, it is the one is most tempting".

49 In that context, according to the FBI (2011, p. 5), "[m]ortgage fraud perpetrators have been known to recruit ethnic community members as co-conspirators and victims to participate in mortgage loan origination fraud".

50 The testimony given by Kevin Stein, from the California Reinvestment Coalition, to the Financial Crisis Inquiry Commission is very explanatory regarding the misleading sale of ARMs to immigrant borrowers: "consumers testified to being sold option ARM loans in their primary non-English language, only to be pressured to sign English-only documents with significantly worse terms. Some consumers testified to being unable to make even their initial payments because they had been lied to so completely by their brokers" (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 109).

As the misconducts identified during the booming phase of the bubble shows, the complexities of the mortgage contract and consequent asymmetry of information created a point of friction between industry insiders and borrowers (Ashcraft/Schuermann, 2008, p. 11), which, associated with a severe incentive problem in the prevailing remuneration system enabled the occurrence of different forms of abusive behaviour. With an overall decline in credit standards and a deterioration in the processes of due diligence regarding lending practices, in the context of an economic euphoria that took place, many financial institutions developed a criminogenic environment (Mayer/Cava/Baird, 2014, p. 545), which fostered the occurrence of several forms of fraudulent misbehaviour that proved to be no only intentional but fairly criminal (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 160).

This, however, was not unnoticed and, as soon as June 2004, the FBI established a program specifically for mortgage fraud investigation within the Financial Crimes Section of the FBI's Criminal Investigative Division[51] and, by the end of 2005, a joint initiative from the FBI, the Department of Housing and Urban Development (HUD), the Office of the Inspector General (OIG), the United States Postal Inspection Service (USPS), the Internal Revenue Service (IRS) and the Department of Justice (DOJ) warned of a "growing epidemic of mortgage fraud" referring to this type of felony as the "fastest growing white collar crime in the United States" (Federal Bureau of Investigation, 2005c). More than being directly approached by potential victims, the main launcher of investigations regarding mortgage fraud by the agencies were Suspicious Activity Reports (SARs) filed by financial institutions to the Financial Crimes Enforcement Network (FinCEN), a division integrating the Treasury Department. And, indeed, both the period of expansion of the housing bubble and the subsequent panic saw a great increase of potentially fraudulent behaviours reported, rising from 4.225 in 2001 to 93.508 in 2011, as our compilation of SARs filed by federally-insured financial institutions shows (fig. 6).

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[51] According to the testimony of Chris Sweckeder, then Assistant Director of the Criminal Investigative Division Federal Bureau of Investigation before the House Financial Services Subcommittee on Housing and Community Opportunity, October 7th, 2004. Available at https://archives.fbi.gov/archives/news/testimony/fbis-efforts-in-combating-mortgage-fraud.

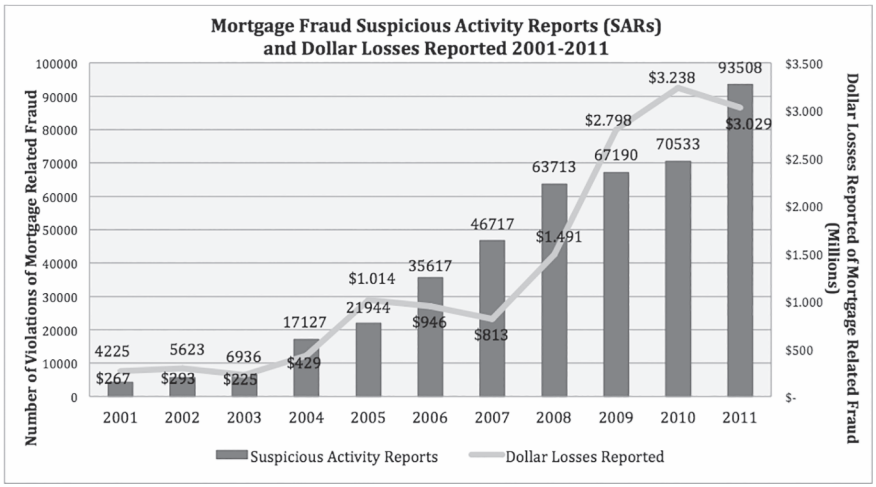

Figure 6 – SARS VS DOLLAR LOSSES REPORTED

Even though not all reports turned into a formal investigation and not all investigations tuned into criminal prosecutions, several of the misbehaviours associated to the lending practices and the fraudulent disclosure of information from brokers to borrowers proved to be both wilful and criminal, which, according to the Department of Justice of the United States, resulted in 2.760 criminal convictions for mortgage fraud between 2009 and 2011, with the number of convictions more than doubling from 2009 (555) to 2011 (1.118)[52]. In spite of the numbers, though, it is important to outline that most criminal convictions were of lower-level employees, with the higher-level executive convicted for wrongdoings related to mortgage origination fraud being Lorraine Brown, the former CEO of Lender Processing Services Inc., a Florida-based company hired by Wall Street banks to prepare and file subprime mortgages paperwork. In 2013, Lorraine Brown was sentenced to serve five years in prison, followed by two years of supervised release and ordered to pay a fine of $15,000 after pleaded guilty to conspiracy to commit mail and wire fraud[53] due to her role in a six-year scheme in which more than one

52 U.S. Department of Justice Office of the Inspector General Audit Division, 2014, p. 9. Still according to the DoJ, in 2010, there were 1.087 convictions.

53 As the Department of Justice clarified, according to Brown's plea agreement, in order to generate a greater profit, under her direction her employees "began forging and falsifying signatures of authorized personnel on the mortgage-related documents that they had been hired to prepare and file with property recorders' offices", which generated

million mortgage-related documents were fraudulently signed and notarized (Mayer/Cava/Baird, 2014, pp. 566-567; Rex, 2019, pp. 104-105).

Along with the criminal convictions there also were civil compositions in response to wider allegations of abuses related to mortgage lending and faulty foreclosures processing, as the example of the $25 billion settlement made with the State Attorneys of 49 States and the Department of Justice and the five largest mortgage services companies which represented nearly 60% of the market in the U.S., namely, Bank of America Corporation, JPMorgan Chase & Co., Wells Fargo & Company, Citigroup, Inc., and Ally Financial, Inc., formerly GMAC[54]. As a compensation for different types of violation like "robo-signed" affidavits, deceptive practices related to loan modifications, failures to offer non-foreclosure alternatives before foreclosing on borrowers with federally insured mortgages and filing improper documentation in federal bankruptcy court, the agreement required the financial institutions to implement new mortgage loan servicing standards as well as the payment of fines, most of which aimed at reducing the principal debt or refinancing loans of borrowers with negative equity and other forms of debt relief[55].

As a last feature, it is worth mentioning that in the Paragraph 11 of its Exhibit F, the agreement expressly excludes releasing claims related to "(c) any criminal liability" committed in the primary market, associated to the process of issuing new mortgages, as well as felonies committed in the secondary market (detailed in the next topic) such as frauds related to the purchase of mortgages or securities based on this type of loan at any point of the securitization chain[56]. It is important

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$60 million in gross revenue between 2003 and 2009. https://www.justice.gov/opa/pr/former-executive-florida-based-lender-processing-services-inc-sentenced-five-years-prison.

54 Alongside this agreement, there were also other settlements with other financial institutions like HSBC, American Home Mortgage Servicing (AHMSI), Homeward Residential Holdings, Litton, Ocwen, National SunTrust and National PHH. All agreements can be found at http://www.nationalmortgagesettlement.com.

55 Regarding individual aspects of the deal and the usage of the fines, see https://www.justice.gov/opa/pr/federal-government-and-state-attorneys-general-reach-25-billion-agreement-five-largest.

56 As stated in the agreement: "(11) Notwithstanding any other term of this Release, the following claims of the United States are specifically reserved and are not released:
(c) Any criminal liability;"
(e) Any and all claims whether legal or equitable, in connection with investors or purchasers in or of securities or based on the sale, transfer or assignment of any interest in a loan, mortgage, or security to, into, or for the benefit of a mortgage-backed security,

to note so, because the prevailing remuneration practices and the financial engineering used by financial institutions during the housing bubble fostered not only fraudulent behaviour against vulnerable house buyers, but acted as the breeding ground for crimes even between financial experts within the secondary market (which Michel PICARD [2008 p. 385, 389] recalls as "expert to expert relationship instead of a client to expert relationship"). To identify and analyse them, though, it is essential to understand the process of securitization of subprime mortgage credit and the prevailing business practices during the housing bubble.

2.3. The secondary market and the securitization process and business

In the years preceding the crisis, the business of mortgage origination and securitization was divided in three types of companies, namely, independent mortgage lenders, commercial banks and thrifts and Wall Street investment banks. In a highly lucrative market of mortgage securitization, investment banks faced the competition of the largest commercial banks and thrifts, which had developed its own specialized units with securitization skills and no longer needed their aid to structure and distribute its MBSs (NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 88). In order to meet the growing supply of capital and guarantee its market share, both commercial and investment banks moved into the mortgage origination, securitization and distribution chain, either by purchasing smaller subprime originator companies and integrating them to the holding company[57] – a "vertically integrated" model engaging the institution in

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trust, special purpose entity, financial institution, investor, or other entity, including but not limited to in the context of a mortgage securitization or whole loan sale to such entities ("Securitization/Investment Claims"). Securitization/Investment Claims include, but are not limited to, claims based on the following, all in connection with investors or purchasers in or of securities or in connection with a sale, transfer, or assignment of any interest in loan, mortgage or security to, into, or for the benefit of a mortgage-backed security, trust, special purpose entity, financial institution, investor, or other entity".

57 "Lehman Brothers, the fourth-largest investment bank, purchased six different domestic lenders between 1998 and 2004, including BNC and Aurora. Bear Stearns, the fifth largest, ramped up its subprime lending arm and eventually acquired three subprime originators in the United States, including Encore. In 2006, Merrill Lynch acquired First Franklin, and Morgan Stanley bought Saxon Capital; in 2007, Goldman Sachs upped its stake in Senderra Funding, a small subprime lender" (NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 88).

every link of the mortgage and securitization process –, or by negotiating with companies concentrated in niches specialized at mortgage origination (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 68, 88), such as New Century, Ameriquest and Countryside, by then the largest in the market.

In either approach, the securitization process started with the broker who brought together the borrower and the lender and managed to sell loans for the house buyers. The subprime market origination was then dominated by a small number of large firms, with 93% of all subprime loans issued by the top 25 lenders in 2003, and 90,5% in 2006, opposed to 47% in 1996 (Id., p. 88; Ashcraft/Schuermann, 2008, p. 4). The creation of raw material to securitize demanded funding and usually depository institutions such as commercial banks could use its internal capital to issue new mortgages. Mono-line arrangers that were not authorized to receive deposits, like thrifts and independent mortgage lenders, raised capital through short-term lines of credit, usually partnering with commercial or investment banks who offered "warehouse lines" and, in turn, bought the loans issued; or using the issued mortgages as collateral either for short-term commercial paper programs or for repurchase agreements (REPO market) (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 113).

Commercial paper was usually cheaper, which contributed to an increased usage from $4 billion by five companies in 2001, to $43 billion borrowed by 19 different entities in 2006 (Id., 2011, p. 114). However, this form of financing offered liquidity risks once these papers would have to be reissued regularly, within days or weeks. In order to mitigate these risks, some banks offered a service of *liquidity puts* by which, in exchange for a fee, the institution would purchase at a previously set price, any commercial papers that no investors were willing to buy when it reached the deadline for it to be rolled over (Id., 2011, p. 138). Citigroup was one of the main users of this financial engineering with its CDO branch issuing commercial

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In a similar sense, Charles Ferguson (2012, pp. 60-61) clarifies that "as the bubble got under way, several large traditional banks, financial conglomerates, and *all* of the major investment banks acquired predatory or subprime mortgage lenders of their own. Citigroup snapped up Associates First in 2000, one that a consumer advocate called 'an icon of predatory lending'. Lehman bought six subprime lenders by 2004, Washington Mutual bought eight, and Bear Stearns three. First Franklin, one of the larger subprime lenders, was taken over by Merrill Lynch in 2006. Those that remained independent formed tight relationships with the investment banks that purchased their loan and also supplied them with the general financing, managed their stock and bond offerings, and invested the personal wealth of their executives".

papers backed by mortgages or MBSs and the Citibank commercial bank offering liquidity puts for a 0,10% or 0,2% fee annually. Once the bank was required to hold 0,16% of capital against the amount money offered as liquidity put, the fee charged was enough to cover the capital requirement and keep a profit, at least during the booming years of the bubble. Throughout this period, Citigroup offered $25 billion in liquidity puts and, although it was believed that this service was virtually risk-free, the outbreak of the crisis catapulted all of it to Citibank's balance sheet and contributed for it to almost fail (ID., 2011, pp. 138-139). Other than Citigroup, only a few institutions offered these services, such as Bank of America, AIG, BNP Paribas, the German bank WestLB, and the French Societé Générale (ID., 2011, p. 139).

