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Abstract

Subprime mortgages represent a relevant wealth accumulation tool for low-income borrowers, and may promote efficient social policies. However, as recently brought to attention by the financial crisis, origination and distribution services are affected by strong information asymmetries and cognitive biases (rational and irrational). The failure of the subprime mortgages market was triggered by a mixture of irrational and opportunistic behaviours, as well as a lack of regulation, supervision and efficient disclosure.

This paper, therefore, sheds lights on four areas of this market, highlighting causes and proposing remedies to structural failures. Therefore, the paper discusses: the financial architecture of the subprime market and the characteristics of the financial product, which shows the features of an experience (or credence) good; the major players in the origination and securitisation process and their weaknesses; and policy, regulatory and supervisory responses and actions supported by new market practices and the legal recognition of a fiduciary relationship between borrower and lender. Responses should address moral hazard and adverse selection issues, through four tools: mandatory disclosure and simplified information; suitability test and “optional warranty”; assignee liability or retention mechanisms; and better reputational mechanisms with stronger supervision.

Keywords: Subprime, Financial Services, Credit Markets, Behavioural Law and Economics, Securitisation.

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1. Introduction

The recent global financial turmoil - triggered by the uncertainty around the stability of big financial institutions across the world – has shed new lights on US credit markets: in particular, on the market for subprime residential mortgages. The market for subprime mortgages mostly grew in a deregulated environment from the early 90s. It reached the peak in 2006, with a share of around 20% of the total mortgages originations in the US. The aim of this work is to analyse the subprime mortgages origination process (and indirectly its securitisation mechanisms) with the precious tools offered by the Law and Economics (L&E) and the principles of securities regulation. The new insights from the L&E doctrine on the implications of human behaviours and new ways of “debiasing through law”\(^1\) permit to analyse and propose remedies to the failures in the origination and securitisation process, in order to address weaknesses affecting their main actors. The theoretical aspects will take stock of the empirical evidence showed by the crisis, as part of our adopted micro-approach, in the following sections.

This essay describes, on one hand, the complexity of the market, which is enhanced by borrowers’ biases and low financial education \textit{vis-à-vis} the specific characteristics of subprime mortgages as experience (or credence) goods (rather than search goods)\(^2\). In effect, financial and behavioural aspects surrounding this transaction


\footnotesize\(\text{\textsuperscript{2}}\) Products and services can be classified in three categories: search goods; experience goods; and credence goods. A search good consists in a product or service for which is possible to assess the quality before the purchase. Search elements include those attributes of the relationship that are easily detected and understood by customers, even when they are deciding whether to switch to a competing provider. An experience good, instead, is a product or service for which the buyer can evaluate the quality only after the purchase and its use. Finally, a credence good is a product or
increase borrowers’ misunderstanding of the real risk they are going to bear. On the other hand, a distorted structure of incentives for brokers, originator lenders and loans’ packagers lead towards opportunistic behaviours, as “steering” and “churning”\(^3\), for instance. Their opportunism consists in exploiting informational gaps and their contractually dominant power over the typical subprime borrower. We will mainly focus on the origination process and indirectly on the securitisation mechanisms for transferring risk to the market, which played a pivotal role in the widespread diffusion of those troubled assets that have shaken the global financial system.

We will show as failures in the subprime mortgages market were triggered by a mixture of irrational and opportunistic behaviours, as well as a lack of regulation, supervision and efficient disclosure. Ashcraft and Schuermann (2008) identified a list of frictions behind these failures, which we have redefined as below:

1. Adverse selection and predatory lending practices between borrower and lender;
2. Moral Hazard between appraiser and borrower (and indirectly lender);
3. Moral Hazard between originator and arranger of the securitisation;
4. Adverse selection between the arranger and investors;
5. Moral hazard between servicer and investors;
6. Moral hazard between asset manager and investors;

\(^3\) “Steering” is a practice the placing of borrowers into unnecessarily expensive loans; see Ernst, Bocian and Li, 2008. The risk coming from this deceiving practice has been also recognised by the US proposal to introduce new rules for mortgages, now in the Senate; please, see House of Representatives, H.R. 1728, Mortgage Reform and Anti-Predatory Lending Act, May 2009, §103, Title I. “Churning” is basically a legal term to define a practice imported from securities regulation; SEC defined it as an “excessive buying and selling of securities in your account by your broker, for the purpose of generating commissions and without regard to your investment objectives”, [http://www.sec.gov/answers/churning.htm](http://www.sec.gov/answers/churning.htm). It was firstly judicially defined in *Hecht v. Harris Upham & Co.*, 430 F.2 days 1202 (2\(^{nd}\) Cir. 1970).
7. Conflict of interests and moral hazard of credit rating agencies over final investors.

The paper, therefore, is structured in four parts. The first part is going to briefly describe the financial architecture of the subprime market, the characteristics of the product and its role in the current financial markets. This part will reveal five of the issues above. The second and the third part will deal with the origination process and its two actors, borrower and intermediaries (brokers and lenders), revealing the other two issues that caused the subprime crisis. Finally, the fourth part will give some responses based on regulation (and public-private enforcement), supervision and the use of reputational mechanisms to reduce the risks related to high-risk markets. The identification of subprime mortgages as experienced (or credence) goods allows us to use tools of the securities regulation to address relevant market failures.

2. The Subprime Mortgages Market

The market for residential mortgages is an essential tool for wealth accumulation, especially for low and moderate-income borrowers (e.g. subprime or “not conforming” mortgages). However, this financial transaction carries many potential complications and risks for both parties. In effect, typical subprime borrowers are borrowers with:

“weakened credit histories that include payment delinquencies, and possibly more severe problems such as charge-offs, judgments, and bankruptcies. They may also display reduced repayment capacity as measured by credit scores, debt-to-income ratios, or other criteria that many encompass borrowers with incomplete credit histories.”

In legal terms, there are two definitions of “high-priced” loans (e.g. subprime mortgages).

On one hand, there is a recent definition of “higher-priced” loans, as defined in the final rules of the new Regulation Z. A “higher priced” loan is “as consumer credit

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transaction secured by the consumer’s principal dwelling for which the APR\textsuperscript{5} on the loan exceeds the yield on comparable Treasury securities by at least three percentage points for first lien loans, or five percentage points for subordinate-liens loans\textsuperscript{6}.

On the other, the Home Ownership and Equity Protection Act (HOEPA) defines a second restricted category with specific requirements (limited prepayment penalties and balloon payments, no negative amortization and no lending practices based exclusively on the value of the collateral) and pre-closing disclosure on extremely high-costs refinancings and home equity loans. The HOEPA high-costs loans are “closed-end, non-purchase money mortgages secured by a consumer’s principal dwelling (other than a reverse mortgage) where either: (a) the APR at consummation will exceed the yield on Treasury securities of comparable maturity by more than 8 percentage points for first-lien loans, or 10 percentage points for subordinate-lien loans; or (b) the total points and fees payable by the consumer at or before closing exceed the greater of 8 percent of the total loan amount, or $547 for 2007”\textsuperscript{7}.

The growth of the US market for subprime mortgages began in the 90s after the wave of deregulation of the decade before and the elimination of the anti-usury laws (McCoy and Renuart 2008)\textsuperscript{8}. In 2007, 7.2 million families held subprime mortgages for an outstanding value over $1.3 trillion, which is 3 times more of the size of this market in 2003\textsuperscript{9}. In particular, a mixture of five important aspects led to this fast market growth:

\footnotesize
\begin{itemize}
\item The APR is the annual percentage rate of the received loan. It helps to compare the different offers.
\item Id., p. 12.
\item The common law specifically recognized the possibility for national banks to export the interest rates from their home States to other States, moving a step forward in the process of usury caps elimination; Marquette National Bank v. First of Omaha Service Corp., 439 U.S. 299 (1978) interpreting the provision at 12 U.S.C. § 85.
\item See the Centre for Responsible Lending, \url{http://www.responsiblelending.org/mortgage-lending/tools-resources/a-snapshot-of-the-subprime.html#_edn2}.
\end{itemize}
- The volume-based incentives in the securitisation process (firstly appeared in the 1930s\textsuperscript{10}) and the credit score model for risk assessment;

- The privatisation of Fannie Mae and Freddy Mac\textsuperscript{11};

- The Community Reinvestment Act (CRA)\textsuperscript{12};

- The Federal Housing Program promoted by the US Government to increase the homeownership rate\textsuperscript{13};

- The long-run positive trend of house appreciation linked to low interest rates and to the large availability of liquidity in financial markets; as always, a rapid and uncontrolled market growth pushes people to underestimate and overlook relevant risks.

First of all, the huge amount of resources freed through the securitisation of loans (Peterson 2007) counted in 2007 to around 60\% of the overall resources in the mortgages market (Barth et al. 2008). The crucial role played by savings and thus stable commercial banks was replaced by less stable and capitalised investment banks (often divisions of commercial banks) and other financial institutions. In effect, the huge business of securitisation gave the possibility to transfer risk and, at

\textsuperscript{10} Only in the 1970s it became a standard tool to fund mortgages thanks to the Government National Mortgage Association (GNMA or Ginnie Mae), the Federal National Mortgage Association (FNMA or Fannie Mae) and the Federal Home Loan Mortgage Corporation (FHLMC or Freddie Mac); see, in general, Kendall and Fishman, 2000.

\textsuperscript{11} Fannie Mae and Freddie Mac were shareholders-owned since 1968 (with President Johnson). Their private ownership contributed to the uncontrolled growth of this market. On 8\textsuperscript{th} September 2008, the US Government decided to take over these GSEs (Government-Sponsored Enterprises), which became GOCs (Government-Owned Corporations).

\textsuperscript{12} This regulation was supported by other three important regulatory interventions: the Depository Institutions Deregulation and Monetary Control Act (DIDMCA) of 1980, making subprime legal through charging higher fees and rates; the Alternative Mortgage Transaction Parity Act (AMTPA) of 1982, allowing the use of variable interest rates (ARMs) and balloon payments (now repealed in the new reform); the Tax Reform Act (TRA) of 1986, allowing deductions of interests for mortgages on a primary house; see Zywicki and Adamson 2008, Gramlich 2007b, Peterson 2007 and McCoy & Renuart 2008.

\textsuperscript{13} The Federal Housing Administration (FHA) and the Department of Housing and Urban Development (HUD) have explicitly confirmed the federal objective of “an ownership society” (Jaffee and Quigley 2007); also President George W. Bush has often reminded the fundamental role of expanding homeownership in particular for low-income borrowers (www.whitehouse.gov/infocus/homeownership) and protecting American Families in this crisis with legal interventions as the Mortgage Forgiveness Debt Relief Act of 2007.
the same time, to expand the credit market thanks to the freed resources, which allowed more lending to low-income borrowers through new pricing models primarily focused on risk (Feldstein 2007, Block-Lieb and Janger 2006). These market developments, as described in the next paragraphs, created incentives based on volumes, which led the subprime mortgage industry to be a relevant part of the US economic system. At the centre of this credit market there is an automated and centralised system of credit scoring, so called FICO\textsuperscript{14}. This automatic system, assigning a number to the borrowers’ riskiness as defined by a proprietary model, helps to reduce transaction costs. However, this score does not catch the relativity of the risk so, as shown in figure 5, lenders may also make a prime mortgage to borrowers with a low FICO score and vice versa. Furthermore, due to reputational mechanisms\textsuperscript{15} and the strategical passage towards a new way of funding (securitisation), the critical role of assessment and management of subprime risks has not been run anymore by big financial institutions, but mainly by small State-chartered companies or affiliates of big banks with marginal supervision and low capital requirements, as main subprime loans’ originators. In effect, they have counted for almost 80\% of all US originators, if we consider affiliates of banks and other subsidiaries (Gramlich 2007b). These entities are mostly non-depository financial institutions with less supervisory and regulatory restrictions. Banks are usually less involved for reputational concerns (20\% of the overall market), even though the system has been fuelled by banks’ purchases of RMBSs and CDOs\textsuperscript{16}. We will describe these players more into details in Section 5.

Secondly, the privatization of Freddy Mac and Fannie Mae gave further bad incentives to the securitisation process. A conflict between two interests occurred: the long-run financial stability of the whole securitization process and the short-termism of preserving profitability, so the shareholders’ value. In effect, the pressure of the latter dominated when the growth of this market became uncontrolled.

\textsuperscript{14} From the name of the Fair Isaac Corporation which releases these credit scores based on a proprietary model. This is the main credit score model used in the US credit market.

\textsuperscript{15} In effect, big financial institutions have not been involved in the market for subprime lending as a direct involvement could undermine their reputation of financially stable institutions.

\textsuperscript{16} Residential Mortgages Backed Securities and Collateralized Debt Obligations.
failure of these two GSEs pushed the US Government to completely renationalize those GSEs, burdened by hundreds billions of “troubled assets”\textsuperscript{17}.

Thirdly, the first regulatory act that formally recognized the role played by credit market to improve wealth accumulation for low and moderate-income borrowers was the Community Reinvestment Act of the 1977. This regulation was intended by the Congress, on one hand, as an offensive against racial and ethnic discrimination in the accumulation of wealth and, on the other, as a way to increase the homeownership rate. It partially succeeded to promote prime and subprime lending to people with different racial and ethnic origins, even though the discrimination is still a relevant issue in the wealth accumulation programs (Bar-Gill and Warren 2008).

Fourthly, the subprime mortgages market was fostered by a Federal Housing Program to increase the homeownership rate and other legislative initiatives, like tax deductions of interests with the Federal Tax Reform Act (TRA) in 1986.

The figure 1 shows us a slight but steady increase of the homeownership rate in the last 15 years for all these initiatives. The rate reached its peak in 2004, to gradually descend in 2008 around 68\%. The turmoil in the real estate market and the following house depreciation have been widely considered as result of the excess of liquidity in the system. It may also represent the gradual achievement of a peak that could be considered as a “natural rate” of homeownership for the economic system.