One common form of financing was the so-called "Shadow Banking System"[58], which used an arrangement invented in 1984 by Lehman Brothers known as auction-rate security by which individuals lent money for an institution on a long-term basis, up to thirty years, and at frequent intervals, often once a week, the borrowing institution held a auction in which potential new investors would bid to replace old investors who wanted to leave (KRUGMAN, 2008, pp. 158-159). This arrangement provided simultaneously a secure source of long-term funding for borrowers while addressed the liquidity need of lenders who could ready access their capital, in a scheme that managed to guarantee for investors higher rates than traditional bank deposits alongside with lower rates than lenders would have to repay in long-term bank loans (ID., 2008, p. 159). The main issue with this system, thought, was that its attractiveness for both borrowers and lenders turned out to be also the source of its great weakness: by using auction-rated securities to by-pass bank regulations and avoid mandatory liquidity reserves and deposit insurance fees, it made its operations cheaper; however, once at its essential feature it performed the functions of a conventional bank, the lack of a competent regulator and a lender of last resort exposed its capital to risks of conventional banking, such as bank runs (as indeed

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58 As Martin WOLF (2015, p. 20) teaches the expression "Shadow Banking System" was created in 2007 by the fund-manager of the Pacific Investment Management Company (PIMCO), Paul McCulley at the Jackson Hole Conference. As the author describes, "it created new forms of non-deposit near-money – notably, money-market funds, predominantly held by households, which financed supposedly safe short-term securities, and repos (repurchase agreements), a form of secured lending by corporate treasurers to investment banks and the investment-banking operations of universal banks (banks that provide both retail and investment-banking services). It allowed companies increasingly to issue commercial paper instead of relying on conventional bank loans. It converted conventional loans into tradeable asset-backed securities and CDOs" (ID., p. 129).

happened in 2008), without the protection of the equivalent banking safety net (Wolf, 2015, pp. 128-129)[59].

The second step in the securitization chain was located at the securities firm (or a specific branch inside a wider bank holding structure) where the CDO manager was responsible for the selection, approval and acquisition of mortgages that would constitute the poll of loans, which would then be structured into tranches to be offered to investors. While the mortgage originator profited, first, from the fees paid by the borrower and, second, from a premium fee of anticipated interest payments on the principal when selling the loans for securitization (Ashcraft/Schuermann, 2008, p. 3), the firm responsible for the securitization of mortgages collected a percentage of the sales amount to the investors as discounts, concessions or commissions – usually between 0,2% and 1,5% (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 118). More than selecting the collateral, the CDO manager could also perform as servicer, that is, being responsible for the management of the portfolio, offering costumer service for borrowers, collecting loan payments and supervising both foreclosures and the property dispositions, for which they received a periodic fee based on the amount of assets managed and, in some cases, on performance (Ashcraft/Schuermann, 2008, p. 3)[60].

The key for the Mortgage-Backed Security created by the financial intermediary to be advertised and sold to investors was the rating and, thus, credit rating agencies (CRA) were essential to analyse and grade each tranche, providing basic guidelines regarding the collateral, the structure of the deal, the expected cash flow and the

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59 The best description of this fragility was given in 2008 by former President and Chief Executive Officer of the Federal Reserve Bank of New York, at The Economic Club of New York: "The scale of long-term risky and relatively illiquid assets financed by very short-term liabilities made many of the vehicles and institutions in this parallel financial system vulnerable to a classic type of run, but without the protections such as deposit insurance that the banking system has in place to reduce such risks" (Geithner, 2008, p. 2).

60 As the commission concluded, "[o]n a percentage basis, these [fees] may have looked small – sometimes measured in tenths of a percentage point – but the amounts were far from trivial. For CDOs that focused on the relatively senior tranches of mortgage-backed securities, annual manager fees tended to be in the range of $600,000 to a million dollars per year for a $1 billion dollar deal. For CDOs that focused on the more junior tranches, which were often smaller, fees would be $750,000 to $1,5 million per year for a $500 million deal. As managers did more deals, they generated more fees without much additional cost" (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 131).

risk. During the run up of the crisis, the three largest credit rating agencies, Moody's, Fitch and Standard & Poor's, were responsible for over 99% of all outstanding ratings for asset backed securities[61]. Usually, at least two of them rated each individual prospect and, to do so, charged the creators of the CDOs a fee that typically ranged from $250,000 to $500,000 for each deal (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 132). More than smoothing the functioning of the MBS market, however, ratings were also important to determine whether certain investors could buy certain investments (money-market funds and pension funds, for example, can only acquire and hold triple-A rated securities), as well as to calculate the capital requirement banks needed to put aside depending on the quality of the assets it held in its books. As a consequence, for instance, while for each $100 invested in triple-A asset-back securities the banks were required to hold $1,60 in capital, the same amount of investment in BB rated would require $16 (id., 2011, p. 100).

The final participant in the securitization process was the financial guarantor that offered to the investors on MBSs a protection against losses, the so-called credit default swaps (CDS), by which in exchange for a premium-like payment it was agreed to reimburse the value of the investment in the event of a default (id., 2011, p. 140)[62]. Although smaller insurance companies like Ambac and MBIA offered this service, by far, the biggest underwriter of CDSs in the market was the American International Group (AIG), throughout its specialized London-based unit AIG Financial Products. Offering CDSs was a part of the credit protection business provided by the company and, by charging about 0,12% per year of the nominal amount assured, it helped the unit generate an income of $4,4 billion in 2005 alone, which also influenced the growth of its credit protection services overtime from $20 billion in 2002, to $211 billion in 2005, reaching $533 billion in 2007 (id., 2011, p. 141). Despite being a lucrative service for the company and specially prosperous for AIGFP unit's executives during the booming years of the crisis – with the unit's

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61 According to the SEC, these three agencies issued "almost 99% of all outstanding ratings across all categories reported. The concentration of outstanding ratings for these three NRSROs is high across all five categories but does vary across those categories. For instance, Fitch, Moody's, and S&P account for over 99% of all outstanding ratings for asset backed securities and government securities, but less than 75% of all ratings for insurance companies" (Securities Exchange Commission, 2008, p. 35).

62 Regarding this, the commission outlines that "the credit default swap (CDS) is often compared to insurance, but when an insurance company sells a policy, regulations require that it set aside a reserve in case of a loss. Because credit default swaps were not regulated insurance contracts, no such requirement was applicable".

head, Joseph Cassano, receiving over $200 million in bonuses in the period –, thought, underwriting CDSs was fatal for AIG's balance and the resulting financial losses were crucial for the U.S. government to be required to bail the company out by injecting over $150 billion, the largest injection of public money in a singular company in American history (Rajan, 2010, pp. 135-136).

2.4. Frictions within the securitization chain and securities fraud

As Adam Ashcraft and Til Schuerman (2008, p. 3), of the Federal Reserve Bank of New York, outline, within the context of the complex financial engineering of mortgage securitization, the existence of asymmetric information along each step of the process is an inherent fragility that causes seven key frictions among the involved parties that "could generate bad outcomes". Initially, as aforementioned, the lack of financial literacy from the borrower creates the first point of friction, once the fee-based remuneration system may induce abusive behaviour by the broker and foster predatory lending against financially unsophisticated house buyers. Naturally, within this point there may also occur predatory borrowing, with the house buyer taking advantage of the asymmetry of information regarding its real financial strength to either have approved an ineligible prospective mortgage or obtain a loan larger than it would be qualified to (id., ibid., p. 4).

This first friction leads to the second, located within the relationship between the mortgage lender and the securities firm that performs the securitization process, characterized by the information advantage that the first has regarding the quality of the borrower and the real risk associated to each individual loan. Considering this fragility, the acquisition of a pool of loans by the CDO manager has to be based on a careful due diligence proceeding with a detailed review of the internal underwritings guidelines and standards adopted by the company and the financial statements used to approve the mortgages, but also the necessary background checks and discussions with the senior management, among others caution measures (id., 2008, pp. 4-5). Besides verifying if the adequate safeguards are in place, another form of protection to overcome this informational asymmetry lies on claw-back clauses and contractual provisions that allow loans to be handed back to the original issuer in exchange for another mortgage or the equivalent financial compensation.

The quality of each individual mortgage and of the overall pool of loans held by the CDO manager and used to issue a collateral-debt obligation is the source of three other frictions within the securitization chain. To that matter, the due diligence efforts carried out by the securities firm may induce the development of

adverse selection problems[63] between the company and third parties, notably the warehouse credit lender, the asset manager and the credit rating agencies (ASHCRAFT/SCHUERMANN, 2008, pp. 6-7). Indeed, once the MBS issuer keeps the mortgages in its books during the period in which the mortgages are accumulated to be used as collateral of a CDO (which, during the housing bubble, lasted from six to nine months) and, thus, has to keep track whether the assets loses value, the company has an knowledge advantage related not only to the strengthen and the fragilities of the mortgages when they were acquired from the original issuer (NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 131), but also related to its performance over the period it stood in its balance sheets. As a consequence, the company has an informational advantage regarding which loans are more likely to perform according to expectations and which ones could underperform, which creates benefits regarding the selection of loans to be kept in its own balance sheet, to be securitized and sold or to be used as collateral in credit contracts.

For the warehouse credit provider, for instance, if the due diligence was not enough to surpass all the uncertainty regarding the real value of the loans, it can take other measures to protect itself against overvaluation of the assets offered as collateral by increasing the credit spread, demanding that the securities firm assume a funded equity position while the mortgages remain in its books (as the authors put "it might extend a $9 million loan against collateral of $10 million of underlying mortgages"), or by introducing a haircut clause to the value of collateral if it proves to be overvalued (ASHCRAFT/SCHUERMANN, 2008, p. 6). This friction between the issuer of MBSs and the warehouse lender was especially important during the financial debacle of the subprime crisis because the lack of funding from investment and commercial banks due to the downgrade of subprime mortgages ratings led inexorably to the bankruptcy of companies that depended on short-term financing.

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63 As Luís MÁXIMO DOS SANTOS (2009, p. 74) teaches, the problems of adverse selection arise from the existence of information imperfection between counterparties and, as a consequence, "given the difficulty to evaluate the product qualitatively, buyers tend to offer a median price for goods located in a universe of qualitative undifferentiation, which, regardless of their will, tends to move away from the market sellers of products with a quality higher than average, with the inherent loss for consumers and good professionals in the sector. This effect is overcome through the transmission of correct and complete (and preferably free) information to buyers, a transmission that sellers of products with quality higher than average are interested in ensuring, thus eliminating an information asymmetry that normally benefits sellers but which in this case turns against them and may even lead to the collapse of the market".

As a fifth friction, in addition to the benefits that securities firm have due to informational asymmetry in the relationship with its counterparts, notably lenders and investors, the fact that rating agencies are paid by the arranger of the CDOs (the "issuer pays" model) rather than the investor itself (the "investor pays" model; Mayer/Cava/Baird, 2014, p. 558) creates yet another potential conflict of interest in which the investors "are susceptible to both honest and dishonest errors on the agencies' part" (Ashcraft/Schuermann, 2008, p. 10). It is obvious that the importance of the market reputation for a long-run business model acts as a deterrent against intentional and fraudulent rating inflation, and it is also clear that public disclosure of credit rating and downgrade criteria minimizes this type of friction. However, the dependency of rating agencies on arrangers creates a possible conflict of interests by which "[t]he rating agency, for example, might want to keep the issuer happy by providing a favorable rating and preventing the issuer from taking its business to a different rating agency" (Mayer/Cava/Baird, 2014, p. 559). Moreover, the complexity and dynamic character of financial innovations may create as a natural by-product a flawed model of evaluation that reputational pressures and public disclosure of rating criteria might not be enough to avoid.

The two last friction points within the mortgage securitization market are located at the management of the final portfolio and arise from moral hazard[64] scenarios related to the relationship between, first, the CDO manager and the house buyer and, second, the investor and the CDO manager. In that context, although generally the house buyers conduct the necessary efforts to adequately maintain the conditions and the value of the property throughout the maturity period of the mortgage, a borrower struggling to meet the debt service is likely to be also struggling to keep up hazard insurance or the necessary property taxes, which can jeopardize the real value of the house due to casualties and taxes default interest rates and fines[65]. Because the CDO manager is supposed to work in the

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64 As Adam Ashcraft and Til Schuermann summarize (2014, p. 7), "[m]oral hazard refers to changes in behavior in response to redistribution of risk". In a similar sense, Paul Krugman (2008, pp. 62-63) teaches that "[t]he term 'moral hazard' has its origins in the insurance industry. Very early in the game providers of fire insurance, in particular, noticed that property owners who were fully insures against loss had an interesting tendency to have destructive fires – particularly when changing conditions had reduced the probable market value of their building to less than the insurance coverage. (...) Eventually the term came to refer to any situation in which one person makes the decision about how much risk to take, while someone else bears the cost if things go badly".

65 In fact, as the authors explain "[t]he failure to pay property taxes could result in costly liens on the property that increase the costs to investors of ultimately foreclosing on

investor's best interest and guarantee the maintenance of house value, to overcome this moral hazard scenario, the CDO manager is supposed to verify the payment of both taxes and insurance coverage, even pay them on behalf of the borrower, in order to avoid all possible losses.

Even so, once a proper and diligent management demands efforts and costs by the CDO manager, while the negative consequences may lie on the investor's interests, yet another moral hazard arises within this relationship, related to two central points of tension: the reimbursable expenses made in advance by the manager who, as the authors point out, "has a natural incentive to inflate expenses, especially in good times when recovery rates on foreclosed property are high"; and the decision to renegotiate a loan or foreclose it. Regarding the last, the prevailing remuneration system pushed managers for a renegotiation in order to avoid foreclosure costs and to keep the amount of assets at the highest nominal value possible once it was the base for its fees, solution that may not always meet the investors best interest.[66]

Still following Adam Ashcraft and Til Schuerman (2008, pp. 11-12), it is possible to infer that five out of the previous frictions were essential to the development of a financial bubble in the U.S. real state sector and for the outbreak of the subprime crisis, mainly associated to the decline in housing credit quality and the deterioration in the processes of due diligence within the securitization and distribution of Mortgage-Backed Securities. First, as detailed before, within the first friction point of the mortgage and securitization chain, the complexity of the mortgage contracts and the asymmetry of information between brokers and borrowers fostered the occurrence of both predatory borrowing and, more commonly, predatory lending – which, as we saw, created a breeding ground for a widespread mortgage origination fraud against

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the property. The failure to pay hazard insurance premiums could result in a lapse in coverage, exposing investors to the risk of significant loss. And the failure to maintain the property will increase expenses to investors in marketing the property after foreclosure and possibly reduce the sale price. The mortgagor has little incentive to expend effort or resources to maintain a property close to foreclosure" (Ashcraft/Schuermann, 2008, p. 10).

66 Despite the "strong preference to modify the terms of a delinquent loan and to delay foreclosure", as outlined by Adam Ashcraft and Til Schuerman (2008, p. 9), however, Paul Krugman (2008, pp. 167-168) emphasizes that, during the panic phase of the crisis, loan restructuring was not an option because "the complexity of the financial engineering supporting subprime lending left ownership of mortgages dispersed among many investors with claims of varying seniority, [which] created formidable legal obstacles to any kind of debt forgiveness".

low-income householders which constituted "only the beginning of a chain of lies that ran through the entire mortgage industry" (Reurink, 2016, p. 31). More than harming the individual borrowers, though, this friction contributed to the deterioration of the overall quality of mortgage credit, as a consequence of a short-term fee-based remuneration system and the predominance of the originate-to-distribute approach in which brokers had no interest in the credit relation other than the up-front fees.

In that context, the profitability of that business strategy and the breakage of the essential link between the mortgage decisions and its future consequences as a by-product of the securitization and distribution manoeuvres, contributed for several independent mortgage companies to adopt especially aggressive strategies to boost growth and profit that contributed for the occurrence of abusive behaviour[67]. Take, for instance, the then three biggest on the market: New Century Financial Corporation, Ameriquest Mortgage Company and Countrywide Financial Corporation. Once their main focus was to originate new loans to be sold in the secondary market either as a pool of mortgages to be securitized or as a finished MBS (with 87% of the mortgages Contrywide originated being sold or securitized and three-quarters of New Century's being purchased by Morgan Stanley and Credit Suisse alone, companies which also provided the largest part of its financing), their internal remuneration systems were conceived accordingly, which created "an immense incentive to keep the volume of originations up so that they could collect fees" (Rajan, 2010, p. 130).

In general, the compensation plans were successful in increasing the volume of loans issued and, as a consequence, New Century ramped up its annual originations from $3,1 billion by 2000, to $20,8 billion in 2003 (making it the second largest subprime originator) and, finally, $51,6 billion in 2006 (Ferguson, 2012, p. 65); Ameriquest increased its loan origination from $4 billion in 2000 to $39 billion in 2003, and managed to issue $217,9 billion between 2002 and 2005 (id., 2012, pp. 72-73); and Countrywide, the largest independent mortgage lender in the period, was able to issue $1,5 trillion

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67 It is curious that the securitization process was identified in the aftermath of the crisis as one of the reasons that fostered abusive lending practices because, even though the 1998 report released by the Department of Housing and Urban Development concluded that "[a]busive practices continue to exist in some segments of the home-equity lending market, demonstrating the need for additional protections", mortgage industry representatives who were heard in this inquiry advocated that "the trend toward securitizing subprime mortgages has served to standardize creditor practices and *to limit the opportunity for widespread abuse* (...) [because] "[c]reditors that package and securitize their home-equity loans must comply with a series of representations and warranties" (Board of Governors of the Federal Reserve System and Department of Housing and Urban Development, 1998, pp. 21, 56-57; [italics mine]).

in mortgages between 2002 and 2005 (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 105), originating over $490 billion in mortgages in 2005, $450 billion in 2006 and over $408 billion in 2007 (Securities and Exchange Commission, 2009a, p. 7). The main problem was that the remuneration system aimed on volume of loans issued and the higher possible interest rate but did not concern the quality of the mortgage and, as a consequence, brokers started to focus primarily on having a credit score that would guarantee an prospect to be approved and passed on, which changed the definition of a good loan from "one that pays" to "one that could be sold" (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 105) – and, as Raghuram Rajan (2010, p. 129) mentions, "they now knew which numbers to emphasize".

This ended up jeopardizing the underwriting standards of the companies and, as internal research and criminal investigations showed, created an environment ripe for fraud that fostered the occurrence of mortgage scams among its staff (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 160). New Century, for example, had internal warnings that the loan quality was deteriorating by early 2000s but, instead of reviewing its practices, its management decided to shut down both its Quality Assurance and Internal Audit departments, respectively in 2004 and 2005 (id., 2011, p. 157). As a result, not only the final report of the bankruptcy court examiner that analysed New Century's bankruptcy lawsuit concluded that the company "engaged in a number of significant improper and imprudent practices related to its loan originations, operations, accounting and financial reporting processes" (United States Bankruptcy Court for the District Delaware, 2008, p. 2), but Ohio's assistant attorney general, Robert M. Hart, supposedly stated that its underwriting standards were so low "that they would have sold a loan to a dog" (Rajan, 2010, p. 127). Likewise, as Illinois' attorney general Lisa Madigan testified to the FCIC (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 12),

> Our multistate investigation of Ameriquest revealed that the company engaged in the kinds of fraudulent practices that other predatory lenders subsequently emulated on a wide scale: inflating home appraisals; increasing the interest rates on borrowers' loans or switching their loans from fixed to adjustable interest rates at closing; and promising borrowers that they could refinance their costly loans into loans with better terms in just a few months or a year, even when borrowers had no equity to absorb another refinance.[68]

[68] As outlined by William Black (2013, pp. 172-172), Ameriquest is a clear example of the importance of a criminal reaction to prevent financial crime in the future: according to the

In a context in which the cheap foreign capital was craving for high rated assets, "mortgage brokers found they could peddle all sorts of junk, especially because the deterioration in credit quality was masked by immense amount of money pouring into the sector" (Rajan, 2010, p. 122), which ended up causing market discipline to break down favouring abusive behaviour and fraud. Although it is hard to identify the real dimension of mortgage related scams, according to an estimate made by former banking regulator William Black, in every year in the mid-2000s there were at least 1,5 million new loans issued with some form of fraud (National Commission on the Causes of the Financial and Economic Crisis in the United States, 2011, p. 160). Moreover, Interthink, a fraud detection company, concluded that among a large sample of loans analysed between 2005 and 2007, "13% contained lies or omissions significant enough to rescind the loan or demand a buyback if it had been securitized" which resulted in about $1 trillion in mortgages to be fraudulent and an estimated $160 billion worth of loans to result in foreclosures, causing losses of $112 billion for its holders (id., 2011, p. 160).

Naturally, the overall and individual quality of mortgages was supposed to be analysed in due diligence processes, either by in-house audits or using third-party firms that would review if the loans met the internal underwriting standards, the compliance to federal and state laws and the accuracy of the reported values of the loans (id., 2011, pp. 165-166). However, within this second friction point essential for the crisis located between the mortgage originator and the securities firm, the percentage

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author, the creation of Ameriquest was a bureaucratic maneuver from its founder, Roland Arnall, to avoid being punished for frauds related to "liars loans" committed by him during the savings and loans crisis. Without this maneuver and with the punishment of its founder, Black argues, Ameriquest's frauds would have been avoided: "In 1990–1991, our agency took effective supervisory action against the leading nonprime lenders, particularly those making "liars" loans. At that time, the leading nonprime S&L lender was Long Beach Savings, run by Roland Arnall. He gave up Long Beach's federal charter and turned it into a mortgage bank (Ameriquest) to escape our jurisdiction. ... Unfortunately, the Clinton administration decision in 1993 to reallocate Justice Department resources from the S&L frauds to health care frauds resulted in thousands of S&L frauds not being convicted, including virtually all of the frauds identified in or after 1991. Ameriquest became the most notorious fraudulent and predatory lender. The nonprosecution of Arnall for his role in Long Beach Savings forfeited an opportunity to deter the creation of the mortgage fraud epidemic. If Arnall had been prosecuted for his S&L frauds, he could not have created Ameriquest. If he had been prosecuted, President George W. Bush would not have made him the U.S. ambassador to the Netherlands. If Arnall and Ameriquest had been prosecuted, Citicorp and Washington Mutual would not have acquired its fraudulent operations and personnel".

of mortgages analysed that ideally should have ranged near 30% was, according to market observers, as low as 2% or 3% (ID., 2011, p. 165), with many mortgage securitizes dedicating very limited resources for its internal due diligence teams – Morgan Stanley's unit, for example, had no more than five employees (ID., 2011, p. 168).

These smaller samples did not prevented the due diligences to identify the existence of defective mortgages that even though were approved for acquisition: as Clayton Holdings, a company that provided third-party due diligence services, concluded, 28% of the loans analysed over a period of 18 months between 2006 and 2007 were deficient and failed to meet minimal guidelines[69], out of which 39% were nevertheless accepted by banks – which represented 11% of the total mortgages analysed (ID., 2011, pp. 166-167; FERGUSON, 2012, p. 89). In a similar analysis, former senior Vice President at CitiFinancial Mortgage and chief underwriter of Citigroup's consumer division, Richard Bowen, discovered that by mid-2006, 40% to 60% of loans bought by Citigroup did not meet its internal standards or had critical documents missing (NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 168; FERGUSON, 2012, p. 104).

Although MBS were issued with virtually no oversight from the SEC, in order to comply with the regulation of "Pool Assets" that ruled that the prospectus presented to investors should bring "general information regarding pool asset types and selection criteria" including "a description of the solicitation, credit-granting or underwriting criteria used to originate or purchase the pool assets, including, to the extent known, any changes in such criteria and the extent to which such policies and criteria are or could be overridden" (SECURITIES AND EXCHANGE COMMISSION, 2014a), many prospects included the disclaimer that not all mortgages would comply with the lender's lending practices or the due diligence standards. However, even when these disclaimers did clarify that "a substantial number" of loans could represent these exceptions, there was no disclosure that nearly 97% of the mortgages were not sampled, ultimately "raising the question of whether the disclosures were materially misleading, in violation of the securities laws" (NATIONAL

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69 The company had three different categories to classify the analyzed loans: "loans that met guidelines (a Grade 1 Event), those that failed to meet guidelines but were approved because of compensating factors (a Grade 2 Event), and those that failed to meet guidelines and were not approved (a Grade 3 Event)". Out of 911,039 mortgages, 72% met the essential guidelines directly of with compensation factor, with 54% being classified as Grade 1 and 18% being rated as Grade 2" (NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 166).

Commission on the Causes of the Financial and Economic Crisis in the United States, 2011, p. 170).

The deficient due diligence processes by the MBS issuers piled up on yet another friction that proved to be essential for the outbreak of the crisis: the assessment of the assets by the rating agencies. In general, the models adopted by the agencies followed the idea that assembling a sufficiently large pool of mortgages based on loans of different parts of the country and from different issuers would create diversification benefits that increased the safety of the collateralized asset, even if the underlying mortgages were highly dubious (Krugman, 2008, pp. 149-150). Despite the theoretical and mathematical coherence of the securitization logic, though, the models developed and used by the rating agencies proved to be substantially wrong which "meant that credit ratings were assigned to subprime mortgage-backed securities with significant error" (Ashcraft/Schuermann, 2008, pp. 11-12), because they were mainly based on strong credit performance periods, they did not account sufficiently for the deterioration of quality of the credit securitized and did not take into consideration the possibility of the occurrence of a sharp decline in house prices in a nationwide range (National Commission on the Causes of the Financial and Economic Crisis in the United States, 2011, pp. 118-121).