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\textbf{Figure 1}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{us_homeownership_rate.png}
\caption{US Homeownership rate}
\end{figure}

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In 2006, the subprime market represented around 28% of the overall number of originations, with a value of circa $1 trillion. More than 80% of these loans were packaged through mechanisms of securitisation (Fig. 2; Barth et al. 2007b, Gramlich 2007b).

![Figure 2](image_url)

Source: Barth et al. 2007b

Last but not the least, the constant house appreciation created an attractive background (especially in the last 10 years) to get in risky financial transactions in
order to become homeowner (see figure 3)\textsuperscript{18}. An important role in the story is played by house appraisers, who are entrusted with the valuation of the property. This is a highly subjective process and, even if they should follow a set of rules and guidelines to determine a property’s fair market value, they evaluate the property more or less directly influenced by lenders or brokers or borrowers who hired them (Bitner 2008). In addition, also the shortage of houses to rent strongly contributed to inflate home prices in a period of a background growth. The higher the rents, the more attractive the home purchase is\textsuperscript{19}.

\textbf{Figure 3}

\textit{Home price indexes, Mortgages Interest Rates and Fees}


In the period 2000-2007, interest rates for the most representative conforming residential mortgage (30 years fixed rate) have been at the lowest level in the last 36 years promoting an excessive use of credit, especially for first-time home buyers and refinancing loans. Also fees – as percentage points - have been low for long time (see figure 3). It is debateable whether this period of low interest rates and house appreciation triggered the bubble in the real estate market and the instability of the subprime credit between 2003 and 2006 (Taylor 2007). However, it is unquestionably true that a period of low interest rates may reduce alternatives of investment, in particular for people with low and moderate-income, who need new tools for wealth accumulation. The home purchase has been the most stable and safe investment for this category of borrowers. Then, as described in the following paragraph, this artificial market conditions led borrowers to perceive the costs of indebtedness as very low, even with explicit teaser rates (in adjustable-rate mortgages, ARMs) and other “deceivable” conditions (e.g. unfair penalties or prepayment clauses).

2.1 Product Characteristics

The subprime mortgage is a heterogeneous, complex and customized product characterized by several aspects related to the pre-contractual and contractual phases. The following items have been identified as peculiar aspects of a subprime mortgage (Cutts and Van Order 2005; Block-Lieb and Janger 2006):

- Much higher interest rates vis-à-vis prime rates, and enhanced adverse selection problem and moral hazard issues;
- Prepayment penalties;
- Low loan-to-value ratios (usually) and high rejection rates;
- Non-linear profits;
- FICO scores typically below 660;
- Bad borrowers credit history (30-days delinquencies, bankruptcy, foreclosure, judgments, etc);
- Debt service-to-income ratio of 50% or greater;
- Several kinds of fees.

All these characteristics make the market for subprime lending risky but profitable in the short run, in particular if risks are transferred to the market through securitisation mechanisms.

Adverse selection and moral hazard: credit rationing

As Stiglitz and Weiss showed in their seminal article (Stiglitz and Weiss 1981), the credit is rationed in the long run because the equilibrium is affected by asymmetric information. The adverse selection is an informational problem structurally related to the difficulty by one of the two parties to process some kind of information, such as the quality of the products\(^{20}\). Furthermore, the opportunistic behaviour of the

\(^{20}\) In Akerlof (1970), the classical example to explain this informational problem is the market for lemon cars. The adverse selection, in effect, arises when products of different quality (e.g. lemon and good cars; junk and good bonds and so on) are sold at a single price because of asymmetric information (inability of the buyer or lender to understand the real quality/risk of the cars/financial product or borrower), so that too much of the low-quality product and too little of the high-quality product are sold. In the market for lemon and good cars, for instance, the equilibrium will result in a market price (due to the inability of the buyer to understand ex ante
party that is more informed about product quality helps to exclude virtuous practices from the market (Akerlof 1970). The scarce ability of the lender to assess borrowers’ risk brings to a sub-optimal outcome (pooling effect) pushing good borrowers out of the market and justifying the credit rationing. In effect, there is a general willingness of borrowers to disclose good information and to retain bad ones (borrower’s opportunism), in order to obtain in the end better terms. This issue structurally compromises the overall understanding of the borrower’s risk profile. In addition, the limited possibility to foresee exogenous factors of risk and cognitive biases - which we will analyse in the next section - further increases the difficulty to identify good borrowers. Therefore, the final outcome is the general increase of interest rates and enhanced pooling effects.

The interest rate, hence, tends towards a higher level (especially in the subprime market), attracting riskier borrowers (see figure 4) - since their inelastic demand for credit - and putting aside good borrowers that may not show their “real” risk profile, as the lender - due to the moral hazard of the risky borrower – cannot have the certainty that borrowers is not retaining sensible information (adverse selection effect). Therefore, the higher the rate is, the higher is the risk of pooling effects and the final outcome will include mainly risky borrowers. Hence, especially in the subprime market but in the credit market in general, different screening devices are needed. For instance, tightened underwriting standards (and better risk assessment) and collateral requirements may in the end help to reduce credit rationing (Bester 1985). Moreover, competitive forces are not enough to lead supply equals demand of funds, so credit is often rationed as bad borrowers tend to prevail over the good ones.

the quality of the product) a bit higher than lemon cars’ real value and consistently lower than good cars’ real value. Hence, the market equilibrium, in the mid-term, will determine that only lemon cars are sold in the market. This important issue can basically bring a market to the end, justifying mechanisms of signalling as third-party informational role (rating agencies, etc), regulatory interventions or just pre-sale services. See Pindyck and Rubinfeld (2005), id., p. 616; Reinier H. Kraakman, “Gatekeepers: The Anatomy of a Third-Party Enforcement Strategy”, Journal of Law, Economics and Organization, Vol. 2, No. 1, Spring 1986.
In effect, as shown in the figure above, fixing the interest rate higher than a certain value will reduce the expected returns of the bank, as high-quality borrowers will perceive a too high cost of indebtedness, so refusing to get credit from the bank. Instead, low-quality borrowers, who often are also low-income (e.g. subprime borrowers), will feel less the cost of indebtedness as they probably need to get credit as they have less alternatives. For instance, they may have asked for credit in order to buy a first home in a market where rents in the long run are not sustainable for their current income. Their demand, hence, will be more inelastic than high-quality borrowers. In conclusion, it is structurally more difficult to assess the risk profile of low-quality borrowers, as they also have more incentives to retain sensible information.

**Other relevant aspects**

About underwriting standards, a credit scoring system is widely adopted to refine lenders’ prediction of default risk\(^\text{21}\) (through risk-based pricing tools) in the subprime market. The reference point is 620, under which a borrower should be classified as subprime, even though the relativity of the risk spreads subprime borrowers on a range up to over 800 (see figure 5). Hence, this number generally represents an artificial border between prime and subprime mortgages, which is

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adapted in relation to the real risks and other conditions (as collateral and legal jurisdictions) assessed by the originator. The use of credit scores, which tend to uniform scores around a middle value (as in general this automated system is not able to catch the relativity of the risk), and borrowers’ opportunistic behaviour (who withhold information to the originator, especially by risky borrowers) enhance, on one hand, adverse selection problems and, on the other, the difficulty to assess real risks of low-income borrowers, in particular. Therefore, an automated credit score system determines more availability of consumer credit and a fictitious reduction of information barriers, principal reason of credit rationing (Barron and Staten 2003), as well as transaction costs. The most used system of credit scoring relies on borrower’s payment behaviour, as described by her credit history. As we will show in the next section, this automated system is not sufficient to predict - with a marginal range of error - borrowers’ riskiness. The presence of cognitive biases and unforeseeable exogenous factors – like job loss, illnesses, etc – may require a more detailed analysis before originating a new loan to a non qualified borrower.

Figure 5

Total origination by FICO scores

Another indirect way of screening risk profiles is the request of collateral requirements. These requirements imply that mortgage originators pursue a deep analysis and investigation of the risks related to the transaction, in order to request enough collateral protection. However, very strict collateral requirements may decrease bank’s returns by reducing the degree of risk aversion of the borrowers’ pool, so inducing individual investors to undertake riskier projects in a multi-period
model (Stiglitz and Weiss 1981). Therefore, it could be not profitable to indiscriminately increase interest rates and collateral value requirements in credit markets. In the market for subprime mortgages - which basically relies on high interest rates, low collateral requirements (as typical borrowers have no or few assets) and cognitive biases - lenders are expected to face powerful issues, as adverse selection problem and moral hazard. The interest rate is a weak screening device in a credit market for high-risk borrowers.

Concerning with the prepayment penalty, if used in the right way, there are two reasons to consider it an efficient tool. Firstly, with the subscription, it improves lenders’ ability to extract private information from borrower on its riskiness. Secondly, it is a way to recover the high origination costs linked to lender’s activities in the subprime market. However, there is a high probability that this clause might be used in a wrong way by lenders (see section 3.2.2).

Another remarkable characteristic of subprime financial products is the non-linear response of profits to interest rates (Borio 2007). This kind of lending is more responsive to changes of interest rates (payment shock) or collateral value. The boom and consecutive burst of the subprime market, due to the changes in market conditions, is an unquestionable example of this non-linear effect. So the tendency is towards a rapid growth when there is a house appreciation trend and towards a rapid decrease when this trend is going down, due to the financial accelerator (Bernanke et al., 1998).

The long list of fees is another aspect of subprime mortgages, especially with the latest developments. The high costs of servicing, origination and eventually foreclosure and/or bankruptcy, lead lenders in many cases to request the payment of several fees, not included in the regular loan payments. In effect, the high delinquency rates in the first months increase the probability that these initial costs will not be recovered if included in the periodic payments.

In addition, subprime mortgages, for the specific characteristics of low-income borrowers and intermediaries, are more comparable to experience goods than search goods (in particular for “uninformed” home-buyer demand segment), even though it may appear the opposite. Search costs, due the market segmentation\(^2\), and financial sophistication for subprime borrowers are very high and only 31% of

\(^2\) In the subprime market, licenced brokers play a crucial role. Therefore, the limited channels of distribution have also created incentives to segment the market in specific areas (Ernst et al., 2008).
subprime borrowers have searched a lot for the best interest rate available from different originators (Lax et al. 2004). Moreover, a low-income borrower usually understands only after a certain period of time whether the product and related services (own risk-evaluation) were suitable for her risk profile (not considering exogenous shocks “not reasonably” foreseeable\(^\text{23}\)). The low demand elasticity to interest rates, typical characteristic of the subprime borrower, testifies as borrowers miss some information on quality or price. This peculiarity gives some more information on the nature of experience good of this product. Being a “not frequent” purchase, then, does not allow people “to learn” from the repeated use (Schwartz and Wilde 1978). In effect, if a sufficient number of subprime consumers become informed, positive externalities of their comparing activity would avoid moral hazard and adverse selection since the increase competition (and screening) and so the availability of credit (Villas-Boas and Schmidt-Mohr 1999; Hynes and Posner 2001). Conversely, the number of subprime borrowers who “shop around” because really informed about price and suitability of mortgages is very low, due to low financial literacy and cognitive biases of a typical subprime borrower. Hence, few marginal borrowers cannot protect with their purchases the uniformed ones. In addition, the limited role of substitutes (credit card, personal loans, etc) does not help to improve competition in this market. There is thus a need of specific conduct of business rules to address potential conflict of interests (see section 5).

It is empirically showed that the subprime lending is ten times more delinquent than prime lending\(^\text{24}\) and it is more concentrated in cities with higher economic risk, with a weak labour market and declining house prices (Pennington-Cross 2002). Even though a regular rate of payment shocks and default is a normal development in this market, there is a need of a specific regulatory and supervisory intervention to stabilize this rate to a sustainable one.

Finally, the loan-to-value ratios, which should be at low value as high-risk transaction, dramatically increased between 2001 and 2006, as the average size of subprime credit soared from $151,000 to $259,000 (Bar-Gill 2008).

\(^{23}\) This mitigating default rule was firstly enacted by the English Court of Exchequer (presiding Baron Alderson) in Hadley v. Baxendale case of 1854; 9 Ex. 341, 156 Eng. Rep. 145, 1854; the regulatory and supervisory interventions of the last part ought to help us to understand what is “fairly and reasonably foreseeable” (what was supposed to be fair and reasonable at the contemplation of the parties when the contract was signed).

2.2 The financial structure

The financial architecture behind the origination subprime mortgages is mainly centred on the securitization process (see figure 6). Three steps can be identified:

- Origination;
- Securitization; and
- Placement.

The origination consists in the creation of new mortgages, which represents a future flow of payments. Originators are supported by appraisers, who estimate the value of the property, brokers, who search for new borrowers and design the most suitable transaction for them, and wholesale lenders, which provide the originators with the liquidity actually needed to increase the volume of originations.

The securitisation is the stage in which loans are packaged through a special purpose vehicle (SPV) created by the arranger, and through government agencies (Fannie Mae and Freddie Mac. As shown by the last crisis, arrangers may also underwrite some of the issued products.

The last stage is the placement of these products directly to final investors (mainly professional investors) or indirectly through further packaging in other Collateralised Debt Obligations (CDOs squared and cubed), in order to spread risk even more, on one hand, and increase ratings through adding them in higher quality portfolio of assets, on the other. Finally, the servicer helps the SPV to collect and make payments and borrowers to manage their payments and their financial exposures. Its incentive is to keep the loan on its books for long time, even though it is defaulting, in order to generate more fees.
The aim of this work is to deeply analyze the origination part of the process, because a central role in this crisis has been played by the way in which mortgages are originated and how borrowers’ behaviour affects this process. Then, distorted incentives coming from the securitisation process led involved players to push on transaction volumes, but without tools and specific conditions of the market the increase in the originations would have been more difficult.

Then, the home value as collateral and its role in the wealth accumulation process are core aspects for both origination and securitisation processes. The moderate and low-income consumers borrow money from lenders (usually small State-chartered companies), mainly through brokers who have most of the time a personal relationship with the borrower. Lender’s risk-based evaluation basically relies on credit scores and on the value of the collateral (the house value; often the only collateral requirement over the credit score). Appraisers, who are on the lenders
or/and borrowers’ payroll, determine this value. Therefore, with incomes tied to the origination of loans but not to the performance, borrowers and originators appear to have the same incentives to obtain appraisals supporting the approval decision rather than providing unbiased estimates of property value\textsuperscript{25} that reduces the probability to fill the standards framework\textsuperscript{26}. Moreover, to be able to provide the requested amount, small lenders (but not only them) frequently borrow money from big warehouse.