Moody's was a paradigmatic example: the agency started evaluating and grading residential mortgage-backed securities' tranches in the mid-1990s, using a 1996 model. With increased demand, in 2003 Moody's developed a new model, the M3 Prime, which integrated specific factors related to the issuer, the market, regulatory and legal elements and macroeconomic trends. This model also allowed the rating process to be automated using the borrower's credit score, the originator quality, contractual terms and other information, which provided more efficiency and contributed for the rating of structured finance products to represent more than half of its revenues in 2005, 2006, and 2007 (id., 2011, p. 118). Even so, it was not until the fall of 2006, after the company had already rated nearly 19,000 subprime securities, that Moody's developed a model specifically designed to analyse and rate subprime deals, the M3 Subprime. In the aftermath of the crisis, it became clear, first, that the default correlations were much higher than the models used by Moody's and the other agencies previously anticipated; second, that once too many borrowers relied on refinancing to keep up their payments, a fall in prices had a much greater impact; and third, that many packages were insufficiently diversified across areas (Rajan, 2010, p. 135).

The association of the mortgage quality deterioration, the lack of due diligence by the securities firm and the adoption of a mistaken model of risk by

the rating agencies led to the fourth friction essential for the outbreak of the crisis, between the MBS issuer and the investor who bought it: the misrepresentation of the characteristics of the securities and loans underlying the derivatives. Here, the main issue was associated to the quality of the collateralized-debt obligation and the real value of the asset held by investors, related to misinformation regarding central subjects like the loan-to-value representation (LTV), which translates the correlation between the amount of capital borrowed and remaining to be paid to the appraised value of the property; the full disclosure of the existence of liens on the properties; the occupancy status of the home, that indicates if the house underlying the each mortgage was an owner-occupied primary residence, a second home or an investment property; and the compliance of the loans to the internal standards guidelines, especially the early payment defaults (EDPs) on all securitized mortgages (FERGUSON, 2012, pp. 87-89). As Arjan REURINK (2016, p. 32) describes:

> These misrepresentations occurred in at least two distinct ways. First, underwriters either intentionally misrepresented or failed to perform sufficient due diligence on the loans they received from mortgage originators. As a consequence, the prospectuses of RMBSs, ABSs, and CDOs included misrepresentations about the quality of the loans in the portfolios that provide collateral for these securities – e.g., fraudulent property appraisals, misrepresented loan-to-value ratios, misstatements about the sort of loans underlying the security, and misrepresentations about the delinquency status of the loans in the portfolio – or misrepresentations about the credit rating on them. Second, underwriters did not explicitly misrepresent but nevertheless marketized and sold to investors investments they knew to be poor ones. Although empirically these two forms of misrepresentation often occurred in concordance, the latter form of fraud is discussed below under fraudulent financial misselling.

Alongside with the fact that this friction is self-reinforcing and deepens the previous frictions once "without due diligence by the asset manager, the arranger's incentives to conduct its own due diligence are reduced" (ASHCRAFT/SCHUERMANN, 2008, p. 11.), it was also highly influenced by the fifth and last friction essential to the crisis, located within the relationship between the investor, who is the owner of the capital, and the asset manager, who manages the money on its behalf. Within this so called "principal-agent problem", the issue is that investment mandates are usually evaluated relative to peers or to a chosen benchmark index and, as a consequence, during the booming years of the crisis in order to meet either reputation concerns or compensation

structures[70], several asset managers were pushed to MBSs because of its high rates and higher yields without fully understanding its risks or performing the necessary due diligence. In other words, "once the other asset managers started to under-perform their peers, they likely made similar portfolio shifts, but did not invest the same effort into due diligence of the arranger and originator" (Ashcraft/Schuermann, 2008, p. 11).

All these frictions were well known by industry insiders, but the dominant belief by then was that self-regulation measures along the mortgage origination, securitization and distribution chain would prevent any negative outcome from this fragilities, which was not verified and, as we now know, it became clear that the self-management model and the financial corporate governance programs, based on trust as a disciplinary tool for managers, were not sufficient to prevent the occurrence of misbehaviour, even delinquent ones (Figueiredo Dias, 2012, p. 39). Once these safety measures were in place, though, there were only two possible explanations to the negative outcomes of the crisis "[e]ither the final buyers were fooled by ratings or there was strong demand for these originations, without much thought to the underlying price or quality" (Rajan, 2010, p. 130). Although it is not possible to dismiss the argument that "[t]he brokers, lenders, packagers, and rating agencies simply did no have the personnel or capacity to manage the enormous workloads effectively", it is unquestionable that investors should have verified more and trusted less[71]. And, as a matter of fact, it is also important to recognize that this carelessness by MBS buyers also created the breeding ground for an abuse of trust by the securities issuers, which fostered different forms of misbehaviour including fraud and crimes. As Martin Wolf summarizes:

> Central bankers were pouring petrol on flames, because they wanted a blaze. The increasingly liberalized financial sector was only too happy to burn. Its richly rewarded participants found the borrowers they needed among foolish and ill-informed householders. They found the purchasers of the securities they created among foolish and ill-informed investors, some of whom even turned

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70 According to Sushil Bikhchandani and Sunil Sharma (2000, pp. 5-6), in a context of imperfect information these two elements are most important for the development of rational herd behaviour.

71 Id, 2010, pp. 130-131. And, as the author concludes: "Although they may have worried about potential damage to their reputation from the slipshod work they were doing, the enormous fees they generated apparently allayed those worries".

> out to be perversely rewarded parts of their own organizations. Fraud and near fraud – not to mention massaging of the data to show a prettier picture than was justified (by the rating agencies, for example) – exploded.

Although misconducts in the secondary market were substantially less subject to criminal investigation in comparison to mortgage fraud committed against householders in the primary market, because of its inherent frictions "investment banks, acting as underwriters for securities issued by structured investment vehicles, have been accused of making false statements to investors and other market participants about the quality and character of those securities" (REURINK, 2016, p. 31). Despite the limited criminal cases in this context, there was one paradigmatic criminal conviction that illustrates both the *modus operandi* and the consequences of this form of fraud: the 10-year fraud scam involving the Taylor, Bean & Whitaker (TBW), twelfth largest mortgage lender during the 2000s, and the Colonial Bank, one of the 25 largest banks in the U.S. TWB was then controlled by its majority owner and chairman Lee Farkas who managed operations of origination, acquisition, packaging, sale and servicing of residential mortgages. The company did not have sufficient capital to fund its operations, so it relied on various financing arrangements, being primarily funded by a short-term credit line from Colonial Bank (SECURITIES AND EXCHANGE COMMISSION, 2010c, p. 9).

The scheme began in 2002 with TWB misappropriating nearly $100 million throughout overdrafts in its accounts at Colonial Bank. In 2003, when the company started to experience liquidity problems, Lee Farkas, with the assistance of Colonial Bank Officers, implemented what he called the "Plan B" in which he sold to Colonial Bank an increasing value of non-existent loans for funds advancement (ID., 2010c, p. 9). Over the time, in order to conceal these fictitious deals, Farkas managed to manipulate these trades as they aged by convincing Catherine Kissick, a former senior vice president of Colonial Bank and head of the mortgage warehouse lending division, to "alter Colonial Bank's accounting records and 'reset' the commitment dates on certain trades and modify the identifying trade numbers, making it appear that Colonial Bank had only recently purchased those trades and their third-party commitments had not expired" (ID., 2010c, p. 9). This practice went on over the subsequent years, with TBW selling over $1,5 billion in worthless mortgage loans assets, which included loans that had already being sold to other investors and fake pools of loans that formed mortgage-backed securities.

According to the Securities Exchange Commission's investigation, Lee Farkas had the intention of repaying these fictitious but, to do so, he engaged in yet

another fraud utilizing a subsidiary owned by TBW named Ocala Funding, LLC to defraud two institutions that invested in that firm. Throughout a similar pattern, between 2007 and 2009 Ocala Funding raised $1,75 billion in commercial paper backed by mortgages that this company bought from TBW. The core of its fraudulent activity lied on the fact that the collateral belonged to a third-party purchaser, usually Freddie Mac, and, as a consequence of "Farkas' fraudulent conduct, Colonial Bank, the collateral agent, the Ocala Investors, and Freddie Mac have competing claims to approximately $1 billion of mortgage loans originated by TBW" (ID., 2010c, p. 14). As a result of these fraudulent practices, Taylor, Bean & Whitaker, the Ocala Funding and Colonial Bank all filed for bankruptcy. Also because of these frauds, Lee Farkas and his co-conspirators were criminally convicted, with Farkas being sentenced to 30 years in prison and ordered to forfeit $38,5 million and Catherine Kissick being sentenced to eight years in prison[72].

Besides showing the predominant fraudulent behaviour within both the primary and the secondary markets, this case is paradigmatic for it illustrates the poor management of criminal cases during the development of the bubble. As William BLACK (2013, pp. 172-173) describes,

> That is an easy fraud to detect because of recordation. If Fannie Mae had filed a criminal referral, Farkas would have been prosecuted and Taylor Bean closed before it caused material losses. Instead it caused large losses. The inexcusable failure of Fannie Mae to file criminal referrals was typical of how the current financial crisis was handled. The Federal Deposit Insurance Corporation examiners did not discover the frauds so they did not file criminal referrals. The special inspector general for the Troubled Asset Relief Program (SIGTARP) appears to have taken the lead in getting the Justice Department to prosecute. SIGTARP became involved because the conspirators sought to defraud the TARP program through a sham rescue of Colonial Bank.

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72 As the DoJ informs, other five people were convicted for fraudulent behaviour related to this case: Six other individuals have pleaded guilty and have been sentenced for their roles in the fraud scheme: "Desiree Brown, the former treasurer of TBW, was sentenced to six years in prison. Paul Allen, the former chief executive officer of TBW, was sentenced to 40 months in prison. Ray Bowman, the former president of TBW, was sentenced to 30 months in prison. Teresa Kelly , a former operations supervisor for Colonial Bank's MWLD, and Sean Ragland, a former senior financial analyst at TBW, were each sentenced to three months in prison" (DEPARTMENT OF JUSTICE, 2011).

Although not isolated, once for a decade a mortgage originator and packager managed to fraudulently bypass the due diligence process of different investors to both cover the company expenses and profit, this case is a prime example of financial misconduct characterized by taking advantage of the flaws within the mortgage origination and securitization chain. It is also important to outline that these fraudulent behaviours were the by-product of "a criminogenic structure at the heart of high finances [that] generates immense financial rewards for those who produce and promote investments and financial instruments on the rise; [while] other parties very disproportionately pay the price when these investments decline or collapse". As we have seen, this a criminogenic environment developed by the combination of the five aforementioned frictions, were essential for the systemic consequences of the crisis as they helped the dissemination to the balance sheet of countless financial institutions worldwide thousands of MBS based on the U.S. real state sector, assets that seemed to be safe during the booming years of the crisis but turned out to be toxic when the housing bubble burst.

3. Fourth phase of the crisis: the bust of the bubble and fraud

During the run up of the crisis, the few economists who saw factors such as the overvaluation of house prices, the burgeoning U.S. external account deficit and the increase of both leverage and indebtedness of householders and raised red flags regarding the possible existence of excessive risks or a bubble in the U.S. real state sector, like the 2008 Nobel prize laureate Paul KRUGMAN and former IMF chief-economist Raghuram RAJAN (2010, p. 208), were labelled as alarmists. In fact, as RAJAN describes, after presenting his findings related to the risks that technical changes, deregulation, institutional change and, most importantly, the predominant incentives posed to the financial system in the first decade of the 2000s, his conclusions were not well received by his peers at the 2005 Jackson Hole Conference: "I did not, however, foresee the reaction from the normally polite conference audience. I exaggerate only a bit when I say I felt like an early Christian who had wandered into a convention of half-starved lions" (ID., 2010, p. 3).

By then the predominant belief among regulators and market operators was that not only improvements on financial engineering and on monetary policy had helped to tame the business cycle and limit the risk of contagion, but financial innovation, deregulation and a self-regulatory system made the

financial system more efficient as well as safer[73]. However, as the destructive dimension of the 2008 crisis showed, the greater complexity and sophistication of the financial system was not translated into greater stability (Reinhart/Rogoff, 2009, p. 199). Moreover, despite the fact that economists indeed had reasons to sustain that financial developments were based on sound fundamentals and that the reasons for worry should not be translated into alarm[74], the discussions following the aftermath of the crisis concluded that the then dominant economic ideas were mistakenly led by a phenomenon known as *disaster myopia* which resulted in "a systematic tendency to underestimate shock probabilities"[75] –

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73 Regarding this belief, it is often recalled the 2004 speech given by then Federal Reserve Governor Ben Bernanke "The Great Moderation" in which he argued that although the substantial decline in macroeconomic volatility – "one of the most striking features of the economic landscape over the past twenty years or so" – could be understood by three classes of explanation, structural change, improved macroeconomic policies, and good luck, "the policy explanation for the Great Moderation deserves more credit than it has received in the literature". As Bernanke summarizes, "I have argued today that improved monetary policy has likely made an important contribution not only to the reduced volatility of inflation (which is not particularly controversial) but to the reduced volatility of output as well. Moreover, because a change in the monetary policy regime has pervasive effects, I have suggested that some of the effects of improved monetary policies may have been misidentified as exogenous changes in economic structure or in the distribution of economic shocks" (Bernanke, 2004, pp. 2, 7-8).

74 As Carmen Reinhart and Kenneth Rogoff (2009, pp. 214-215) recall, there were essentially six reasons that justified that belief:

- "The United States, with the world's most reliable system of financial regulation, the most innovative financial system, a strong political system, and the world's largest and most liquid capital markets, was special. It could withstand huge capital inflows without worry.
- Rapidly emerging developing economies needed a secure place to invest their funds for diversification purposes.
- Increased global financial integration was deepening global capital markets and allowing countries to go deeper into debt.
- In addition to its other strengths, the United States has superior monetary policy institutions and monetary policy markets.
- New financial instruments were allowing many new borrowers to enter mortgage markets.
- All that was happening was just a further deepening of financial globalization thanks to innovation and should not be a great source of worry".

75 This hypothesis was developed in 1984 by Jack M. Guttentag and Richard J. Herring (1986, pp. 2-5) and understands that "[u]nder conditions of uncertainty, there can be no presumption that the subjective probabilities that market participants attach to a

or, as Carmen REINHART and Kenneth ROGOFF call it, the *this-time-is-different Syndrome*[76].

Although virtually no economists could predict the scale and the gravity of its consequences worldwide, the few bankers and traders who perceived the upcoming crisis knew that if it could be disastrous for many, it could also be lucrative for some and, so, as soon as it became clear for them that the economic trend started to change towards the financial debacle they "put their money instead of their mouths to work" (RAJAN, 2010, p. 1). As the financial intermediaries and industry insiders usually respond to the predominant incentives, as long as the housing sector was booming, their focus and energy were dedicated to generating more mortgages and issuing collateralized assets based on them to distribute to investors. However, when the economic perspective changed, so did the industry incentives and, thus, the intermediaries who understood the economic trend adapted their approach in order to use this informational edge in their advantage. Obviously, even recognizing that most of these behaviours was done inside the limits of the law – albeit sometimes in shady areas –, reflecting a better economic awareness and the cleverness of bankers and traders who noticed the shift of winds, there was also many illegal misconducts which included financial frauds and crimes. In that context, in order to locate and understand these behaviours – including the associated financial scams –, it is essential to identify the causes that brought the booming and the euphoria periods to an end, leading to the panic phase of the crisis and the final economic crash.

To that matter, it is important to recall that according to Charles KINDLEBERGER (2005, p. 90) the Minsky's cycle of a financial crisis follows a standard model in which a trigger event causes a credit expansion that morphs into an economic boom and a subsequent economic euphoria where there is a sharp rise in asset

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shock will converge to the actual probabilities", scenario that may develop a perceptual bias that "will lead to excessive insolvency exposure if toleration of exposure to potential shocks appears profitable".

76 As the authors describe "The essence of the *this-time-is-different syndrome* is simple. It is rooted in the firmly held belief that financial crises are things that happen to other people in other countries at other times; crises do not happen to us, here and now. We are doing things better, we are smarter, we have learned from past mistakes. The old rules of valuation no longer apply. The current boom, unlike the many booms that preceded catastrophic collapses in the past (even in out country), is built on sound fundamentals, structural reforms, technological innovation, and good policy. Or so the story goes" (REINHART/ROGOFF, 2009, p. 15).

prices. In general, during its booming phase a bubble is developed by a kind of "greater fool" theory by which "even if an asset is already trading at an inflated price, someone will be willing to buy in at an even more inflated price" (Rajan, 2010, p. 112). However, when the supply of greater fools dries up and prices stop rising, the bubble no longer expands and, as a consequence, the operators who borrowed in the expectation of profiting with a higher price are forced to sell without the projected profit, the lenders who funded these operators seek repayment of its outstanding loans and who have lent to those institutions also tries to get their money back, and so on[77]. The decline in prices and the breakage of the first link in that chain triggers a panic, causing the financial sector and the economy to crash ultimately creating a systemic crisis and a recession that completes the Minsky's cycle (Wolf, 2015, p. 122).

Although booming periods and economic euphoria are particularly fertile for the occurrence of frauds, as Kindleberger reminds "[s]windling also increases in times of financial distress as a result of a taut credit system which induces declines in asset prices" (Kindleberger, 2005, p. 189), especially if there is an informational asymmetry between traders regarding the upcoming economic crash. In fact, the brief period of time between the moment in which the financial bubble stops inflating and the subsequent point when it starts to fall – the so called *Minsky moment* – pose an unique opportunity for traders who foresee and understand the ongoing trend shift to use this informational edge to profit against misinformed counterparts, in a period within Minsky's cycle preceding the crash known (not by chance) as "profit-taking – when intelligent investors start taking profits" (Wolf, 2015, p. 121). Although there were traders that as early as 2004 began to bet that the housing sector would fail[78], the housing bubble started to deflate in the fall of

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77 Kindleberger, 2005, p. 91. As Hyman Minsky (2008, p. 239) summarizes, "[d]ownside instability of asset prices can lead to a spiral of declining investment, declining profits, and declining asset prices".

78 As Charles Ferguson (2012, pp. 101-102) describes, by late 2004 Howie Hubler from Morgan Stanley realized the existence of a bubble and, so, started acquiring credit default swaps of low-quality mortgages. The strategy was that if these loans failed, which he believed they would, the bank would not lose money, once it did not hold these mortgages, but would receive its "insurance" if it failed. The only problem was that the bubble lasted longer than they expected and "in order to pay for his bets *against* the lowest-quality mortgage securities, he started writing insurance *for* other, supposedly higher-quality mortgages securities – securities that Mr. Hubler thought would not default until much later than the really awful ones. But insurance on these higher-quality securities was much cheaper, so in order to sell enough insurance (to obtain enough

2005 and it was only by late 2006, when the supply of new mortgages started to dry up and the bubble became apparent for many, that there was a massive bet on its collapse.

The trigger event that initially slowed the bubble down and contributed to stop its inflating trajectory was the Fed's decision, in June 2004, to begin raising the short-term interest rates to tame the rising inflationary pressures (Figure 7). At first, long-term interest rates remained low for a time, partially because the Fed did so while assuring that rates would be low for "a considerable period" and that rise would be at a "measured pace", that is, 0,25% at every meeting of the board (RAJAN, 2010, p. 107). However, as the over valuated housing market made purchasing a home increasingly out of reach for many householders, when the higher interest rates increased the initial payments on adjustable-rate mortgages and hindered the sales of homes with initial teasing payments, house prices stopped raising. Once house prices are not as volatile as stock prices that change by the minute, as home "sellers don't start cutting prices until it becomes painfully obvious that they aren't going to get a full-price offer" (KRUGMAN, 2008, p. 166), house prices still followed an upward trajectory until 2006, when the market peaked. But, sure enough, by late spring in that year the market started to sink in. The decline in prices was slow at first, with a moderate drop of 3% in the 12 months between the second quarter of 2006 and 2007, but gained speed over the following years, with a 9% drop in 2007, 17% in 2008 and, by the end of 2009, a accumulated fall of 28% from the peak in 2006 (NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 215; cf. fig. 7).

More than tightening liquidity conditions and making it difficult for new house buyers to be fooled into the market, higher interest rates also increased the monthly debt service of pre-existing loans with variable rates and made it more expensive to refinance mortgages when the initial teaser rates expired, which resulted in difficulties for many to meet their loan obligations and increased the default on payments and multiplied foreclosures (REINHART/ROGOFF, 2009, p. 213; fig. 7). As a consequence, not only early payment defaults (60 or more days delinquency within the first year) increased from 1,5% of loans in 2006 to 2,5% in 2007, but serious

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premium income) to fund his bets against the obviously crappy securities, he needed to write insurance on *a lot* ot them. For a time it worked, and in the first quarter of 2007 Morgan Stanley made 1$ billion from Hubler's strategy. But when (...) the supposedly higher-quality securities failed (...) Howie lost $9 billion for Morgan Stanley" (original italics).

delinquency (90 days or more past due or already in foreclosure) climbed from 1% in the beginning of the century to 9,7% in 2009 (National Commission on the Causes of the Financial and Economic Crisis in the United States, 2011, p. 215). As figure 8 shows, some forms of loans had even worst figures with subprime adjustable-rate mortgages reaching 20% of serious delinquency in 2007 and 40% by late 2009 (id., p. 216).

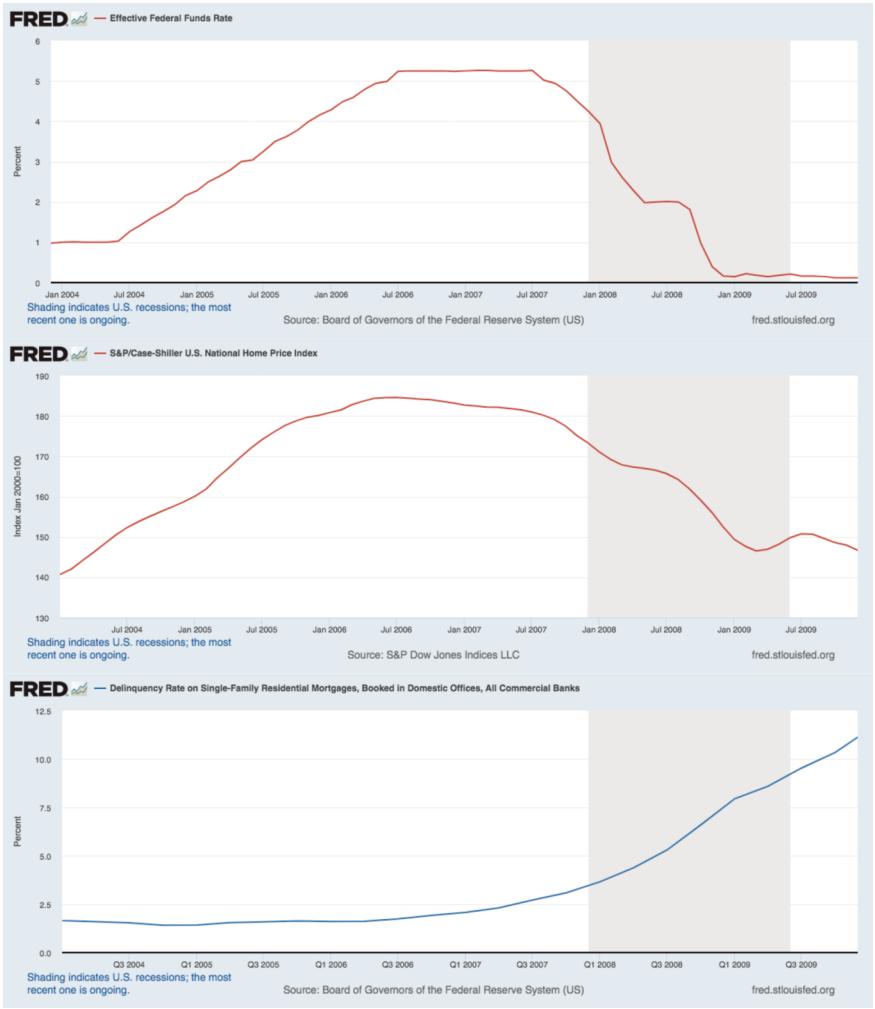

Figure 7 – SHORT TERM INTEREST RATES VS HOME PRICES VS DELINQUENCY RATES
Source: Fred – Federal Reserve Economic Data https://fred.stlouisfed.org/

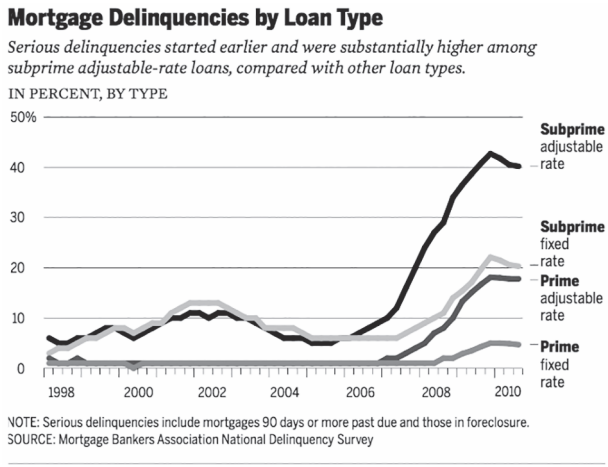

Figure 8 – MORTGAGE DELINQUENCIES BY LOAN TYPE
Source: National Commission on The Causes of The Financial and Economic Crisis in The United States. 2011, p. 217.

The moment of truth came around February 2007, when the increasing delinquency rates exposed the problems with subprime loans and it became clear that lower-rated tranches of MBS would suffer considerable losses, which plunged its prices. With no investors willing to purchase junior tranches, the whole process of mortgage securitization collapsed and, as a consequence, financing for subprime loans disappeared (KRUGMAN, 2008, p. 168). Without this market range, house-prices decline deepened, worsening the housing slump and, as a result, the whole momentum of the crisis was reserved (RAJAN, 2010, pp. 107-108). To aggravate the scenario, in an unprecedented move, in July 10th 2007 Moody's downgraded 399 subprime securities rated Baa or lower issued in 2006 and put other 32 securities on watch, which represented $5,2 billion in assets (NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, p. 221). Not long after, Standard and Poor's followed a similar path and downgraded 498 similar tranches (ID., 2011, p. 222).