Furthermore, the second stage of the game is the securitisation process, which allows transferring risk to the market and, at the same time, freeing resources to invest in the same or other markets. Originators sell loans to big investors/lenders, which will package the assets in Special Purpose Vehicle (SPV) through arrangers with the subsequent issue of securities (RMBS and CDOs) rated by credit rating agencies (CRAs). This vehicle issues mortgage based securities (MBS) that will be placed to the final investors in tranches with different seniority, in order to match the diverse risk appetite of final investors. Final investors are mainly professional players, as mutual and pension funds, other investment banks (or the same arranger that underwrites some of the securitised products) and hedge funds.

The financial incentives of this mechanism, by contrast, enables lenders (originator) to gain advantages through withholding information on loans to the buyers and originating more loans without excessively caring to underwriting standards. This outcome undermines the whole system and produces potential sources of systemic risks (see section 4). Therefore, these distorted incentives may require additional efforts to assess the real quality of the assets pool and to reduce incentives on transaction volumes. Concerning with benefits, the securitisation (and related secondary market for mortgages) grants more resources to the system, reduces the cost of procuring additional funds, increases the profits on sale for originators reducing credit rationing, improves market liquidity and diversification for investors and, finally, it gives new products and additional flow of volume and profits to financial markets for alternative investments (Kendall and Fishman 2000).


“Conforming” mortgages are usually packaged through the US Government agencies, as Fannie Mae and Freddie Mac (Agency MBS). “Non-conforming” mortgages (Subprime, Alt-A and Jumbo\textsuperscript{27}), instead, are packaged by big lenders or investors through investment banks that frequently are also underwriters. They place those non-agency MBS to final investors or in other CDOs. Rating agencies, committed to rate those securities, have really few information about the content of those CDOs and their riskiness, so they base their model over past data of comparable assets.

On one hand, this financial structure moves the risk from the upstream market to the downstream one, spreading it on a wide range of investors (Avgouleas 2008). On the other, the secondary market for subprime loans, through the sale of loans and the following securitisation, gives funds to fuel the whole system.

As shown above, moral hazard and adverse selection generally affect origination, securitisation and placement processes. The policy responses (see section 5) to the inherent weaknesses of this structure will be mostly focused on the upstream market, from which the risk is coming and spread all over financial markets and on the role of the secondary market generated by securitisation.

After the begin of the financial turmoil, the new issuance in US is made by agencies, while in Europe by private only for the retention by the issuer, which will use these securities in repo transactions with central bank, in a sort of support to financial institutions. However, the $9 trillion outstanding securitised products will be sooner or later circulating in secondary markets to restart the whole mechanism (see figure 7).

\begin{figure}[h]
\centering
\caption{Outstanding Securitised Products}
\end{figure}

\textsuperscript{27} The Alt-A loans usually are the loans without full documentation; instead, “jumbo” loans are mortgages with an amount over $417,000.
2.3 Homeownership Value

There are commonly three justifications for investing in homeownership (HUD 1995, Jacoby 2008):

1. Wealth accumulation and economic self-sufficiency;
2. Positive social-psychological states; and

A developed and efficient mortgages market is complementary to the development of a homeownership society.

The homeownership is the best tool for wealth accumulation (“total wealth”) for moderate and low-income people (Sherraden 1991; Boehm 2004), who may not access alternative investment solutions because they have limited resources immediately available. A constant appreciation trend for home prices (increasing at least at the inflation rate) is indispensable condition sine qua non the homeownership cannot be considered as a wealth accumulation tool (Di et al. 2003).

However, the house depreciation – background of the last financial crisis – testifies

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that investing in a house may involve risks. Homeownership may not result as a valid tool of wealth accumulation. In addition, the risk is much higher for borrowers who use specific solutions (hybrids) to invest on the house value. The stake associated with homeownership is high, especially for low and moderate-income borrowers; instead, incentives to rely on reputational mechanisms are weak. Due also to cognitive biases, the “game” is structurally designed to last for a short period of time (finite game). Furthermore, when interest rates are low the opportunities of alternative investments are low as well, inflating the bubble.

Low-income homeownership has a lot of appeal especially for those who intend to remain in their homes for a long time. Investing in a home on a so leveraged way becomes thus very attractive. Also during the stock market boom, at the end of the last century, housing equity represented the major wealth accumulation tool for non high-income borrowers. The high-return attractiveness hides relevant risks, though. In effect, the likelihood that low-income borrowers return to rent after homeownership is very high, so a better control of the risk and a more efficient credit market may increase the total welfare (Belsky et al. 2005). As consequence, the benefits from owning a home are high but delinquency and foreclosure are a relevant and dramatic risk (Dietz and Haurin 2003).

Hence, not only reputational mechanisms are efficient tools to help the construction of a long run game and to avoid the bad effect of the high stake linked to this market. It is also essential a regulatory intervention to deter specific negligent behaviours and supervisory improvements and to contain the impact of systemic risks. Dietz and Haurin (2003), besides, showed that the homeownership improves the political activity (strong empirical evidence on voting) and child outcomes, but it reduces people mobility.

In conclusion, homeownership may be used as a mean to take out equity from the home for other motivations. There are basically four reasons (Golding et al. 2008):

- Consumption of durables (or non–durables, in particular for low-income borrowers);
- Home improvements;
- Portfolio rebalancing; and

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- Bill consolidation.

Ergo, in a context of houses price appreciation, the homeownership opportunity is appealing for many people who never thought they would be able to become homeowners.

### 2.4 Predatory Lending

The subprime mortgages market is not predatory lending\(^{30}\). However, a clear definition of predatory lending does not exist. It may be defined as a system of illegal practices used in the lending market to exploit the borrower, generating a harmful rent seeking (Engel and McCoy 2002). A predatory lender does not assess the ability to repay the loan but the possibility to extract as much as possible from the borrower. These practices may be more frequent in the subprime market for two complementary reasons: the low financial education of the typical subprime borrower (unsophisticated) and the high complexity of the offered financial products. As just mentioned, when the stake is high, it is high the incentive to deviate from the game as well, especially when there are no reputational mechanisms involved. The usual reduced size of subprime lenders, the typical personal relationship between borrower and broker/lender, and the customized nature of the mortgage may promote the use of a “hit and run” strategy, as “steering” and “churning” behaviours. In the end, this incentive will induce lenders and brokers to originate as more loans as possible without accurately taking into account the related risk. The borderline between subprime and predatory lending is very thin. However, the negligent research of a harmful rent may be a sufficient way to find out whether a practice may be considered as illegal.

Finally, there is a clear trade-off between the benefits of eliminating predatory lending and the loss of welfare coming from a restriction of the high-cost but legitimate subprime lending for low and moderate-income borrowers.

### 3. Main determinants of the borrower’s choice to get in a subprime mortgage

This section will describe the typical behaviours of a subprime borrower, which may

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influence the proper assessment of the decision to get in a risky financial transaction, as a subprime mortgage. The perception of the risk and the wealth accumulation are clearly the most important determinants of why borrowers end up with underwriting a subprime loan. In effect, they tend to partially take into account the risk related to mortgages and in particular to the interest rate (Paiella and Pozzolo 2007). Therefore, the analysis of subprime borrowers will move from the removal of the rationality assumptions to go into details of cognitive biases. We classify borrowers in two groups:

- Home buyers; and
- Investors.

Once removed the assumptions behind the concept of “rationality”, recent developments in behavioural economics will help us to better understand the asymmetries of information that structurally influence this credit market. Rationally, borrowers do not invest in information to fill the gap because it is extremely costly but “irrationally” they are not completely aware of their standing uninformed condition. There are five assumptions behind behaviour’s rationality (Debreu 1987; Korobkin and Ulen 2000; Varian 2006) that shape the rational economics and the utility maximization theory. These assumptions are:

A. Completeness (actors should be able to compare alternatives and to make an order);

B. Transitivity (if a player prefers A to B and B to C, so she would then prefer A to C; it is an assumption to avoid the intersection of the utility curves);

C. Invariance (moving on the utility curve should not change the utility if there is a switch between the 2 goods; the choice is not influenced by how it is presented or structured);

D. Monotonicity (the choice between two alternatives is apparently not influenced by their identical features; so, “more is generally good”; it draws the direction of the indifference curves);

E. Dominance (the mean of two choices on the same utility curve is preferred to them; an alternative is not preferred to another if it has the same features but at least one of them is not as good as the others; this assumption defines the convexity of the utility curve).
The first three assumptions are enough to draw a utility function. Moving from these assumptions, decision makers make a cost-benefit analysis of different alternatives, choosing the optimal one (maximizing net expected utility).

Preferences are, in this way, considered fixed. It will be clearer in the next paragraphs as these assumptions are systematically violated.

The latest developments in behavioural economics play an essential role to describe behaviours that violate standard preferences. Thaler (1996) describes some ways in which “people” differ from the Homo Oeconomicus. Their “bounded rationality” undermines judgment (of the risk) and decision making processes (as editing and evaluation). From the earliest tests on the violations of the expected utility theory (Allais and Ellsberg) and the earliest studies on the relation between psychology and economics to the latest insights of behavioural economics and finance there is a

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The rational ignorance, instead, occurs whenever an individual rationally chooses not to acquire all the information needed to conclude a contract. As it was authoritatively observed, in a number of situations “the costs of becoming informed may exceed the benefit, resulting in rational ignorance of hidden traps in contracts that competition may not dispel”. See, e.g., See, e.g., Lucian A. Bebchuk & Richard A. Posner, One-Sided Contracts in Competitive Consumer Market, 104 MICH. L. REV. 827, 827 (2006)

very long evolution of theories and thoughts that have built the foundations (with the evidence on cognitive biases) of a new way to interpret human beings’ behaviours\(^{34}\). The scope consists in making these “irrational” behaviours predictable, lowering information asymmetries and so transaction costs. The earliest foundations in Behavioural Law and Economics refer to the Coase Theorem and the initial allocation of entitlements (Jolls, Sunstein and Thaler 2000). The following section will clarify which biases may determine a different final outcome through the influence of the initial allocation of entitlements (endowment effect).

The market for subprime mortgages is particularly affected by cognitive biases. The mortgage contract, especially for individuals with low financial education, is really complex and deferred costs may complicate their estimation of the choice to get in a mortgage and the evaluation of the affordability of the financial transaction. This choice, moreover, could be affected also by “speculative instincts”, shaped by other biases.

### 3.1 Cognitive Biases: an overall analysis

There are three traditional principles in Law and Economics systematically violated by the human’s behaviour (Posner 1998):

1. The optimization behaviour;
2. The dominance of opportunity costs (on sunk costs) in decision making; and
3. The invariance of initial allocation of entitlements when transaction costs are reasonably low.

Three “bounded” aspects in the human’s mind determine a violation of these principles: bounded rationality, bounded will power and bounded self-interests.

> People are not always “rational” in the sense that economists suppose. But it does not follow that people’s behavior is unpredictable, systematically irrational, random, rule-free, or elusive to social scientists.

(Cass R. Sunstein 2000, p. 1)

Therefore, we are going to analyse biases affecting the classic “rational economics” and to make them predictable. The “bounded rationality” as well should be a main

\(^{34}\) For an extensive analysis of cognitive biases in the investor protection field, see Avgouleas (2006).
subject of study for a deeper understanding of the subprime origination process. It distinguishes biases affecting judgement and decision-making.

On the **judgment side**, it is possible to identify several kinds of biases (Ulen and Korobkin 2000; Sunstein 2000; Jolls 2007).

First of all, a *self-serving bias* affects judgment when individuals face a matter with room for disagreement. They will tend to interpret information in a direction serving their own interests. This is a judgment error, a distortion of people’s perception, for instance, of what is fair. This self-serving assessment can impede negotiations\(^{35}\) and it might affect people’s perception of social norms, in particular what is “moral” in credit markets. This bias may promote “credit immorality”, irresponsible borrowing and the increased use of defaulting (“walking away” from the contract) to get out of a mortgage, which is better explained in section 3.2.1.

Secondly, the prospect theory\(^ {36}\) (theory violating the axiom of context-independence) also characterizes judgment behaviours. *Anchoring and adjustment*\(^ {37}\), for instance, shape the probabilistic assessment because people frequently fail to “adjust” their assessment from pre-existing cognitive anchors or reference points. For instance, the borrowers’ choice to get in a mortgage with adjustable rates (ARMs) may be “anchored” to a long period of low interest rates and home price appreciation. This behaviour gives a more relevant role to sunk costs in the biased decision, in order that if I put more efforts and money it is more difficult to move from it (rent-to-own behaviour). There are two effects violating the assumption of context independence: the compromise and the contrast effect (Kelman et al. in Sunstein 2000). The former implies that the relative ranking of two options depends on the presence or absence of other options; a subprime borrower is a typical individual with few wealth accumulation options (liquidity constraints). This aspect would lead subprime borrowers to misperceive the real probability of default on mortgages because the homeownership is the only safe wealth accumulation tool for them. The latter effect, by contrast, implies that the same option is evaluated more favourably in case there


are similar but more inferior options (e.g. consumer loans, credit cards), than in the absence of such options. Moreover, the prospect theory faces another source of error linked to the humans’ misperception of their knowledge and judgment imperfection. People tend to overestimate (to be overconfident about) the probability of an outcome if an example of the event has recently occurred, as result of an overconfidence bias. For instance, the steady growth of house prices over decades created an overconfidence bias that this trend would continue for an indefinite time, inflating the bubble and accelerating the collapse. Classical example is the stock market boom (“internet bubble”) and burst at the end of the last century.

Thirdly, the optimism bias involves the belief that good/bad things are more/less likely than average to happen to us. This bias is strictly linked with the self-interest and overconfidence bias above. The subprime borrower is affected by this bias especially when she has to consider a deferred-costs transaction like a mortgage contract. Consumers change current consumption with future consumption relying on a belief that the income in the following period will be higher. There is the perception that it will be more likely that she will receive a higher income in the next period.