On August 9th, in what is considered by many the birth certificate of the crisis, the French bank BNP Paribas announced it was suspending the withdraw from three of its funds that invested in assets associated to the U.S. housing market (KRUGMAN, 2008, p. 165)[79]. Even so, for several months investors believed that the

[79] As Martin WOLF mentions (2015, p. 19), partially in response to that announcement, in that same day the European Central Bank injected € 94,8 billion into the market.

most senior tranches were sufficiently well protected and would not bear losses and, thus, as late as October 2007 AAA-rated shares were still traded at close to their face value (Krugman, 2008, p. 168; figure 9). On October 11th 2007, then, other 2.506 MBS's tranches were downgraded by Moody's, making up to $33,4 billion, alongside with 577 tranches, worth $23,8 billion, which were put on watch for a potential future downgrade. Altogether, 92% of all MBS graded by Moody's in 2006 had at least one tranche downgraded or put on watch. Also, not only 83% of all Aaa-rated, but all Baa tranches were downgraded by April 2008 (National Commission on the Causes of the Financial and Economic Crisis in the United States, 2011, p. 222). Overall, 76% of all tranches graded investment grade (Baa3 or higher) in 2006, as well as 89% in 2007, were downgraded to junk (id., 2011, pp. 222-223) and, before 2009, 90% of all CDO tranches had been downgraded with more than 80% of all Aaa and 90% Baa eventually reaching the grade of "junk" (id., 2011, p. 224).

By the end of 2007 and the beginning of 2008, panic spread worldwide as the downgrade of mortgage-backed securities plunged the prices of its tranches[80], as figure 9 illustrates, and investors began assessing their own exposure to these assets. When prices plunged, the damage caused on the balance sheets resulted on a self-reinforcing cycle of forced liquidation of assets, which increased volatility, lowered prices even more and forced a de-leveraging process (Geithner, 2008, p. 2). Thus, in early 2008 a massive bank run over the shadow banking system caused auctions to fail, one after the other, causing the collapse of the auction-rate securities market, which led this $330 billion credit sector to vanish (Krugman, 2008, pp. 159-160, 170-171). The last nail in the confidence coffin came when several institutions reported that the assets in their balance sheet that were illiquid and had no discernible market substantially exceeded their capital[81] and bankruptcies started to be filed.

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80 Martin Wolf (2015, pp. 144-145) argues that the fact that the prices of AAA-rated tranches fell over 60% in early 2009 but was followed by a substantial recovery in the following years until 2013 (as figure 9 shows) is evidence of the occurrence of a panic. However, as the author points out, this market reaction was not unjustified once "the panic was due to something real, as the pricing of lower tranches shows". (id., p. 145).

81 For example, for the first quarter of 2007, Bear Stearns reported about $19 billion in Level 3 assets, compared to $13 billion in capital; Morgan Stanley reported about $60 billion in Level 3 assets, against capital of $38 billion; and Goldman reported about $48 billion, and capital of $37 billion" (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, pp. 226-227).

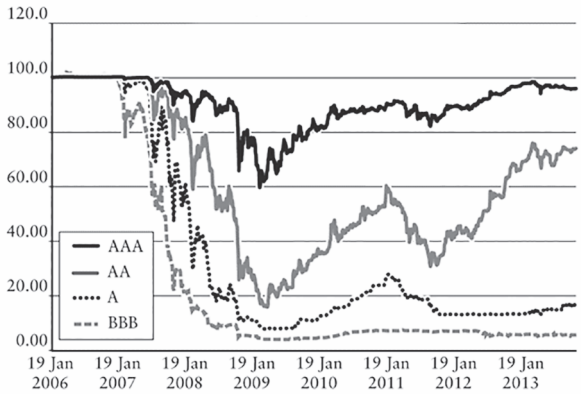

Figure 9 – TRADEABLE SYNTHETIC INDICES OF U.S. ASSET-BACKED SUB-PRIME SECURITIES (19 January 2006 =100)

Source: Wolf, 2015, p., 145.

Between March and September 2008, eight of the largest U.S. financial institutions faile[82] and the U.S. government had to rescue with taxpayer money both government-sponsored enterprises Fannie Mae and Freddie Mac (on September 7th) and, only one day after Lehman Brothers filed for bankruptcy, the U.S. government bailed out the biggest insurance company in the world AIG (on September 16th), taking a 79,9% equity stake and lending another $85 billion (Wolf, 2015, p. 21). On March 16th, 2008, Bear Stearns was bought by JP Morgan. On the same day Lehman filed for bankruptcy on September 15th, 2008, Merrill Lynch was sold to Bank of America. Ten days later, on September 25th, the Federal Deposit Insurance Corporation took over the sixth largest bank in the U.S., Washington Mutual, and two weeks after that, on October 9th, the then fifth largest commercial bank, Wells Fargo, agreed to take over Wachovia, by then the fourth largest.

The fall of the Lehman Brothers with no public protective measures to its counterparts, largely because the U.S. Treasury Department believed that it would not be too severe, associated with the fact that bankruptcy regimes in the U.S.

82 On March 16th 2008, Bear Stearns was bought by JP Morgan. On the same day Lehman filed for bankruptcy, September 15th 2008, Merrill Lynch was sold to Bank of America. Ten days latter, on September 25th, the Federal Deposit Insurance Corporation took over the sixth largest bank in the U.S., Washington Mutual and two weeks after that, on October 9th, the then fifth largest commercial bank, Wells Fargo, agreed to take over Wachovia, by then the fourth largest (Wolf, 2015, pp. 21-22).

and in the U.K. (where Lehman had an important affiliate) were different, plunged the confidence along cross-border investments, which triggered the panic in an international range "allowing a crisis that started with the U.S. housing sector to drive fresh rounds of crisis overseas"(Krugman, 2008, p. 177). Throughout the transmission mechanism that cross-border investments enabled, the crisis spread across the UK, destroying the networks that connected London to New York, the world's most important financial centres, and quickly affected Iceland, Ireland and several countries of continental Europe, hitting with especial severity within the following years the capital-importing economies in Western, Southern and Eastern Europe such as Greece, Portugal, Cyprus, Spain and Italy (Wolf, 2015, pp. 22-23, 160). As a consequence, in 2009 and 2010 the Eurozone became the epicentre of the crisis where it remained in the subsequent years (id., 2015, p. 45-51) and forced Member States' to commit €4,5 trillion of state aid to support the banking sector (High-level Expert Group on reforming the structure of the EU banking sector, 2012, pp. 20-21).

4. The fifht phase: the panic, the frauds and the swindles

4.1. The Minsky Moment and Synthetic CDO: 'Mundus vult decipi – ergo decipitatur'[83]

After the Fed's 2004 decision to start raising the short-term interest rates, between the end of 2005 and the beginning of 2006 the housing bubble stopped inflating, effectively inaugurating the subprime crisis' Minsky moment. By late 2006, when house prices started to decline and default rates began to increase, it became clear for several industry insiders that the excessive dependence on refinancing would undermine the structure of low-income housing credit and bring the collateralized-debt obligations based on them to a collapse in a foreseeable future. Once this new trend was not clear for everybody in the market, several traders changed their strategy and began to bet against low-rated MBSs employing yet another financial innovation, the so called Synthetic CDO, a new and complex financial product which essentially constituted a two-sided bet related to the performance of a selected security or index (Ferguson, 2012, p. 98).

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83 The world wants to be deceived, let it therefore be deceived.

Unlike traditional CDOs, this synthetic version did not finance a single house purchase and, so, did not contain actual mortgages or tranches of mortgage-backed securities. Instead, it constituted a wager between two counterparts regarding the future performance of an existing mortgage-backed security or a reference index of the housing market[84], in which a "long" investor expected that the underlying asset would perform well, profiting from it; while a "short" investor would bet on its failure, having the right to collect money if the securities failed (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 142). At its core, this structure mimicked a credit default swap with the distinguished feature that the cash flow received by the holder of the long side would come from a premium-like payment made by the holder of the short side of the deal, who would receive the value of the credit protection from its counterpart if the underlying security failed. As Charles Ferguson (2012, pp. 126-127) summarizes, "a synthetic CDO basically turned an 'investor' into a seller of CDS insurance, on whatever stuff had been used as the reference of index. The investors' 'interest payments' were actually the bets being placed by the other side on the reference securities' failure".

The synthetic CDO boomed between 2006 and 2007, as higher interest rates caused the supply of new mortgages to be securitized to dried up and following the AIG's 2006 decision to stop writing CDSs, after it lost its triple-A rating in the spring of 2005 (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, pp. 141-142). With an issuance fee that ranged between 0,50% to 1,50% of the total amount (id., p. 145), this type of security was especially attractive for the securities firm who arranged the deal because it was not only cheaper to issue, due to the lack of warehousing costs and associated risks once it did not need bonds to be acquired and stored, but it also took a fraction of the time to be made compared with "cash CDOs", characteristics that contributed for the increased issuance of this type of asset from $15 billion in 2005 to $61 billion in 2006 (id., p. 189).

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84 The index usually picked as the reference for these synthetic CDOs was the ABX.HE, the combination of a series of indices, introduced in January 2006, that every six months selected and consolidated the market confidence regarding the flow of payments of mortgages in each of the five ratings-based tranches (AAA, AA, A, BBB and BBB-). "Investors who believed that the bonds in any given category would fall behind in their payments could buy protection through credit default swaps. As demand for protection rose, the index would fall. The index was therefore a barometer recording the confidence of the market". (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, pp. 190-191).

In theory, this was an asset designed to add liquidity to the market and enable investors to customize the exposure to risks in their portfolios. However, as a financial bet that did not contain any concrete loans but only used selected assets or an index as a reference, it was also a highly speculative security with two essential problems: first, unlike insurance contracts different synthetic CDOs could reference the same underlying asset multiple times (which indeed happened during the subprime crisis[85]) and, as a consequence, any losses would be multiplied exponentially. Second, as it placed a bet between two counterparts expecting opposite outcomes, the securities firm responsible for the issuance of these assets had a potential conflict of interest when selecting the referenced assets or index, which made the full disclosure of information crucial for the fairness of the deal (ID., p. 191).

However, transparency was not always the rule within the financial markets as there was an asymmetry of information regarding not only the overall evolution of the U.S. real state sector but also the existence of conflict of interests between the issuer of the CDO and the short investors in the selection of the underlying assets and, as a result, "Federal regulators have identified abuses that involved short investors influencing the choice of the instruments inside synthetic CDOs" (ID., p. 192). The contract that is usually recalled as an illustrative case of this type of conflict of interest during the subprime crisis was a deal named Abacus 2007-AC1 structured by Goldman Sachs and ACA Management LLC, a third-party specialized on MBS credit risk analysis, with undisclosed involvement of John Paulson, head of the Paulson & Co. Inc., a hedge fund which acquired the short side of the CDO.

According to the Securities Exchange Commission's claim, John Paulson came to believe that several Triple B-rates subprime RMBSs would experience significant losses and, so, between the end of 2006 and the beginning of 2006, proposed to Goldman Sachs "the creation of a CDO that would allow Paulson to participate in selecting a portfolio of reference obligations and then effectively short the RMBS portfolio it helped select"(SECURITIES AND EXCHANGE COMMISSION, 2010b, p. 6). Once

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85 According to the FCIC, "In total, synthetic CDOs created by Goldman [Sachs] referenced 3,408 mortgage securities, some of them multiple times. For example, 610 securities were referenced twice. Indeed, one single mortgage-backed security was referenced in nine different synthetic CDOs created by Goldman Sachs. Because of such deals, when the housing bubble burst, billions of dollars changed hands" (NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 2011, pp. 145-146).

both Fabrice Tourre[86], Goldman's employee responsible for the deal, and John Paulson knew that it would not be possible to sell such security if disclosed to investors that the short side of the deal played a significant role in the process of collateral selection, Goldman mislead ACA Management into the role of independent third-party collateral manager that selected the portfolio by giving the misimpression that Paulson had a long position and would invest $200 million on the deal, rather than having a mostly a short bet[87].

Despite the active role played by John Paulson in the process of selection of the reference portfolio, though, the marketing materials for the Abacus 2007-AC1 were, according to the SEC, "false and misleading" because it portrayed repeatedly ACA Management as the independent "Portfolio Selection Agent" with no reference whatsoever about Paulson's intervention and economic interests in the transaction (Securities and Exchange Commission, 2010b, pp. 11-13). Mislead by this fraudulent flip book and offering memorandum, in April 2007 the German bank IKB Industrie Deutschebanke AG acquired $150 million worth notes of the contract while ACA Capital Financial Guaranty Corporation, which integrated the same larger ACA Capital Holdings the ACA Management branch did, sold capital protection of $909 million to the super senior tranche.

However, less than a year after the deal was closed, in October 24th, 2007, 83% of the RMBS in the portfolio was downgraded and, by 29th January 2008, 99% was downgraded. As a consequence, IKB lost virtually all its investment to Goldman Sachs, which also received nearly $841 million as a settlement of this failed deal, most of which, the SEC argues, was subsequently paid by Goldman to John Paulson (id., 17-19. Ferguson, 2012, p. 138). After acknowledging that the marketing material

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86 The fact that Goldman Sachs and Fabrice Tourre were fully aware that the portfolio was specifically selected for its bad quality is clear in two e-mails sent by Fabrice, as the SEC quotes: "[P]ortions of an email in French and English sent by Tourre to a friend on January 23, 2007 stated, in English translation where applicable: 'More and more leverage in the system, The whole building is about to collapse anytime now... Only potential survivor, the fabulous Fab[rice Tourre]... standing in the middle of all these complex, highly leveraged, exotic trades he created without necessarily understanding all of the implications of those monstruosities!!!' Similarly, an email on February 11, 2007 to Tourre from the head of the GS&Co structured product correlation trading desk stated in part, 'the cdo biz is dead we don't have a lot of time left'" (Securities and Exchange Commission, 2010b, p. 7).

87 Id., pp. 13-15. As the SEC argues, they did so by describing Paulson as Transaction Sponsor and referenced a "Contemplated Capital Structure" with a "[0]% – [9]%: pre-committed first loss".

contained incomplete information, particularly that "it was a mistake for the Goldman marketing materials to state that the reference portfolio was 'selected by' ACA Management LLC without disclosing the role of Paulson & Co. Inc. in the portfolio selection process and that Paulson's economic interests were adverse to CDO investors" (Securities and Exchange Commission, 2010a, p. 2), in 2010 Goldman Sachs reached a deal with the SEC and agreed to pay a record $550 million fine and reform its business practices (Friedrichs, 2013, p. 14).

This, however, was far from being isolated and, as speculation fuelled the market with an increasing number of synthetic CDOs of traders betting that mortgages would fail, the cases of conflict of interests within this type of security also raised (National Commission on The Causes of The Financial and Economic Crisis in The United States, 2011, p. 212). It was the case, for example, of the JP Morgan's Squared CDO 2007-1, a $1,1 billion deal in which the marketing material claimed that the underlying portfolio had been selected by GSCP (NJ) L.P., a registered investment adviser with experience in CDO credit risk analysis, but did not fully disclosure to investors that Magnetar Capital LLC, the holder of the short side of the deal, had economic interests adverse to investors while played a significant role in the portfolio selection process (Securities and Exchange Commission, 2011a, p. 2). JP Morgan eventually agreed to reimburse harmed investors all their investments, paid $153.6 million to settle an agreement with the Securities and Exchange Commission and agreed to improve the way it reviews and approves mortgage securities transactions (Securities and Exchange Commission, 2011d).

4.2. The panic and the frauds: swindles to avoid and hide losses

If the informational asymmetry regarding the development of the market in the foreseeable future created the environment for profitable misconducts, the subsequent period of panic and crash fostered the breeding ground for yet another kind of fraud, aimed at avoiding losses rather than getting a profit. As a matter of fact, as Charles Kindleberger (2005, p. 168) describes, "Crash and panic, with their motto of *sauve qui peut*, induce many to cheat in the effort to forestall bankruptcy or some other financial disaster". Once losses seem to be inevitable in the close future or are already apparent in the present, in order to try to save either the company or themselves, many financiers tend to be driven by a belief that "a little cheating today may avert catastrophe tomorrow" (id.). During the debacle of subprime crisis, this was the case for several bankers and financiers who had toxic mortgages in their balance sheets and, fully aware that the deteriorating conditions

of the housing sector would be translated into increasing delinquencies and defaults, mislead investors into accepting assets that soon after would be considered "junk" or, when the losses were inevitable and that strategy was not possible, decided to fraudulently conceal significant losses from loan impairments using financial statement frauds.

Regarding the first scenario, the paradigmatic example was the Bank of America, specifically its RMBS called BOAMS 2008-A that shifted the risks of default of the underlying mortgages from its own books to unsuspecting investors, as outlined by the SEC, by misleading and omitting information related to the quality and safety of the loans collateralizing the security and the likelihood that these mortgages would perform as expected (Securities and Exchange Commission, 2014b). As the Attorney General and the U.S. Attorney for the Western District of North Carolina argued in a civil lawsuit, when the BOAMS deal was closed, in January 2008, Bank of America knowingly and wilfully made materially false and misleading statements and failed to disclose important facts about the mortgages collateralizing the RMBS such as the fact that "more than 40% of the 1,191 mortgages in the BOAMS 2008-A collateral pool did not substantially comply with Bank of America's underwriting standards in place at the time they were originated and did not have sufficient documented compensating factors" and that the bank "generated more than 70% of the loans through third party mortgage brokers" (Department of Justice, 2013).

As the Bank admitted in a latter Statement of Facts in a $245 million settlement with the SEC, although the offering documents of the BOAMS 2008-A deal expressly stated that "each mortgage [backing the securitization] ... is underwritten in accordance with guidelines established in Bank of America's Product and Policy Guides", an internal report prepared to qualified institutional buyers six weeks *before the deal was closed* and to which the employees involved in the securitization process had access before its sale, showed that loans originated through third-party mortgage brokers had decreased in performance and were experiencing an increase in underwriting exceptions and that "on average, experienced a higher Conditional Prepayment Rate ('CPR') than retail mortgages" (Bank of America Corporation, n.d., pp. 1-2). After causing losses of more than $100 million, the settlement resulting from this misleading deal integrated a broader agreement reached with the Attorney General, the Department of Justice along with respective Attorneys General of the States of California, Delaware, Illinois, Maryland, and New York, and the Commonwealth of Kentucky, by which Bank of America agreed to pay $16,65 billion to resolve federal and state claims (Department of Justice, 2014).

When it came to accounting fraud to conceal the extent of loan losses, thought, "rather than acting merely as facilitators, established financial institutions, including major Wall Street investment banks and insurance companies, saw themselves being accused of misstating earnings and fraudulently hiding from investors their exposure to the collapsing subprime mortgage market" (Reurink, 2016, pp. 13-14). Despite other important cases – such as Fannie Mae and Freddie Mac[88] in which "major accounting fraud ... was being investigated as a contributing factor to the crisis leading to the government bailout"[89], the textbook example of this type of fraud was New Century, which, as described earlier, was a mortgage lender company with an especially aggressive approach in the market.

Throughout the booming phase of the bubble, the strategy paid off and not only the company eventually became the second largest subprime lender in the U.S., but its management was profusely compensated, with the three senior officers receiving in 2005 alone nearly $1,9 million each in salaries and bonuses while managed to cash between $13 and $14 million in vested options (Ferguson, 2012, p. 65). However, as the bankruptcy examiner latter concluded, "the increasingly risky nature of New Century's loan originations created a ticking time bomb that detonated in 2007"[90]. In 2006, when the housing market slowed down and the bad quality of its mortgages became apparent by an alarming increase in early default rates, loan repurchases requests skyrocketed by its counterparts and the company faced a liquidity crisis[91].

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88 As the Securities and Exchange Commission (2011c) described, "The Securities and Exchange Commission (SEC) on Friday, December 16, 2011, charged six former top executives of the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) with securities fraud, alleging they knew and approved of misleading statements claiming the companies had minimal holdings of higher-risk mortgage loans, including subprime loans".

89 Cf. Friedrichs, 2013, p. 173. As the author recalls "In 2008, Franklin Raines and other former Fannie Mae executives were required to donate $2 million to charity (and give up worthless stock options) to settle charges relating to violations of accounting rules. But Raines received some $90 million for five years as Fannie Mae CEO" (id.)

90 Cf. United States Bankruptcy Court for the District Delaware (2008), p. 3. The report also concluded that "although a primary goal of any mortgage banking company is to make more loans, New Century did so in an aggressive manner that elevated the risks to dangerous and ultimately fatal levels".

91 As the Securities and Exchange Commission (2009b, p. 2) claims against the company stated, "As the multi-year rise in residential real estate prices abated in 2006, however, New Century's business was anything but 'good' and it soon became

Even though the company's CEO, CFO and controller knew from numerous weekly reports they regularly received (which they called "Storm Watch") that New Century's the financial condition was deteriorating quickly, in the second and third quarters of 2006, the company's financial statements "materially overstated its financial results by improperly understating its expenses related to repurchased loans and pending repurchase requests" and, as a result, "its second quarter 2006 pre-tax earnings were overstated by 165%, and its third quarter 2006 pre-tax earnings were improperly reported as a $90 million profit instead of an $18 million loss" (SECURITIES AND EXCHANGE COMMISSION, 2009b, pp. 2-3). This misleading accounting statements helped the company to raise $142,5 million by selling stocks to new investors, amount that was wiped out in early 2007, when the company announced to the public that it would have to restate its earning from the previous year (ID., p. 3; FERGUSON, 2012, p. 65). Not long after, on April 2nd, 2007, New Century filed for bankruptcy.

A similar scheme was employed in 2008 by the CEO and the CFO of the IndyMac Bancorp, Inc., when misleading disclosures regarding the financial condition of the company enabled it to raise nearly $100 million in stock sales throughout a prospectus with false and materially misleading statements and omissions regarding the company's liquidity, its capital raising needs and activities as well as its capital ratio, while both managers knew that "IndyMac's liquidity position was weakening and it needed to raise new capital to protect its well capitalized regulatory status and to pay preferred dividends in future quarters" (SECURITIES AND EXCHANGE COMMISSION, 2011b, p. 10). By the end of July 2008, only months after raising capital with new stocks, however, IndyMac filed for bankruptcy. Both cases illustrate that, as Charles KINDLEBERGER (2005, p. 168) describes, "when the boom ends and the losses become apparent, there is a tendency to make a big bet in the hope that a successful outcome will enable escape from what otherwise would be a disaster".

On the other hand, it was not only to try to save the company from a likely collapse that the asymmetry of information was fraudulently used, but also to guarantee a personal profit for some executives throughout the abuse of non-public information, which brings the case of insider trading committed by Angelo Mozilo, the founder and CEO of Countrywide, the biggest subprime lender during the crisis. As the Security and Exchange Commission describes, in spite of its increasingly aggressive market strategy that ended up deteriorating the credit quality of the

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evident that its lending practices, far from being 'responsible', were the recipe for financial disaster".

loans written by Countrywide over the years, from 2005 to 2007 the three most senior executives of the company – alongside with Mozilo, the company's COO and CFO – all "misled the market by falsely assuring investors that Countrywide was primarily a prime quality mortgage' lender which had avoided the excesses of its competitors" and that the company was "consistently producing quality mortgages", even though they knew by internal reports that the Countrywide's business model was clearly unsustainable (Securities and Exchange Commission, 2009a, pp. 2-3).

In that context, as internal reports showed that the company's underwriting guidelines were increasingly lax, a high percentage of loans it originated did not meet those guidelines and that its subprime mortgages had significant additional risk factors such as increased default rates, reduced documentation, stated income, piggyback second liens, and loan-to-value ratios in excess of 95%, Angelo Mozilo himself described some of their products as "the most dangerous product in existence" stating in internal e-mails that "In all my years in the business I have never seen a more toxic prduct [sic]" (Securities and Exchange Commission, 2009a, pp. 20-21). Even so, not only none of this information was disclosed to the public, but while in possession of material and non-public information concerning the company's operations and financial condition, Angelo Mozilo also "engaged in insider trading in Countrywide securities (...) [as] [f]rom November 2006 through October 2007, Mozilo exercised over five million stock options and sold the underlying shares pursuant to the four sales plans, realizing gains of over $139 million" (id., pp. 43-45). Eventually, Mozilo was permanently banned from ever again serving as an officer or director of a publicly traded company and settled a $67,5 million agreement with the SEC, the largest ever paid by a public company's senior executive[92].

Despite the clearly fraudulent character of the wrongdoing in all the aforementioned cases, none ended up in a criminal persecution or a conviction, with the public sanction being limited to civil settlement with the Securities and Exchange Commission[93]. Nevertheless, this was not always the case and a few misconducts

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92 Cf. Securities and Exchange Commission, 2010d. In the same agreement, David Sambol, former Countrywide chief operating officer, agreed to a three-year officer and director bar and to be liable for $5 million in disgorgement and a $520,000 penalty. Also, Eric Sieracki, Former chief financial officer agreed to pay a $130,000 penalty as well as a one-year bar from practicing before the Commission.

93 As mentioned by David Friedrichs (2013, p. 172), "[i]n 2008, Countrywide Financial agreed to set aside over $8 billion to modify mortgage loans. Countrywide was the

inserted in the panic phase of the crisis – very few, actually[94] – did ended up in criminal sanctions. The case often recalled as the exception to the lack of punishment and perhaps the most senior Wall Street financier to go to prison due to felonies related to the subprime crisis (Rex, 2019, p. 105) was the Credit Suisse mid-level trader Kareem Serageldin, who was convicted to two and a half years in prison for committing accounting fraud to artificially inflate the value of mortgage bonds between the end of 2007 and the beginning of 2008, while the market collapsed (Mayer/Cava/Baird, 2014, p. 516).