For all the biases mentioned above, we may conclude that for a subprime borrower is better an egg (not so good; loan with no favourable terms) today than a chicken (uncertain) in the future (savings or inferior alternative solutions). Homebuyers frequently tend to overestimate also the correlation between past trends and future price movements on the house value (Case and Shiller 1988). If the overconfidence affected the judgment of the opportunity to become homebuyer through risky financial transactions, the optimism bias influenced the estimation of their default risk.

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Finally, the *hindsight bias* is the tendency of actors to overlook the ex ante prediction that they made concerning with the likelihood of an event after learning that it actually occurred. This bias has particular effects in tort liability.

On the **decision-making side**, there are two important biases. Both behaviours are corollary of the prospect theory. Firstly, the reference point and framing effect influence the decision maker and the context of the final decision. Specifically, this bias is called *loss aversion*: an individual will value a decision differently if it is specified in losses instead of gains. In particular, if a decision is perceived as “losses” (or “gains”), relatively to a reference point, the same individuals will be risk-seeking (or risk-adverse). The figure 8 draws a new utility function, with 3 characteristics:

1. The origin is the reference point;
2. The shape of the function is concave for gains (risk-aversion) and convex for losses (risk-seeking);
3. The function is steeper for losses than for gains (people are more sensitive for losses than gains).

Figure 8

The “new” utility function

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An example is the use of the helmet on a motorcycle. People perceive its use like a choice between two losses (getting a fine [when prescribed by law] and getting injured in an accident), hence the driver is more risk seeking (higher probability of not using helmet). One of the reasons why in many countries there are very strict rules obliging motorcyclists to use the helmet is their likely distorted perception of the probability that the helmet may save their lives. In this view, before the transaction, the potential subprime borrower may be risk-seeking, as she is facing two losses: payment of a rent for the house; and possibility to purchase the first home with a riskier and costly financial transaction. After the transaction, the subprime borrower may be risk-seeking, as she is trying to skip the immediate high loss (house price depreciation and following negative value of the mortgage she is paying), thereby underestimating or voluntarily facing future potentially higher expected losses (foreclosure, homeownership loss, eventual deficiency judgment, etc). Therefore, borrowers experience relevant difficulties in handling uncertainty and risk.

In conclusion, the *endowment effect*⁴¹ is a bias mixing loss aversion and status quo biases. It proves that the invariance assumption of the Coase’s Theorem⁴² fails to describe the real bargaining process for entitlements allocation. The initial allocation of entitlements matters, due to the endowment effect. Moving from that reference point thus will always include a trade-off. Hence, the irrelevance of legal rules,

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⁴¹ See Kahneman and Tversky, see supra note 36.

recalled in some circumstances, is a claim that no longer holds. “Debiasing through law” (Jolls and Sunstein 2005) is thus an important need for an efficient bargaining process. Market rules and legal rules can properly shape this process (Sunstein and Thaler 2003). Whether the initial allocation of entitlements is made through contract law, the default rules would create a reference point for the sense of ownership defined by the endowment effect. People would be less willing to contract around default rules. The reference point, as showed in figure 9, shapes the final outcome for the influence of the reference initial point.

Figure 9

In t it would be indifferent to choose y or x (on the same utility curve). In r and r’, however, the individual will choose respectively x and y. In the subprime market the reference point of a lower income or a generally not wealthy position makes more attractive the homeownership, with more availability to take risks. The status quo bias backs these behaviours, leading low and moderate-income borrowers to accept very high interest rates and/or unfavourable terms, as not far from the perceived conditions for risky borrowers. This is not completely irrational but “predictably” irrational. Human beings do not have an internal value meter that tell us how much things are worth but they focus on the relative advantage of one thing over another, and estimate value accordingly (Ariely 2008). This is basically the reason why low-income borrowers with bad credit histories are less interest rate sensitive and are more willing to accept teaser interest rates.

3.2 Subprime Mortgages Incentive Structure

The subprime mortgage is a highly complex financial product with a multidimensional pricing structure. It defers to the future (amortization) the
prohibitive costs of the consumption in the first period. Mortgages typically have two risks: risk of interest rate and risk of default. Interest rate risk (or market risk) is exogenous to the borrower’s choice and it is too complex for her to foresee the interest rates trend, at least in the long run (typical length of a mortgage is 30 years). The lender is typically charged for making forecasts about interest rates movements and suggesting the “best solution” for borrowers. The interest rate thus is just a term of the contract that borrowers use in order to make comparison between different offers. The disclosure of an annual percentage rate (APR) may reduce the complexity of the product and it would be easier to understand for subprime borrowers. However, borrowers still experience difficulties to assess the risk of the financial choice and the quality of the offered product only with the disclosure of the APR (see section 5). Moreover, the interest rate indirectly influences the value of the collateral, in this case the value of the home. For instance, an upward movement of the interest rate increases the investments alternatives reducing the value of the home because less people get incentives to invest in homeownership (it is more expensive). Therefore, there is a negative correlation between interest rate and home prices. The interest rate in this way can have a double effect on the borrower’s mortgage: the effect on the monthly payment (in case of an increased interest rate for ARMs or decreased interest rate for FRMs, in term of opportunity costs); and the indirect effect through the home value depreciation or appreciation. Default risk, instead, is a risk that borrowers and lenders need to implicitly assess through an accurate evaluation of the product affordability (ability to repay) and suitability.

In a context in which the collateral requirements are low, the down payment is low (due to liquidity constraints) and there is a complicated mix of uncontrollable variables (job status, health, etc), it is indispensable having efficient tools to analyse risk, as well as more stringent underwriting standards.

In addition, a speculative aim in the borrower’s final decision may affect the ability to repay the loan, if pursued on an uninformed basis (low investments on

information). This variable is an important element that confers further complexity to the product and the way to evaluate risk (in this case, especially for lenders). Therefore, the above mentioned aspects plus higher search costs, lower financial education, greater lack of transparency on the overall characteristics of the product and competition on terms between subprime lenders increase the difficulty to make the right choice when people try to deal with subprime lending.

The Truth in Lending Act (TILA) of 1968\(^44\) tries to address these issues with some disclosure requirements and reduces opportunities for misleading behaviours of the lender. A misleading behaviour may emphasize the role of low monthly payments and may hide the real APR of the whole operation. In effect, before coming to force the TILA regulation, the misleading role of advertisements was really important: lenders were mainly taking advantage of cognitive biases (framing in particular) on low-income borrowers. The Act hence obliges lenders to disclose the APR for every transaction. However, the Act does not oblige to reveal the non-interest charges (fees), so variables influencing a correct and efficient decision-making process are still affecting the ability to repay of subprime borrowers\(^45\). As it frequently happens, complex products are a great opportunity for predatory practices by lenders and brokers, who try to exploit the information asymmetries between them and the “irrational” and unaware borrower. The “irrationality”, fuelled by cognitive biases, affects the perception of borrowers’ ability to repay, which supports the decision to get in a specific financial transaction. As result, the perceived probability of own default would be much lower than the real one if in the end the real probability of repayment was more or less the same.

Finally, it should not be surprising if a person with a very low income (qualified as subprime borrower), for a long list of reasons (fluctuating income, no or low permanent assets, job changes, family structure, etc), would be heavily affected by short-term focus. Hence, relaxing underwriting standards in a pro-cyclical way could be very dangerous not only from an economic point view, in terms of systemic risk and financial stability, but also from a social point of view. Giving stable solutions for wealth accumulation would promote the social stability for the weakest and poorest parts of our society, helping to reduce conflicts and inequalities.


3.2.1 Riding the bubble: when the borrower “seems” rational

It is possible to identify two kinds of borrowers: the homebuyer and the investor. The former is the typical residential mortgage borrower. The latter is considered a rational and informed borrower because it uses a mortgage as an “option” on the value of the house (Deng et al. 2000; Cutts and Van Order 2005). If the house value consistently drops, borrowers will voluntarily decide to be delinquent and then prefer the foreclosure to the monthly payment.

For lenders, instead, it is very difficult to assess ex ante borrowers’ opportunism. In effect, there are several aspects favouring the growth of “mortgage walkers”\footnote{Nicole Gelinas firstly thought about this definition of investing borrowers, see “The Rise of the Mortgage “Walkers”, Wall St. J., February 8, 2008.}:

a. The changes in social norms and “credit morality”;

b. The low costs of default;

c. The constant house value appreciation; and

d. The use of non-traditional mortgage products.

The transformative changes in cultural attitudes and social norms have been testified by the reduced deterrent role of foreclosure and bankruptcy procedures. As showed in figure 10, the non-business bankruptcy filings largely grew between 1990 and 2005, as the cost of bankruptcy was very low, while borrowers may use it to get out from an inconvenient financial situation.
After this period, in 2005, the Congress approved a reform to avoid the abuse of bankruptcy procedures to get out of the debt. The broad drop in filings in 2006 and 2007 shows how the use (“abuse”) of these procedures was diffused. In the 18th century who defaulted was considered like a criminal, but since 1970s, with the deregulation of interest rates, the consumer credit industry experienced a lessening of “credit morality”. Defaulting on your own mortgage was and is still an important alternative to get out of a costly and risky financial transaction. The costs of default, therefore, play a relevant role in providing incentives for borrower’s opportunism. Before the subprime crisis, the borrower-investor “rode” the house prices bubble until she could extract benefits from the homeownership. When the home value fell and the direct and indirect costs to refinance the mortgage were too high (increased interest rate), many of these borrowers voluntarily decided to default, filing for bankruptcy. There is currently a widely diffused practice to leave the key of the house in the mailbox for the lender that is going to take back the home and to sale it (jingle mail; Zywicki and Adamson 2008). In effect, the high costs for

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47 This reform establishes a new “means test”, to limit the use of the Chapter 7 to those individuals whose income is presumed insufficient (below the State average) to repay their unsecured debt in 5 years; see Bankruptcy Abuse Prevention and Consumer Protection Act of 2005, Pub. L. No. 109-8, 119 Stat. 23, 2005.

lenders to bring a suit against every single defaulted borrower and the presence in many states of anti-deficiency laws\(^49\) reduced direct and indirect costs of default for these borrowers. Foreclosure and bankruptcy procedures ideally should imply higher costs than the value of the mortgage for borrowers. In reality, there is a probability to be prosecuted and that the costs of defaulting will end up to being higher than the value of the mortgage. However, there is a rational (for lenders) and “irrational” (for borrowers) explanation, which distort the perception of the costs of default. It is rationally low the probability that lenders will bring a suit against borrowers to get other resources from an already low or moderate-income borrower. The borrower thus faces two losses: the negative equity on the homeownership (and the higher monthly payments absorbing more income in the future) and, on the other side, a foreclosure procedure that occasionally can bring to very bad outcome for a long period (deficiency judgments, etc). As described above, when an individual faces two losses becomes more risk-seeking and still the most risky solution theoretically is the delinquency and then the foreclosure (for the potential costs she might bear in the long run, also in terms of restricted use of constitutional rights). This may be considered as a case of loss aversion.

Figure 11

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 6</th>
<th>Year 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment Option Mortgage</td>
<td>$759.24</td>
<td>$1,603.10</td>
</tr>
<tr>
<td>5/1 I-O ARM</td>
<td>$666.68</td>
<td>$1,288.60</td>
</tr>
<tr>
<td>5/1 ARM</td>
<td>$954.83</td>
<td>$1,165.51</td>
</tr>
<tr>
<td>30-year fixed</td>
<td>$1,199.10</td>
<td>$1,199.10</td>
</tr>
</tbody>
</table>

Source: Federal Reserve Board, Handbook on ARMs.

In conclusion, the diffusion of non-traditional mortgages product increased the risks in the system. Almost 60% of mortgages (Barth et al. 2007c) are directly influenced by interest rate trend and it has been progressively reduced the use of plain vanilla

\(^{49}\) See [www.foreclosurelaw.org](http://www.foreclosurelaw.org) for the full list of States with anti-deficiency laws.
loans, favouring even more the complexity of mortgages’ characteristics. Excluding the traditional ARM, there are hybrid types of loan and not-typical ARMs\textsuperscript{50} (see figure 11). It is possible to arrange different solutions in relation to the specific willingness to pay in the first period of payment. In effect, it is also possible to design solution with negative amortization for a certain period, which means not even paying all the due interests on the mortgage. The 2/28 or 3/27 (fixed 2 or 3 years than adjustable rate), instead, are widely diffused between subprime borrowers.

In addition, there are several non-traditional products favouring speculative investments. The interest-only payments loan permits to pay in the first months only the interests. Therefore, the most interesting is the payment-option loan. It allows to choose every month between four kind of payments (Federal Reserve Board 2006; Duncan 2007): an amortizing payment on 15 years maturity; an amortizing payment on 30 years maturity; an interest-only payment; a minimum payment based on a start rate below the fully indexed accrual interest rate (this means negative amortization). Using these new financing tools increases the financial risk, thereby changing in some cases the “natural” aim of purchasing a mortgage (homeownership).

\textbf{Figure 12}

\begin{figure}[h]
\centering
\includegraphics[width=0.8\textwidth]{foreclosure.png}
\caption{Foreclosure filings on Subprime Mortgages}
\end{figure}

\footnotesize
\textsuperscript{50} For a detailed description The Federal Reserve Board, \textit{Consumer Handbook on Adjustable-Rate Mortgages}, available at \url{http://www.federalreserve.gov/pubs/arms/arms_english.htm}. 


For all these reasons, the borrower would see a mortgage like an option on the net value of the house. On one hand, he/she voluntary fills the foreclosure form for the home if the interest rates soar and the value of the house declines or if anyway the expectation on house value will be negative. The figure 12 and 13 show the soaring foreclosure rates, also for prime mortgages, as result of the relevant drop in the home value and resources for new investments. On the other, a good part of

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51 For an opposite position that partially recognize the existence of the investor-borrowers (for the existence of shelter services allowing to do not give up the capital gains of the complete mortgage repayment) but do not explain why these risky financial products exist, see Amy Crews Cutts and William A. Merrill, “Intervention in Mortgages Default: Policies and Practices to Prevent Home Loss and Lower Costs”, Freddie Mac Working Paper, No. 08-01, March 2008.
borrowers would refinance the mortgage, holding the investment, if interest rates fall and house prices increase.

Figure 15

![Reaction chains]

Source: Author’s elaboration.

Figure 13 clearly shows us that the number of foreclosures skyrocketed when the value of the home declined and the traditional reference interest rate (30 years mortgage prime fixed rate) slightly started to rise again from 2003 and 2006\(^2\) (see figure 3). Although the majority of borrowers suffered a payment shock (figure 14) which induced to an involuntary default, due to higher monthly payment and stricter underwriting standards, there is a relevant part of these borrowers voluntary defaulting on the house depreciation trend (or expectations). They decide to refuse the payment shock (value of the house lower than residual mortgage to pay) and to get out of this expensive financing tool. As said, the reaction process is even more favoured by low costs of default. The home value trend follows the similar process for the inflation rate: variations of interest rates modify the inflation rate expectation and indirectly influence the real consumption, before the upward reset.

We can write an incentive constraint for the borrower. It will be equal to:

\[ H-C(i)-d>D-H \]

where \( H \) is the value of the home, \( C(i) \) is the mortgage value that can change consequently to its type (FRM, ARM, Hybrid, etc) and \( d \) the down payment. Fees can be separated and included in the down payment or they can be included in the interest rate (pooling). On the right side, the costs of default \( D \) include costs of foreclosure and bankruptcy (also lawyers’ fees and psychological worries), the residual mortgage amount to pay, costs for future borrowing (with a worse credit

\(^2\) In 2009 the projected number of foreclosures on all mortgages is around 3.9 millions (Source: Bloomberg News, see [http://www.bloomberg.com/apps/news?pid=20601103&sid=a6aLuu9zxbcM](http://www.bloomberg.com/apps/news?pid=20601103&sid=a6aLuu9zxbcM)).
history). The assumption is that the intrinsic value of the homeownership for the borrower is equal to the value of the home in that moment. When the home equity $H - C(i) - d$ is higher than the expected losses $D - H$ there is a clear incentive to repay the loan until its maturity. When the interest rate move upward the inequality can be the opposite, giving incentives to the investor-borrower to default. In this case, $C(i)$ increase and $H$ decrease. There may be default when the expected benefits are lower than expected losses. Also increasing $D$ too much there can be over-deterrence, inducing people to reduce investments in homeownership. An efficient level of $D$ ($D^*$; default costs) can address the equality above, moving out of the market the investor borrowers (with a level of $H - C(i)^*$). The formula can be:

$$ D = (R + F + pDef + \varepsilon) $$

where $R$ is the residual amount of the mortgage to pay, $F$ the foreclosure costs (attorneys fees etc), $pDef$ the expected losses from a judgment for deficiency and $\varepsilon$ is the residual cost (psychological costs and costs of future borrowing). It is quite clear that $D$ was perceived as very low (and probably it was). First of all, the perceived (and real) probability to get in a judgment for default is very low. Secondly, the relax of underwriting standards for getting a loan and the following extension of credit also to non-creditworthy individuals may have unjustifiably reduced worries (and perception) about the higher cost to access credit in the future with a bad credit history. $R$ was perceived very low for the risk-seeking borrowers, due to the loss aversion described above. In this way, $D$ should move together with the value of the stake ($H-C(i)-d$) to provide borrowers with the right incentive to avoid risky subprime mortgages, even though the potential profits are extremely high (a deficiency judgment may help this process).

If default costs are sufficiently high, a separating equilibrium may occur (Harrison et al. 2004). The high-risk borrowers will apply for low LTV (loan-to-value) loans to reduce the expected losses of defaulting. The low-risk borrowers will choose a high LTV loan to signal their enhanced creditworthiness. The trade-off for them stands between the benefits of revealing their nature (lower interest rate) and the losses of asking a higher LTV mortgage (higher interest rate). The benefits should prevail because lenders can control better risks and maybe reward more borrowers for revealing sensible private information.
3.2.2 Prepayment Penalty Clause: “Ghost busting”

Before going into details of fees and their role in the provision of residential subprime mortgages, it is crucial to explain the function of the prepayment penalty clause in the subprime mortgages. Prepayment usually occurs when interest rates fall and the borrower wants to refinance her loan at a lower interest rate. Therefore, the possibility to refinance the mortgage and to continue to reap the benefits of homeownership is linked to the costs of prepayment. As some other extra fees, the price of the prepayment penalty is not included in the APR (see section 5.1.1).

This clause is reasonably frequent in the subprime market because lenders usually encounter high servicing costs. First of all, although they are gradually being moved in fixed initial fees (also for the increasing risks of prepayment and defaulting), these costs are so high that they need to be diluted in the monthly payments. If the borrower decides to repay before a certain date, lenders are going to face high losses on upfront costs (Zywicki and Adamson 2008) and the opportunity costs of having invested those resources in an alternative financing tool with lower interest rate. Secondly, prepayment penalties assure a more reliable stream of income for investors in pool of mortgages securitized in the secondary market (Duncan 2007). Lenders, in this way, can sell a product more reliable to investors. Therefore, borrowers get a lower interest rate if they accept the clause.

Turning on the negative aspects of the prepayment penalty clause, there are mainly two things to do in order to avoid that the borrower gets stuck in the mortgage at high interest rate without any possibilities to get out of it. Firstly, the penalty should be optional in the mortgage and clearly disclosed to the borrower. Then, the validity of the clause should not exceed a limited period of time. The final rules on disclosure, written by the Federal Reserve System to modify the Regulation Z (TILA)\textsuperscript{53}, establish stricter rules on prepayment penalty clause than those ones proposed. First, the regulation prohibits prepayment penalty clause if payments can change during the four-year period following consummation. For other mortgages,

\textsuperscript{53}The approved final rules are even stricter than the rules proposed in December 2007 by the Federal Reserve Board and published for public comments (available on http://www.federalreserve.gov/newsevents/press/bcreg/20071218a.htm); these rules are effective from the 1\textsuperscript{st} October 2009; see Federal Reserve System, Final Rules on Regulation Z (TILA), Docket No. R-1305, 12 CFR Part 226, July 14, 2008 available on http://www.federalreserve.gov/newsevents/press/bcreg/20080714a.htm.
these final rules limit prepayment penalty periods to a maximum of two years following consummation, rather than five years proposed\textsuperscript{54}.

For some authors, the prepayment penalty could be also forbidden because, advancing not so clear economic justifications (the subprime market is already a high-profitable market), it increases the costs of the credit (Essene and Apgar 2007) when competition can internalize the impact of these relatively high increments in servicing costs when lenders deal with extending credit to low-income borrowers. However, eliminating prepayment penalties would reduce the flow of private information from the borrower to the originator lender. In effect, lenders are not able to fully assess, with their risk-based pricing system, the potential opportunistic behaviour of the borrower, as described above. Therefore, for other authors, it is probably more efficient to get lower interest rates with prepayment clauses (Elliehausen et al. 2008), so permitting the borrowers’ private information to circulate, perhaps revealing crucial information on their real risk (separating effect; see section 2.1). Drawbacks of maintaining the clause are related to abuses, as fixing long clause periods or using this clause with ARMs payments in order to put borrowers in a highly inconvenient position unless they pay a high penalty to get out.

4. The incentive structure of intermediaries: moral hazard and adverse selection

Between borrowers/consumers and investors in securitised products (e.g. RMBS) there is a complex web of relations, which involves several and diverse market participants at different stages. As for the investor-broker-dealer relationship in securities regulation\textsuperscript{55}, also in the subprime market there is a fiduciary duty that should be formally recognized\textsuperscript{56}. So lenders or brokers should be obliged to act or give and advice for the benefit of the borrower within the scope of their

\textsuperscript{54} It is clear the pressure exercised by consumer associations, see id. p. 70.

\textsuperscript{55} Through the “shingle theory”, in securities regulation, the broker implicitly signal her superior ability to conduct business in an equitable and professional manner (hanging up a shingle); see Charles Hughes & Co., Inc. v. SEC, 139 F.2d 434 (2\textsuperscript{nd} Cir. 1943) cert. denied, 321 U.S. 786 (1944).

\textsuperscript{56} It is recognized an “implied warranty” in broker-dealer’s activity; see Kahn v. SEC, 297 F.2d 112, 115 (2\textsuperscript{nd} Cir. 1961).
relationship. In effect, the fiduciary relationship exposes a beneficiary/principal to two distinct types of wrongdoing: first, the fiduciary may misappropriate the principal’s asset or some of its value (negligence); and second, the fiduciary may neglect the asset’s management (failure to perform). In US, the fiduciary duty can be recognised in two kinds of situations: when the contract explicitly recognises a fiduciary relationship (e.g. principal-agent); and when specific circumstances surrounding the transaction and the relationship occur (Unseth, 1997). “Trust”, “confidence” and “influence” are the keywords to ascertain the existence of a fiduciary duty. The broker-borrower, the lender-borrower and secondary lender-borrower (when there is a broker in the middle) relationships do not involve a general legal fiduciary duty (Hunt, 1994; Hanning 2008). However, this fiduciary duty can emerge if specific circumstances modify the nature of the relationship, even though in case of bank-borrower relationship a fiduciary duty could be recognised as intrinsic to the relationship (Hunt 1994). For instance, the lack of education or cognitive biases may increase the vulnerability of the weakest party, imposing a fiduciary duty in order to balance the relationship. Also in the relationship between secondary lender and borrower, fiduciary aspects can be highlighted. In effect, the US case law has already recognised the insurer-client relation as implying fiduciary duties, coming from trust and confidence. Hence, this conclusion can be drawn for secondary lenders as well, as the proofs of vulnerability and confidentiality of the borrower are particularly evident.

The subprime borrower’s characteristics (described above) typically imply “a reposing of faith, confidence and trust” in brokers and lenders’ advices (and their

57 See in Hunt (2009), Restatement (Second) Of Torts 874 cmt. a (1979).


59 See Production Credit Ass’n v. Croft, 423 N.W.2d 544, 546 (Wis. Ct. App. 1988).


product information) to choose the mortgage they think it would better fit with their risk profile. This can explain also why the number of brokers acting as agents is so high respect to the prime mortgages market. The payment of different kinds of fees for the service and the costs of a customized product, plus information asymmetries – due to cognitive biases and borrowers’ inability to evaluate a complex financial products – determine a contractual relation that creates a fiduciary duty between brokers/lenders and the subprime borrower, investing her past, present and future savings (as a principal in an agency relation\(^{65}\)). This duty should influence brokers and lenders’ behaviour and their expectations, producing also a deterrence effect (Huang 2003). The contract often is incomplete for the high costs of specification and monitoring\(^{66}\), as both parties withhold private information. In effect, as explained above, on one side risky borrowers have no incentives to provide info more than needed to get a mortgage. On the other side, the absence of a general fiduciary duty for broker/lender does not necessarily imply any responsibility in case of breach in the provision of the mortgage\(^{67}\). The recognition of a fiduciary duty will represent the background of the policy responses addressed in section 5, plus a general duty of “fair dealing”\(^{68}\) against deceptive practices.

4.1 Brokers

Brokers represent the first ring of the chain, the agents who procure customers for originator lenders. They usually are “individuals or firms that bring borrowers and lenders together for the purpose of loan origination”\(^{69}\). In 2004 their number was over 53,000 firms (not clear the number of individuals), which had placed around 58% of all subprime mortgages (Apgar and Fishbein 2005). Ideally, the broker’s


\(^{67}\) The three typical breaches of fiduciary duty pursued by brokers/lenders in the subprime market consist in practices failing: to disclose loan terms; to disclose loan fees; and to provide best possible loan terms (Unseth, 1997).


function is to reduce the information gap between lenders and borrowers, who suffer the complexity of the financial product. Most of them, then, exploit their personal relationship with borrowers and the commercial relations with originators in that specific area, to bring parties together and close the deal. Therefore, brokers provide low-income borrowers with two services:

− Product information;

− Access to high-cost lending.

In this way, brokers are the only reliable source of information for those financial low-educated people, who usually accept their advices (Jackson 2002). For this and other reasons (see previous section), this relationship involves several circumstances that create a fiduciary duty for brokers towards borrowers.

On the market side, moreover, brokers face an aggressive competition on customers and not on mortgage terms, as the complexity and customisation of the product reduce ability to compare (and increase switching costs), thereby creating a “lock-in effect” for final customers. Then, the absence of regulation permits brokers to exploit their influential contractual power to charge high costs on borrowers or to push them accepting unfavourable loan terms. They actually exploit their contractual power with specific categories of borrowers that have no sufficient financial education to approach this market. In effect, brokers often have personal relationships with their customers and they follow every step of their financial decisions, due to their lack of financial literacy (Zywicki and Adamson 2008).

In the remuneration, independent brokers provide lenders with new customers in order to increase commercial relations that are based only on volumes. In effect, they are rewarded from borrowers with two fees. An origination fee, mainly for the access to new financing resources and advices they provide to them. The second fee, which is strongly debated, is the yield spread premium (YSP). This fee links its size to the final interest rate charged to the “irrational” borrower. For instance, if the market rate for a subprime loan (considering the borrower’s characteristics) is 9%, broker gets a higher fee for every basis point she succeeds to charge over the average rate. Since borrowers - as explained above - are originally less price-sensitive because their attention is almost exclusively focussed on getting the approval, brokers can easily led them to accept interest rates quite above the average. In this way, the YSP may undermine the risk-based pricing system, since there is no real evaluation of the ability to repay. The subprime meltdown showed how a gradual
detachment of borrower’s ability to repay from the primary risk assessment can harm in the long run the entire chain, from borrowers and lenders to final investors in the secondary market.