As the SEC's claims over the case describes, Serageldin was the Global Head of Structured Credit Trading for Credit Suisse and, as such, was responsible for the management of a $3,5 billion portfolio of AAA-rated bonds backed by subprime mortgages (Securities and Exchange Commission, 2012, pp. 1-4). Once the value of the bonds started

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nation's biggest mortgage lender, aggressively pushed subprime loans, and was accused of various abuses and misrepresentations".

In the New Century investigation, the SEC accepted a settlement in which the company's former CEO and co-founder, Brad A. Morrice, agreed to disgorge $464,354 with $76,991 in prejudgment interest thereon, and to pay a $250,000 civil penalty; Patti M. Dodge, the former CFO, agreed to disgorge $379,808 with $70,192 in prejudgment interest thereon, and to pay a $100,000 civil penalty; and David N. Kenneally, the former controller, agreed to disgorge $126,676 with $23,324 in prejudgment interest thereon, and to pay a $32,500 civil penalty. The three executives also agreed to entry of a permanent injunction prohibiting him from violating the antifraud provisions. (Securities and Exchange Commission, 2010e).

Regarding the IndyMac litigation, in turn, its former Chief Executive Officer and Chairman of the Board, Michael W. Perry, reached a settlement with the SEC by which "Without admitting or denying the allegations in the complaint, Perry consented to the entry of the Final Judgment permanently enjoining him from future violations of Section 17(a)(3) of the Securities Act of 1933, and ordering him to pay a civil penalty in the amount of $80,000" (Securities and Exchange Commission, 2011e).

94 As William Black (2013, p. 173) points out, one of the reasons for a lack of criminal punishment was the lack of criminal investigations due to a short staff at the FBI: "The result was that the fraudulent liars lenders committed fraud with impunity. The volume of fraud referrals by insured mortgage lenders overwhelmed the FBI. As late as fiscal year 2007, they had assigned only 120 FBI agents (spread in "penny packets" among fiftysix field offices) to investigate tens of thousands of criminal referrals for mortgage fraud. In contrast, 1,000 FBI agents investigated the S&L frauds – that is, over eight times the agents were assigned to a far smaller fraud epidemic than are assigned to the current crisis. Unlike in the S&L debacle, there has been no national task force and no comprehensive prioritization. This has made it impossible to investigate huge fraudulent nonprime lenders. Since there were no criminal referrals against them, the FBI did not even attempt to investigate them.

to decline in late 2007 and vaporized the "hopes for multimillion dollar year-end bonuses and (...) imperil a highly-coveted promotion", however, Serageldin oriented his subordinates to abandon their "obligation to accurately record the fair value of their bonds and instead began to price the bonds in a way that allowed them to achieve their goal of showing consistently profitable trading" (ID., ibid., p. 2), which resulted in a fraudulent inflation of the book in nearly $1,3 billion.

The two central aspects that draws attention in that case is that, first, the primary victim of the wrongdoing was Serageldin's employer, that is, the Bank[95], whose collaboration with the investigation was important (if not essential) for prosecutors to make a criminal case; and, second, the fact that the criminogenic factors that fostered the crimes were used to justify the definition of a jail time "less than the five-year recommended sentence under the Federal Sentencing Guidelines" (MAYER/CAVA/BAIRD, 2014, p. 516), as Judge Alvin K. Hellerstein considered that "He was in a place where there was a climate for him to do what he did" and that "It was a small piece of an overall evil climate inside that bank and many other banks" (HAUGH, 2015, p. 157).

Finally, the last form of swindles within the subprime debacle was yet another form of KINDLEBERGER's "cheating today to avoid the catastrophe tomorrow" thesis and occurred midst the panic and in the ashes of the crisis, specifically related to misrepresentations of the financial conditions of banks and other institutions in order to defraud the Troubled Asset Relief Program (TARP), the program created in 2008 to rescue the U.S. financial system[96]. As the Special Inspector General for the Troubles Asset Relief Program (SIGTARP) described, the main misconducts related to the program were translated as "accounting fraud, securities fraud, insider trading, bank fraud, mortgage fraud, mortgage servicer misconduct, fraudulent advance-fee schemes, public corruption, false statements, obstruction of justice, theft of trade secrets, money laundering, perjury to Congress, and tax-related investigations" (OFFICE OF THE SPECIAL INSPECTOR GENERAL FOR THE TROUBLED ASSET RELIEF PROGRAM, 2010, p. 32).

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95 As Todd HAUGH (2015, pp. 156-157) describes, "In essence, Serageldin committed a run-of-the-mill accounting fraud whose victim was not the American investing public, but Credit Suisse – his own employer. Far from being responsible for the global financial collapse, Serageldin was not much more than a trading supervisor who lied to his bosses".

96 As Martin WOLF (2015, p. 27) describes, the TARP was "[i]nitially presented as a plan to purchase 'toxic assets', it was soon turned into one of injecting capital directly into banks".

According to its calculations, from the beginning of the program until September 30th 2019, SIGTARP's investigations charged criminally 430 individuals and managed to convict 373, out of which 291 were sentenced to prison, including 76 bankers, 85 bank borrowers and 93 homeowner scammers (ID., 2019, pp. 5, 32). In spite of the unquestionable importance that holding TARP fraudster accountable, however, it is important to recognize that this type of misconduct was not responsible for the creation and development of the financial bubble in the U.S. housing sector and did not contribute to the outbreak of the crisis and the ultimate subprime fiasco.

V. Conclusions

Several years after the collapse of the U.S. housing sector and the subsequent and painful consequences of the Great Depression that followed, the financial literature concluded that the first big financial crisis of the twenty-first century did not have one only cause, but rather many, highlighting that factors such as liberalization, globalization, innovation, excess leverage and a huge incentive problem in the financial system were essential for the "perfect storm" that ultimately caused the subprime fiasco (WOLF, 2015, pp. 123-124). Despite the central importance of systemic problems to the development of the financial bubble in the U.S. housing sector and the outbreak of the crisis, and the recognition that financial crime was not its main cause, it is possible to conclude that the development of a criminogenic environment within many financial institutions fostered the occurrence of several forms of misbehaviour among which some had a criminal nature. As described by David FRIEDRICHS (2013, p. 16)

> The criminogenic conditions complicit in the financial meltdown include financial organizations that are either 'too big to fail' or too interconnected to challenge without harming financial structures. They also include exorbitant executive compensation and bonuses; excessive leveraging in relation to investments; 'innovative', complex, and excessively risky financial products or instruments; and pervasive conflicts of interest involving entities that supposedly provide some form of oversight of the activities of financial institutions, including boards of directors, auditing firms, and credit-rating agencies.

Because of inherent fragilities of the financial system that act as the breeding ground for criminal felonies, such as the immaterial nature of its activity and its de-

pendence on fiduciary products which creates a greater potential for manipulation and defrauding between counterparts, the development of an huge incentive problem within the prevailing remuneration practices in the financial services industry during the first decade of the twenty-first century fostered the occurrence of different kinds of swindle and crime, as a structural and circumstantial by-product of the financial system. With a common fraudulent core and a similar *modus operandi* of taking the reward and passing along the risk to others within all stages and levels of the mortgage origination and securitization food chain, the different forms of financial criminality were the result of a particular economic context within the development and burst of a financial bubble in the U.S. housing market (fig. 10).

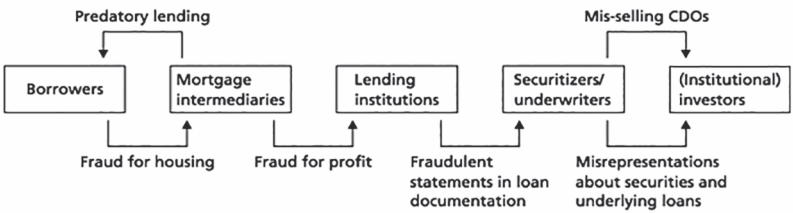

Figure 10 – CHAIN OF LIES IN THE MORTGAGE INDUSTRY
Source: Reurink, 2016, p. 32.

The first range of crimes arose under the form of mortgage fraud and was located within the relationship between brokers and borrowers as a consequence of a short-term fee-based remuneration system and the predominance of the originate-to-distribute approach, by which loans were issued to sell in the secondary market for securitization purposes. This kind of swindles were inserted in the wider context of excess of trust due to the economic euphoria and were manifested as Frauds for Housing and Frauds for Profit. During the subprime boom, the second form was more common as a practice of misseling and occurred either by the broker defrauding the borrower into accepting a loan, exploiting the increase in house value as a Ponzi-like scheme throughout the offer of adjustable-rate mortgages (ARMs) misleading the borrower regarding the real possibility of refinancing the loan; or fraudulently modifying the terms of the mortgage by overstating the value of house, counterfeiting signatures or deceitfully modifying the interest rates regime, all in order to guarantee a higher fee.

Within the mortgage origination, securitization and distribution of mortgage-backed securities process, the existence of information asymmetry along each of its steps created inherent fragilities that allowed the occurrence of reckless and immoral behaviour as well as different forms of financial fraud and swindles, all

associated to the decline in housing credit quality and the deterioration in the processes of due diligence. The breakage of the essential link between the mortgage decisions and its future consequences as a by-product of the securitization and distribution manoeuvres, contributed to the development of a criminogenic environment in the secondary market in which the bad quality of mortgage-backed securities and the underlying loans were fraudulently hidden within the complexities of financial manoeuvres, which contributed to the dissemination of assets that seemed to be safe during the booming years of the crisis but turned out to be toxic to the balance sheet of countless financial institutions when the housing bubble burst.

When house prices stopped to rise and the existence of a financial bubble in the U.S. real state sector became apparent to many financiers, the change on economic perspective also fostered the change over industry incentives. During the Minsky moment and when prices started to fall and default rates started to increase, the usage of synthetic CDOs to bet against low-rated MBSs and against the housing sector allowed bankers and traders to profit with the expectation of a financial debacle, but also fostered fraudulent behaviours against counterparts who were fooled into the "long" side of a financial bet in which the underlying securities were highly expected to fail.

As house prices fell sharply, several MBSs were downgraded by rating agencies and the panic phase of the crisis began, the detection of losses or its foreseeable inevitability fostered other kinds of frauds by getting rid of toxic assets by fooling investors to take them by full price or fraudulently concealing significant losses from loan impairments, either to personally profit, throughout insider trading or corporate bonuses, or to place a final big bet hopping that that a successful outcome could enable to escape from a disaster. After the outbreak of the crisis, within the panic and on the ashes of the crash, a last form of *cheating today to hopefully avoid a catastrophe tomorrow* occurred by defrauding both investors and the Troubled Asset Relief Program (TARP) by misrepresentations of the financial conditions of banks and other institutions.

Although, as showed before, misconducts related to the subprime financial crisis led to the criminal conviction of thousands of people, the overall feeling in its aftermath is, as described by Juan Maria Terradillos Basoco (2014, p. 46), that the criminal system reacted with a "clamorous inhibition[97]. Obviously, the numbers are

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97 As described by Mayer/Cava/Baird, (2014, pp. 515-516), this feeling is heavily driven by the concrete fact many people "have seen their homes wrongfully foreclosed on, their investments greatly de-valued, or their livelihoods lost, [and] yet there have been no significant and successful criminal prosecutions for those most responsible".

misleading and, once criminal cases were made virtually exclusively against low-level players such as brokers, householders and mid-level traders, one of the consequences of the crisis, as outlined by Anabela Miranda Rodrigues (2017, p. 17), was a serious shock in the in the collective belief regarding the effectiveness of the criminal policy in the financial sector, and its capacity of holding accountable those who were seen as responsible for the crisis, specially the powerful and the wealthy.

In an economic and social context in which the most vulnerable people ended up struggling with the lost of income, the unemployment, the foreclosure of their homes, the overall reduction in the standard of living and all the other pernicious consequences of the crisis, while the actors that were in the epicentre of the crisis were receiving multimillion bonuses and faced virtually no consequence from their actions, it is important that the legal enforcement system in all its branches reassures the public that the rule of law is still legitimate by recognizing wrongdoers and punishing them.

In order to do so, several reforms in the financial system are still due and, for instance, the only way the criminal justice can identify and hold fraudsters accountable is by working together with financial supervisors and being closely integrated to its regulatory toolbox. Obviously, these reforms on both the financial system and the criminal enforcement system may have unintended negative consequences, but "[t]he costs of failing to adopt and implement such policies, to society as a whole and to a broad swath of taxpayers, workers, homeowners, investors, and savers, are certain to be far greater than any negative and unintended consequences" (Friedrichs, 2013, p. 20).

As a final conclusion, it is important to recall the words and the criticism of Christine Lagarde and other then finance ministers regarding the bonus culture in the banking industry (Lagarde et al., 2009):

> We do not choose to put our money in banks. We have to. Banks play an essential role in our economic system, and we must ensure that they obey rules and are never again in a position to put the entire system in jeopardy. Risks associated with compensation schemes must be supervised very strictly. The danger is far too great when the mistakes of a few can affect all of our populations.

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