In addition, brokers make very low investments in their activity, so they are almost “without any skin in the game” (Gramlich 2007b). They do not bear any liability for missing repayment due to an inappropriate and distortive recommendation of the broker for a specific financial transaction. Hence, with a so large stake on the table and without any reputational mechanisms, brokers have “steered” borrowers (in particular “marginal borrowers”) towards higher-cost products even though they could apply for a more competitive loan. Frequently, brokers may also help borrowers “to fit” in the proprietary scoring systems and the underwriting requirements with unclear practices (Bitner 2008).

The moral hazard problem, described in a better way in the next section, arises because one party tries to exploit the informational advantage for its own profit. It is an informational problem related to the provision of an experience and credence good, as we see a mortgage. In addition, also an issue of adverse selection may emerge due this asymmetry of information over fees and the Yield Spread Premium. The brokers’ “pooling effect” in borrowers’ evaluation pushes the prevalence in the market of brokers who rely more on YSP remuneration and less on origination fees (“good” brokers?). For the peculiarities of subprime borrowers, in effect, a one-shot fee will impact more than the equivalent diluted in a higher interest rate. However, the increased use of the YSP would create more distortive incentives, as good borrowers will use YSP until the rate is suitable for borrowers. Hence, the “good” broker then would rely more on origination fees (higher price) and less on YSP fees, in which “steering” and “churning”70 practices may dominate the transaction, in order to increase the remuneration (“bad” brokers). Even though the YSP can still be a good tool if brokers are guided by reputational mechanisms (Duncan 2007), liability rules and supervisory systems for brokers, if they deviate from the right path, would increase costs, in particular to implement mechanisms of control on YSP. Then, the positive impact on adverse selection - created by the YSP – may not be relevant.

70 Churning is a legal term imported from securities regulation and defined by SEC as an “excessive buying and selling of securities in your account by your broker, for the purpose of generating commissions and without regard to your investment objectives”, http://www.sec.gov/answers/churning.htm. It was firstly judicially defined in Hecht v. Harris Upham & Co., 430 F.2 days 1202 (2nd Cir. 1970).
Several factors explain this market failure: the lack of any supervision by the market and institutions over the brokerage system; the scarce transparency on fees and YSP (as consumers are not really able to evaluate brokers’ behaviour); the bad structure of incentive (by the YSP); the absence of conduct of business rules (which favour “steering” and “churning” issues; Pacces 2000); the absence of any liability and any specific investment in brokers’ activity; few possibilities of “disintermediation”, as it would be extremely costly and not really feasible. Therefore, brokers represent almost the only mean for low-income borrowers to access the high-cost credit market.

4.2 Mortgage Originators

Mortgage originators (or simply originators) represent the connection point between the origination and the securitization process. Their role is to generate new loans and to sale them on the secondary market in order to fuel the entire market for RMBS, and increase it with the resources coming from the market. As explained above, the provision of experience (or credence) goods for low-income borrowers creates issues of moral hazard and adverse selection, due to information asymmetries. Subprime originators are basically small State-chartered companies without any reputational capital and low specific investments in the infrastructure. A majority of them, in addition, uses warehouse lenders to immediately get money for subprime lending. Important financial institutions in fact avoid entering this market for reputational concerns that these small companies do not have. In effect, the market apparently was aware of the riskiness coming from this specific area of credit markets. Subprime borrowers are usually out of the traditional credit market and bring with them greater risk of default than prime borrowers.

As described above, originators establish a (non “pure”) fiduciary relationship with borrowers who “invest” their future proceeds in complex and customised financial products like subprime mortgages. Originators, like brokers, therefore provide not only lending services but also advice services following and frequently inducing borrowers to make refinancing operations. They ought to furnish efficient advices to let borrowers consciously make investment decisions that better fit with their specific risk, taking into consideration their cognitive biases. Besides, in their customers’ risk evaluation, originators make use of automated underwriting systems (based on credit scores) that do not take into account the risk “relativity” and cognitive biases affecting in particular low-income borrowers. In the last years, many
Subprime lenders have developed a proprietary credit score system with automated underwriting systems that contributed to weaken the quality of risk evaluation. This underwriting system enhances the original adverse selection problem between borrower and lender that causes credit rationing, because it tends to standardize the estimation and the subsequent risk estimation. Hence, standardized access and risk/price evaluation create an obvious pooling effect for borrowers. Lenders’ assessment of the real risk will be further harmed, increasing artificially the interest rate and excluding low-risk borrowers from the market.

The presence of the secondary market for mortgage loans, due to the securitisation mechanisms, fostered moral hazard and volume-based incentives to originate, highlighting issues also on the supply-side. This problem affects price and quality of transactions. The striking divergence of interests between brokers, originators and loans packagers, and the two final users (borrowers on one side and investors on the other side of the chain), creates not enough incentives to report complete and accurate information needed to make good decisions, with harmful effects on decision makers and so for the social welfare (productive resources are wasted). Regarding quality, when users cannot easily monitor it, there is a tendency for originators to provide borrowers and investors with poor quality financial products and to put little effort, care or diligence in services (Milgrom and Roberts 1992). Once again both lenders and society are harmed. In this way, complexity and moral hazard may produce a harmful “rent-seeking” behaviour. Strong incentives to produce subprime loans prevail, spreading harmful behaviour in this credit market.

In effect, with a securitisation mechanism which allows the complete transfer of risk, lenders are exclusively interested in the origination of mortgages (volume-based incentives), while they do not care about quality as they can completely discharge risk selling loans to other lenders or directly to investors through securitised products (e.g. RMBS). There are weak mechanisms of monitoring since the lack of supervision and the complexity by external resources to evaluate the financial transaction.

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71 So far, we have exclusively focus on the demand side and the borrower’s aspects that determined a specific contractual design for subprime mortgages.

72 Some authors argue that in the end agency costs were not that large, as many agents (as big lenders and government agencies) retained substantial positions, as loan or securitised products, on their balance sheets; see Gary B. Gorton, “The Subprime Panic”, NBER Working Paper 14398, pp. 28-31 (October 2008) (available at www.nber.org/papers/w14398)
As already taken into account, the constant home price appreciation also favoured the sustainability of this harmful process. Lenders gambled on the value of the collateral, relaxing underwriting standards and relying on the “insurance effect” of the secondary market and the credit expansion (transferring risk and freeing new resources; Dell’Ariccia et al. 2008).

Although the development of the secondary market has had great benefits for mortgage-market participants, [...], in this episode the practice of selling mortgages to investors may have contributed to the weakening of underwriting standards. (Bernanke, 2007)

The secondary market and collateral (home value) have become reasons of excessive risk-taking behaviours, instead of tools to transfer risk without affecting the resilience of the whole infrastructure. Hence, it becomes rather irrelevant whether or not a borrower is able to repay her loan in the long run. The moral hazard issue fosters “steering” and “churning” practices (see footnote 3). Churning may be more frequently related to economically unjustified origination or refinancing operations. The better-informed lender churns her clients’ portfolios, encouraging them to refinance more often the financial transaction she advises (so called “loan flipping”; Engel and McCoy 2002). In this way, they increase the revenues due to fees over the new generated services, especially if lender succeeds to convince subprime borrowers to get in a mortgage with particularly unfavourable prepayment penalties (making distortive use of this relevant tool for information revelation).

The proliferation of fees in fact may be a highly impacting way to reduce lenders’ exposure, as these further costs may represent an alternative to higher interest rates and high costs of servicing subprime borrowers. However, this situation is particularly related to the presence/absence of competitive market conditions. Nevertheless, there are two rational reasons to consider efficient the proliferation of “separated” fees (instead of pooling them in the APR) when there are important moral hazard concerns (Bar-Gill 2008):

− Separating services prices allows a better tailoring of the product to borrowers’ preferences;

− Separating fees from interest rate help a shift towards a more efficient risk-based pricing approach and eliminate the systematic cross-subsidisation through supporting high delinquency and foreclosure costs with higher interest rate also for less risky borrowers.
It is extremely difficult for subprime borrowers to understand the APR value, when it completely internalise (in an “obscure” and ambiguous way) a long list of fees of which they are not able to evaluate the suitability (bounded rationality and rational ignorance). Pooling fees, therefore, implies higher interest rates that defer costs to the future, attracting riskier borrowers. In the credit market, contrarily, less risky borrowers are more sensitive to interest rates changes (Stiglitz and Weiss 1981) and fees pooling leads low-risk borrowers (the majority, relatively to the market) to partially entry the market. A “separating fees” scenario thus would reduce the interest rate and the amount of deferred costs to the future. This would imply higher down payment, without affecting the LTV ratio but only the interest rate (lower). Specific separated fees may avoid the uncertainty coming from higher deferred costs, inducing better screening of borrowers. The final result will be clearer transparency, which also determines conditions for more competitive markets, thereby allowing competitors to better compete on fees and conditions of the mortgage and not for new customers a such, in order to exploit their influent contractual power (due to informational gaps). Actually, competition focused on customers intensifies moral hazard, relaxing underwriting standards to permit a higher rate of origination.

In conclusion, the “insurance effect” of the secondary market for subprime mortgages (and related churning problem), the absence of reputational mechanisms and the informational asymmetries heavily impact on the originator’s contractual relations with borrowers (in the origination) and investors (when the loans are packaged and sold to the market). In addition, overreliance on ratings by final users also affected the infrastructure, as this phenomenon did not promote incentives to invest on internal mechanisms of due diligence (but it has been used as a substitute), which could be helpful to better understand the real quality of the assets pool (IOSCO 2008). Ergo, the subprime market undoubtedly needs regulatory and non-regulatory responses.

5. Some Responses: how does the policy-maker may shape the subprime market?

The fast and huge growth of the subprime market has shown, as often happens with new deregulated markets, a clear-cut need of some kind of intervention. The imperfectly informed decision-makers and conflicting interests between participants have created distorted incentives and following incompleteness of contracts. The
market failure of cooperative relations may set up a case for regulatory intervention (Ogus 2004), “debiasing through law” (Jolls and Sunstein 2005).

*Authority arises from the technological and social limitations of cooperative systems on the one hand, and of individuals on the other.*  

The insufficient number of marginal consumers able to “shop around”, thereby correcting the market (Schwartz and Wilde 1978; Hynes and Posner 2001), may call for a more paternalistic intervention over market participants, but respecting the freedom of choice (Sunstein and Thaler 2003)\(^{73}\). The original attempt by the most informed party to exploit private information undeniably undermines this market for subprime mortgages. The implicit systemic risk - triggered by its financial instability - needs clear policy responses.

Nevertheless, the authoritative intervention will inexorably impose losses on some individuals, but there is a good chance that the intervention will be Kaldor-Hicks efficient (aggregate losses lower than aggregate gains; Ogus 2004). The intervention thus should take into consideration risks of overregulation and costs borne by lenders, brokers and society to avoid the inefficient credit rationing. It should be also considered risks of a *soft regulation* approach, since cognitive biases affect also regulators with also risks of excessive paternalism (Avgouleas 2006).

The next paragraphs therefore will describe three kinds of interventions. First of all, a regulatory intervention based on conduct of business rules (coming from the recognition of a fiduciary relationship\(^{74}\)) as, for instance, mandatory disclosure (reduction of complexity) and suitability test. Secondly, an intervention to establish reputational mechanisms and self-regulation processes. Last but not the least, it is needed an extension of the supervision to State-chartered companies, for macroeconomic and financial stability concerns.

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\(^{74}\) See Avgouleas (2000).
5.1 Regulatory Intervention: looking beyond the crisis

As we largely discussed above, the costs for subprime consumers to acquire sufficient information in order to fill their informational gap about the services received from the originators affects the efficient decision-making process. This problem thus does not shield parties from classical informational issues as moral hazard and adverse selection. Third-party externalities, market power and bounded rationality do the rest (Hermalin et al. 2007). Informational problems have the big responsibility to prevent markets from achieving a first-best solution. An efficient regulation of the subprime market may definitely increase the social welfare. In effect, market forces are not able or have not enough incentives to positively address bounded rationality problems with a structure of incentives able to deter the exploitation of borrowers’ weaknesses from other market participants.

Furthermore, it is essential to intervene, taking into consideration the limited role of alternative solutions (credit card, personal loans, etc) to foster product competition between originators and other financial entities.

Every regulatory intervention involves public and private interests. Concerning with public interests, regulation may reduce information asymmetries between borrowers and brokers/originators, and between originators and investors in the secondary market, due to the characteristics of experience and credence good of subprime mortgages. Regulation may also reduce the level of negative externalities created by the misallocation of resources, which may harm the whole society. In fact, subprime borrowers may be steered to get in a mortgage that they are not able to repay, thereby triggering socially and economically expensive procedures, as foreclosures and bankruptcies that contribute to spread negative externalities on entire neighbourhoods and areas. The availability of “safe” credit for low-income borrowers may improve their wealth accumulation and, in this way, the society’s wealth (indirectly performing also distributional motives, typically charged on market forces\(^75\)).

\(^75\) It is a consolidated thought in Law and Economics that legal rules should not directly pursue distributive target, which is a goal of the tax system; see Louis Kaplow and Steven Shavell, “Why the Legal System is Less Efficient Than the Income Tax in Redistributing Income”, *Journal of Legal Studies* 23, pp. 667-81, 1994; famous example is the Italian case of the “equo canone”; legal rules fixed the price for renting a house, fostering as result the black market for house renting; see Ireneus L. and M. Van Hees, “The Italian Housing Market: Its Failures and Their Causes”, *Urban Studies Journal*, Vol. 28, No. 1, pp. 15-39, 1991.
About private interests, a regulatory intervention can weaken incentives to adopt harmful rent-seeking practices by brokers and originators, as result of the exploitation of their contractual power (and informational advantage). Therefore, they may regularly compete on the product and improve their margins. This likely outcome may finally reduce adverse selection and moral hazard coming from the complete transfer of the risk thanks to the secondary market for securitisation. Hence, the regulatory responses that are going to be described should promote an efficient risk-based scoring system, and promote best practices by players with “good” intentions. Mandatory disclosure requirements and simplification; a suitability test; and liability or mechanisms of retention will be the relevant responses. At consumer protection level, instead, the problems above are less strong, as large categories of consumers are protected, especially in Europe, in the access to credit by rules, with lower impact for their irrational behaviours or lenders’ malpractices. Finally, the primary need of homeownership guarantees a stable and secure flow of assets for RMBS issues, improving market efficiency and liquidity. The market is gradually starting again.

5.1.1 Mandatory Disclosure

One important regulatory tool to reduce the informational gap affecting borrower-broker-lender-investor relationship is a system of mandatory disclosure that helps to simplify the flow of information and to disclose hidden costs in a way that can help borrowers to have a clear understanding of the financial transaction. Disclosure may avoid some market failures, contributes to promote allocative efficiency and competition (new entrants may easily deliver their better price), and reduces the principal-agent conflict (Beales et al. 1981). High costs for borrowers of understanding or getting enough information, in order to efficiently support their financial decisions, cognitive biases and deceiving practices may lead subprime borrowers to promise to repay a mortgage that actually they cannot pay back.

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76 The Title I of the new US Mortgage Reform requires timely and complete disclosure of: 1. Comparative costs and benefits of each residential mortgage loan; 2. Costs of services provided by the originator [...] 3. Conflict of interests between originator and borrower. In addition, it also foresees, before settlement, the disclosure of the level of protection of anti-deficiency laws for borrowers, in order to understand what happens if they are not protected by State laws and they get foreclosed. Finally, It prohibits the use of balloon payments. See, House of Representatives, H.R. 1728, Mortgage Reform and Anti-Predatory Lending Act, May 2009, Title I, Sec. 102, Title II, Sec. 206(c) and Title III, Sec. 302(b).

77 Marginal costs of getting information may be higher than marginal costs of new credit.
Rational and irrational reasons, as showed above, affect borrowers’ choices. The mandatory disclosure may be a way to give to borrowers “enough” information to choose and to stimulate their “rational spirit”, fostering their ability to “shop around”.

_If those able to understand APR have “shopped around” to find the most favourable rate, some suppliers will have been forced to lower their charges, and the welfare gain might well have been sufficient to justify the cost of the disclosure system._

(Ogus 2004, p. 130)

At this point, what is “enough” for a subprime borrower becomes the crucial point. What does the crisis explain us is that the price disclosure is not sufficient to make borrowers completely aware of the consequences on her risk profile. Brokers and lenders have intentionally hidden fees and other costs in the APR or servicing costs. Therefore, it is surely not “enough” the disclosure of the APR that is an interest rate including points paid on the loan, any fees paid to the lender for making the loan, and any mortgage insurance premiums lenders would request borrower to pay (Federal Reserve System 2006). Prepayment penalties - frequently used in the subprime market and charged to borrowers who want to refinance or pay back a mortgage before the end -, late fees, returned check fees, title fees, taxes, license fees, appraisal fees and credit report fees are only some of the costs that are not by law included in the APR (McDonald and Thornton 2008). For instance, it is extremely complex for borrowers to calculate the size of the penalty from a formula and to evaluate the opportunity to move on another mortgage solution. Finally, the current APR disclosure, especially for ARMs, does not involve any disclosure of the trend of interest rates, monthly payments changes or estimations of houses prices variations\(^7\). This been said, a mere disclosure of APR and monthly payments may be not enough or even misleading. For instance, two mortgages can have the same APR but borrowers do not know the distribution and the real amount of the fees (or they have not so easily to calculate them) to permit comparisons of the mortgage costs and to foster a competitive environment.

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\(^7\) The new final rules on Regulation Z modifying the Truth in Lending Act (Federal Reserve System 2008) consider few modifications of APR disclosure and still the stricter regulation of HOEPA on disclosure have a limited range of action; see Home Ownership and Equity Protection Act of 1994, amending TILA by adding Section 129 of TILA, 15 U.S.C. § 1639 and implemented by Regulation Z, 12 C.F.R. §§ 226.31 and 226.32.
However, concerns may also arise from solutions as putting every fee in an all-inclusive rate (actually hiding them), which can be easier to understand but does not allow judging correctly the risk and the effective choice\(^79\), plus it does not give enough incentives to lenders to invest in pre-contractual services and to give more than legally binding information. Therefore, there could be space to provide information in a misleading way inducing subprime borrowers to get in a high-risk financial product and increasing the opportunities of predatory practices. With this solution, brokers’ fees are not clearly disclosed as well and it is usually the borrower asking brokers the amount included in the APR, in order to compare it with other offers. Borrowers frequently have also to ask which kind of rate is applied (fixed or adjustable or hybrid solutions) and the amortisation of the mortgage with each solution.

Price transparency may be harmful in an oligopolistic context with homogeneous products (Motta 2004): as described above, the market for low-income borrowers is basically the opposite, as the risk cannot be made homogenous. Therefore, a clear price transparency would be beneficial for the market in terms of competition and consumer protection. Hence, a clear disclosure of all the fees (servicing costs of the mortgage) ex ante and an optional mechanism to dilute fees in the monthly payments or pay them in the down payment can be sufficient to make the product more understandable and to create conditions for a more competitive subprime market, as the number of lenders and brokers is already high but segmented per area. In addition, limiting the impact of the bounded rationality through the customisation of the information delivered to borrowers who are going to choose a specific mortgage solution would be an efficient and long run solution (Avgouleas 2006).

In conclusion, even though good disclosure requirements are essential, regulators should not forget the risk of too high compliance costs and the following inefficient credit rationing or higher entry barriers for new competitors. An overflow of information for borrowers, moreover, may overwhelm borrowers’ cognitive abilities and cause them to ignore it (Beales et al. 1981). For instance, the disclosure of insurance premia (PMI) may improve competitive conditions in the market for private insurance, and stimulate efficient market forces. Moreover, better disclosure may signal the quality of the risk assessment, creating reputational incentives.

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5.1.2 Suitability Requirements: an “elegant” way out to lenders’ opportunism

The limited consumer’s ability to monitor and to understand the quality of the financial product may give incentives to lenders’ malpractices. There is an undeniable need for promoting the convergence of parties’ objectives, aligning interests of lenders with borrowers’ preferences (and avoiding lender’s opportunism). Therefore, there is a duty on lenders to analyze their customers’ financial needs and risk profile (appropriateness), so to assess the suitability of the financial offer. The duty of suitability rejects the prevailing paradi
gma of caveat emptor and forces these providers [lenders] to internalize the harm that they cause when they exploit information asymmetries to the detriment of customers. (Engel and McCoy 2002, p.1334)

The fiduciary duty between brokers/originators and borrowers and the shingle theory definitely implies a general clause of fair dealing. Consequently, in securities regulation, there is an implicit duty to make an adequate investigation of investors’ suitability that involves a professional knowledge (“Know the security”) and a specific “Know your customer” obligation (Hazen 2006). Therefore, there are basically three reasons to extend this duty to this high-risk credit market:

1. Conflict of interests between broker and lender (brokers are often on lenders’ payroll);
2. Cognitive biases that affect the borrower’s choice (the suitability requirement can lead lenders to assure an optimal framing of decisions);

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80 Against the extension of suitability requirements to the subprime mortgages market for the higher subjectivity injected in the risk-assessment process, see Duncan (2007); Mortgage Bankers Association, “Suitability, Don’t Turn Back the Clock on Fair Lending and Homeownership Gains”, Policy Paper Series 2007-1, www.mbaa.org.

81 See Note 47.


83 US Courts consider “unsuitable” an investment if it is incompatible with the investor’s objectives and if the broker recommended it, even though she knew or reasonably believed that the investment was inappropriate; see Kreenan v. D.H. Blair & Co., 838 F. Supp. 82, 87 (S.D.N.Y. 1993).
3. Lender and broker’s opportunism as their actions rely on incentives based on volumes (due to securitisation)\textsuperscript{84}.

The subprime borrower, as examined above, is an unusual borrower who is not totally able to assess its risk profile and the suitability of its financial choice. The exercise of the freedom of choice is clearly affected by information asymmetries and cognitive biases.

The suitability test, then, is a way to internalize the harm and to support the public interest arguments, as defined above. It was originally taken from the anti-fraud rules and it implies that the provision of loans and advices should be related to the customer’s risk profile (Hazen 2006). This is an essential step to cure moral hazard, solve the problem of the incentive compatibility constraint, and promote responsible lending. Once defined guidelines for the suitability test, violations would be more easily proved and lenders will be pushed to comply with their obligations. This test may avoid unnecessary price regulation and its negative aspect of limiting the freedom of action of market forces (Silverman 2005).

Unclear definition of suitability may promote a decline in legitimate subprime lending and credit rationing. Suitability means to assure that the provided product is a “good product”, coming from a “good loan process”. Therefore, the suitability requirement should be based on guidelines and best practices (self-regulation, etc) checked by supervisory authorities with the same mechanisms already efficaciously working for banks. In securities regulation, a self-regulatory organisation (SRO) as the National Association of Securities Dealers (NASD), in 1939 firstly defined the suitability doctrine and still nowadays these SROs (NASD, NYSE, etc) provide a precious framework of rules to efficiently enact the suitability test (Poser 2001). The application of a suitability test is also implemented in Europe, thanks to the MiFID Directive\textsuperscript{85}.

However suitability may imply different meanings and should not be only based on credit scores. The suitability requirement implicitly assumes the use of standard,  

\textsuperscript{84} The suitability rule was originally defined in USA as an antifraud device (violation of the Rule 10b-5 under section 10(b) SEC Act 1934, 17 C.F.R. § 240.10b-5, 2001). See Clark v. John Lamula Investors, Inc., 583 F.2d 594 (2d Cir. 1978). In EU, instead, the suitability rule was basically born as a rule to widely protect investors confidence and to foster market integrity; see MiFID/UCITS Conduct of Business Regime, Art. 19, n. 4 CE Directive 2004/39 and Art. 35-37 CE Directive 2006/73; Moloney (2002 and 2005).

instead of specific rules (risk of regulatory arbitrage; Engel and McCoy 2002). The flexibility of standards permits tailoring requirements around the abuses they want to fight (and where frequently rules fail). Then, they allow clearer understanding of brokers and lenders’ recommendations (Sunstein 1995). The standard should be focused on the process and should not exclusively consider the product provided. The test should be mandated and designed around three aspects that should be taken into account in the assessment of the product suitability with the borrower’s risk profile:

1. Ability to repay (affordability);

2. Product designed in borrowers’ best interest, with the presence of net tangible benefits (appropriateness; after the borrower’s legal declaration of the aim of its purchase); and

3. Consumer’s understanding and absence of predatory practices.

The combination of these three aspects may give “suitability” to the transaction. If not suitable, instead, the financial firm should not sell the product or it should be held liable towards third parties in case the default or missed payments would affect the stability of the bank (EU COM 2009). This strict liability should only partially reward borrowers (e.g. modification of the loan, refinancing, etc), in order to avoid moving all the burden of the decision and responsibility on the other party.

Nevertheless, both parties have private information and the risk of over-litigation on what is “suitable” is always there (Putney 2003). A suitability requirement thus ought to be modelled as a “partial warranty”, as used in consumers’ regulation. This system in fact is efficient only when the two parties retain private information and they are reluctant to exchange it (Priest 1981 and Parisi 2004). Hence, the suitability coverage should be excluded when borrowers have “voluntarily and explicitly” retained information at the signing of the subprime mortgage contract, if the information was considered “sensible” to efficiently assess their risk profile and to provide a financial solution that would suitably fit with their characteristics (incentive to responsible borrowing). They would lose the benefits of a suitability

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87 As should be defined by the Federal Banking Agency (US Mortgage Reform, Title II, Sec. 202).
test. Exchanging private information (suitability coverage in exchange of relevant information on risk) will increase protection from moral hazard. This protection comes from the possibility that subprime borrowers would prefer to lose the suitability coverage in order to get a lower interest rate, if they do not reveal relevant information. However, lenders are always induced to follow the suitability requirements in the supply of credit for subprime borrowers, because they do not know if the other party reveals all the relevant private information (voluntarily or involuntarily). It is possible, finally, to indicate with the suitability requirements a set of events that may worsen borrower’s financial conditions, in order to support her if in trouble with the mortgage (as an example of best practice; e.g. serious health problems). The function of the “voluntary retention” of private information is important because it permits to exclude lenders’ malpractices and then the use of the opportunistic defence in relation to information in their view kept secret by borrowers. For instance, the transaction is unsuitable when lender gives money with much higher monthly payments after some years to a low-income borrower only on the basis of a variable income (seasonal salary), with non-stable job and no assets (unjustifiably relying on future proceeds as excuse, because the lender is perhaps going to sell the mortgage). As result of an optimistic bias, borrowers will tend to see their own salary increasing in future periods, but in reality there is a high risk of default, so the process of origination may not be suitable. The lender, however, could come out saying that the borrower kept secret information about her health problems that have determined the default. In this case, the borrower may have involuntarily missed to give information because she did not know of this problem or it was not clear the gravity when she signed the contract. Therefore, the lender should not escape her suitability judgment and the borrower would still get a help to modify the mortgage in a sustainable way, if it is not too late!

This solution is not a first-best because this partial warranty model does not prevent from kicking out of the market the extremely high-risk borrowers, who ask for a loan also if they have higher probability of default and keep secret some private information. Hence, the suitability requirements with good guidelines and best practices will only partially fill the gap in the risk assessment of subprime low-income borrowers. In addition, the irrational behaviour of the borrower - when she has to face two losses (risk seeking) - helps to reject the incentives given by the partial warranty model solution. In fact, the borrower would seek risk when she has to choose between mortgage rejection and mortgage retaining information. By contrast, the partial warranty model seems to give the right incentives to the
majority of subprime borrowers who see a very good deal in the exchange of private information for suitability coverage.

An execution-only option (to opt out) for specific categories of borrowers (sophisticated) or financial products (low amounts) could be cost-efficient. For instance, sophisticated borrowers would explicitly choose a riskier mortgage and they would avoid suitability tests, relying on their own ability and investments in risk management. It is a rule already existing in the EC securities regulation, so called execution-only clause\textsuperscript{88}.

In conclusion, critics are mainly focus on the uncertainty of this system of risk assessment (which increases subjectivity) and the related risks of credit rationing for the high costs of compliance (Duncan 2007). Competition can solve these problems but misleading incentives affecting the subprime lending structure call for correctives. The law should respect the positions of the various parties, based on the assumption that everyone will attempt to maximize own profits (Putney 2003). In effect, the utility maximization theory is the cornerstone of the capitalism from decades, but the lessons of the crisis show how this theory falls down when bounded rationality and rational ignorance move humans’ behaviours. It is probably time to rethink some aspects of the capitalism, firstly moving from banking regulation.

\textbf{5.1.3 Other responses: legal rules and retention mechanisms}

There are other regulatory responses that the legislator should enact and others that could be not suitable in a Law and Economics perspective. Rules are particularly needed to forbid specific predatory practices that may affect the subprime market, namely, for example, “loan flipping”\textsuperscript{89} and “steering”.

First of all, as we described above, the cost of default are crucial to give the right incentives with moral hazard issues. As showed, these costs can be very low in the US market for subprime mortgages, not only for regulatory gaps but also for the of low-income borrowers behaviours (e.g. risk-seeking when facing two losses). We can compare default costs to default rules, slanted in favour of the less informed party


\textsuperscript{89} Practice in which a lender persuades the homeowner to refinance their mortgages repeatedly and in short intervals; see Engel K. C. and P. A. McCoy, “A Tale of Three Markets: The L&E of Predatory Lending”, Texas Law Review, Vol. 80, No. 6, May 2002, p. 1263.
that, in a post-contractual phase, is the lender. In general, default rules should reduce transaction costs because they prevent the costs of contracting around the possibility of opportunistic behaviours by the other party (borrowers), so leading to inefficient results (Goetz and Scott 1985). Default rules actually would reduce the distorting framing effect that leads loss aversion, as described above (borrower’s choice to default; Choi and Pritchard 2003). In effect, if disclosure and suitability requirements work well in a pre-contractual environment, where the lender is the most informed party, costs of default should work as default rules in the post-contractual context, thereby avoiding borrowers’ opportunism. These rules are essential for the efficiency of the subprime market also because borrowers are less willing to contract around default rules for a status quo bias affecting their behaviour (Korobkin 1998; Jolls et al. in Sunstein 2000). Therefore, an approach that could be efficient in the subprime market may be the use of default rules as a tool to encourage parties with more information to reveal their type before the transaction and to fill the gap within incomplete contracts (Ayres and Gertner 1989). This situation should reduce the impact of the adverse selection and moral hazard, typical effects of penalty default rules (a separating effect due to reduced incentives to be opportunist). A too high level of default costs, conversely, would induce also non-opportunistic borrowers to avoid the credit transaction, especially in subprime market where the risk is already high for every borrower. Therefore, a mix of penalty default rules (slanted against borrowers; e.g. high costs of default and partial warranty model) and regulatory requirements (e.g. disclosure and suitability requirements) may efficiently address major issues in the subprime market for residential mortgages.

A complementary tool to the suitability test, analyzed above, is the assignee liability that may hold the buyer of the mortgage liable on the secondary market for legal violations made in the origination of the loan (Peterson 2007). It is efficient only when the most directly involved parties (originators) are already charged with duties helping the accountability of the transaction (as a suitability rule)\textsuperscript{90}. This liability indirectly increases the scrutiny by loans’ packagers of the pure activity of origination, as professional party able to execute a first screening on the product before being securitised. This tool may also help to reduce churning and predatory practices by originators, which are going to push on volumes if they do not have

\textsuperscript{90} It is a rule already present in the narrow segment of the credit market (HOEPA loans) with a stricter discipline; see note 1.
“skin in the game” after selling them. Indirect involvement in the origination of loans will also give better incentives for loans’ packagers, which will buy loans after a scrupulous scrutiny of the assets quality. In addition, filtering out from the loans pool predatory loans is not extremely loved by financial markets (Engel and McCoy 2007) because it is costly and it reduces the volume of transactions and related profitability. It may also reduce the amount of resources in the credit market but the benefits of a better screening on mortgages origination should be not disregarded. Finally, it is clearly a borrower protection measure (Ernst 2008) and it would be hard to enforce it, namely to define when investors did all in their ability to recognize and to remove predatory mortgages. For these reasons, this legal protection should be carefully used and does not represent a very efficient solution.

Furthermore, a fee based on loan performance (using broker’s historical data or average in the market) and proportionate to the riskiness of the transaction could be an efficient tool to provide right incentives to help convergence of participants’ objectives. In particular, brokers may currently get from lenders a fee linked to the generated volumes of high-cost loans, favouring the use of steering practices (e.g. Yield Spread Premium). Therefore, the tool just mentioned may be a powerful incentive for brokers to care about the quality of the product proposed to the borrower and to make a first screening on consumers’ ability to repay and suitability, in general. There should be a deeper analysis to reconsider performance fees from lenders, who often are victims of the originated loans. The cost of a performance fees in term of enforcement are really low. The only risk may be brokers unjustifiably limiting access to the market for specific borrowers. However, also in this case, well-defined rules (limiting brokers’ liability) can permit brokers to give access to the subprime credit market also to those low-income borrowers.

Nevertheless, the securitization process moves the risk of bad performance on final investors; a better redistribution of the risk along the financial structure would improve the risk-based assessment and thus the quality of the financial products. Mechanisms of retention of loans or securitised products respectively by originators and issuers may redress economic incentives in a better way\footnote{A mechanism of loans retention (to 5% and only non-qualified loans) by originators have already been considered by the US regulator in the new mortgage reform; see US Mortgage Reform, Title II, Sec. 213. Instead, a mechanism of retention by the issuer of securitised products is under discussion in the Basel Committee and the proposed retention percentage is also the 5%. See, in general, on retention mechanisms in securitisation, Fender and Mitchell (2009).}. However, it is crucial the choice of a percentage of retained products that does not discourage financial
institutions to provide markets with these important tools. Splitting the stake in different tranches of risk may help to make the retention more attractive and effective. Finally, we may consider using a flexible percentage that moves in a certain range and then allowing participants to disclose it to the public. The disclosure of the retention percentage may trigger reputational mechanisms that may finally help to redress incentives in the best way.

In conclusion, a licensing system to keep under control the quality of the provision of high-risk products may only become a barrier to market entry. It is a tough solution for a function that competition between players on the specific terms may perform better. The subprime market can achieve an efficient and competitive market without this mechanism. The classical justification for a strict licensing system is the information asymmetries and the elimination of adverse selection fixing not the price but the quality of the product. A quality-fixing mechanism, as for price-fixing mechanisms, is not a preferable solution if the market competition may do it in a better way. Moreover, this solution is also more costly for consumers who have to face already a very expensive market.

5.1.3.1 Interest rate ceilings: a “pro-usury” law

Usury laws including interest rate ceilings - frequently used in past years - are a tough and old-fashioned solution to remove predatory lending. This is a form of price regulation currently enacted by few States between the most advanced ones. Mainly used in the regulation of telecommunications and energy markets, a price cap gives powerful incentives to reduce firm costs and to fix a second-best price\(^{92}\) below a certain level. In the banking industry this price-risk cap (with price floor effects) is an easy way to apparently fight usury, but what about costs? It determines two main consequences: credit rationing and unsatisfied demand (product substitution). The credit rationing limits the access to the credit market for high-risk debtors\(^{93}\), precluding, as for the Italian credit market case\(^{94}\), the presence of an

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efficient and developed market for high-risk borrowers (e.g. a subprime market). It leaves out of the market the higher-risk debtors who are rationally induced, especially in case of primary necessities, to access the usury market. Instead, the existence of a legal market for high-risk borrowers, as the subprime market, permits a real contrast to the usury because it proposes to these people a valid, cheaper and safe alternative. Only competition on interest rates and more flexibility, in a context of legal certainty of the property rights, can beat the usury indeed.\footnote{See Giovanni Carosio, “Prevenzione dell’usura ed evoluzione dei mercati creditizi” (Usury Preemption and Evolution of Credit Markets), \textit{speech at the 2nd Justice Commission}, Italian Senate, Rome, 27 March 2007.}

Furthermore, there is another effect that it may be defined as a “behavioural effect” (as irrational aspect) and affecting high-risk borrowers. In the presence of an interest rate ceiling high-risk borrowers face two losses: the impossibility to receive credit from the legal market and to satisfy their needs (frequently primary needs, as the first home purchase); and the losses coming from the risk of accessing an illegal market where they may suffer unsustainable interest rates and violent mechanisms of enforcement. This choice brings borrowers to move on the riskier solution to absolve to their needs (the usury market). Therefore, the price sensitivity to interest rates changes (Stiglitz and Weiss 1981) and the “risk-seeking effect” fosters illegal usury markets. In addition, the use of ceilings may induce those borrowers to substitute high-cost mortgages with alternative loans because the basis on which to calculate the interest rate ceilings is typically higher (credit cards, personal loans, etc). In Italy, in particular, the difference in the interest rate ceilings between different types of credit instruments brought high-risk borrowers to make massive use of alternative tools, mainly offered by players different from banks.\footnote{From the approval of the law n. 108 of 1996 (putting an interest rate ceiling), the role of the alternative sources substantially increased to cover today a relevant role in the Italian credit market, see Bank of Italy, \textit{Annual Report 2007}, May 31st, 2008, \url{http://www.bancaditalia.it/pubblicazioni/relann/rel07/internal&action=_setlanguage.action?LANGUAGE=en}. The final outcome thus may also hamper financial stability. Usury laws so are easy to circumvent in the modern economy; it would be a more powerful incentive increasing default costs to inhibit bad behaviours as alternative solution (Hynes and Posner 2001). As conclusion, regulators should not forbid lending to high-risk borrowers but they should work more to impede improper behaviours and...
malpractices that artificially increase the risk in the market, over a sustainable level (interest rates, as prices, are not the problem!). The artificial alteration of the efficient functioning of credit markets (higher risk), as for cartels in competition law, should push legislators to impede these behaviours that artificially shape the market and do not regulate prices. Regulating prices would definitively hamper competition, especially in a market that structurally has oligopolistic characteristics, as few players, heterogeneous and customized products and, especially for high-risky markets, reduced borrowers’ sensitivity to interest rates. Removing the access to wealth accumulation tools for low-income people may have large negative externalities. Consequently, from a public interest view, interest rate ceilings forbid the access to a segment of the population, compromising a relevant tool for total wealth accumulation and increasing the social losses related to the use of illegal or alternative and costly lending sources.

5.2 Reputational mechanisms and supervision

Reputational mechanisms and stronger supervision are other two relevant tools to promote an efficient market for subprime mortgages, through solving moral hazard and adverse selection problems.

Firstly, the presence of players with reputational concerns consequently reduces the probability of bad practices. Representative subprime lenders are usually small State-chartered financial companies that do not have any reputational capital in the subprime market. Subprime borrowers are usually disconnected from traditional credit markets and experience greater risk of default. Banks are reluctant to originate subprime loans because their involvement in a riskier market would be particularly negative for their reputation in the credit industry and it may affect parts of their business built on reputational capital (e.g. investment services, etc). Therefore, the “dirty” job made by those small companies is mainly due to the refusal for reputational concerns by big banks. Moreover, the reputational problems of banks may create a prisoner’s dilemma. For instance, it is hard to find a bank making the “first move” to entry a particularly poor neighbourhood where borrowers would be mainly high-risk. Conversely, the presence of reputational concerns for banks does not mean that subprime lenders should not have reputational capital at all in that market. Developing reputational capital in high-risk markets is a mechanism to reduce strong incentives to pursue malpractices (due to the large stake on the table), moral hazard and adverse selection problems. As mentioned above, flexible
mechanisms of retention with disclosure of retained percentages may create the need for reputational capital, as long as the mechanisms are efficiently designed. Then, it is also important to foster self-regulation mechanisms and best practices that may help consumers to choose between many lenders (e.g. the obligation to have an ethical code). This situation may support also the development of a market suitability test. Stimulation of comparability and the ability to shop around increases competition and its positive aspects. Finally, the role of the education can be useful to increase knowledge of financial terms offered by subprime lenders and obviously to understand the risk of choosing lenders without any reputational capital (codes, best practices, etc). Community Based Organizations (CBOs), in the US, perform a great function in services and advices to improve borrowers’ financial education and their presence should be promoted even more especially in poor communities.

Secondly, if banks and their subsidiaries have strong supervision on normal banking activities, the large category of subprime lenders (around 60% of all lenders; Gramlich 2007b) is largely gone unsupervised. Non-depository State-chartered institutions play a pivotal role in the subprime mortgages market but they are only supervised by State financial agencies (no Federal supervision at all, neither from the Federal Reserve). With its important role, supervision may detect lenders’ malpractices and reduce the artificial risk in this credit market, preserving market integrity. It may also act to control the evolution of market conditions, assuring an efficient and smooth functioning of market mechanisms. In addition, non-depository institutions do not face stringent capital requirements or license laws. This situation does not imply that private financial institutions should be supervised like large depository institutions, as banks are, but a minimum role by third-party supervision is essential to improve the monitoring of moral hazard and to shield the system from systemic risks. In addition, supervision may help enforcing guidelines and best practices to support an efficient implementation of the suitability test. A stronger supervision would have also a moral suasion effect, further reducing the risk of lenders’ malpractices.

Finally, information sharing between lenders and supervisors may improve the quality of risk assessment and supervision. Exchanging information about

borrowers’ risk in fact may reduce moral hazard and adverse selection as widely discussed.

6. Conclusions

This paper tries to make a deep analysis of the subprime market and its failures with the use of some tools used by the behavioural Law and Economics in different fields, from competition law to financial regulation. The aim was to subjugate the interdisciplinary method to the research of straightforward policy responses to the failures in the subprime market. Therefore, the work has been split in four parts. The first part has described how the subprime market is structured, focusing on how the market works and how the financial structure absolves to the function to spread the risk in the market in order to get new resources to expand the availability of credit. We analysed the structure of the market and relevant characteristics of the typical subprime mortgage and its market. Secondly, the analysis touches upon borrowers’ behaviours and how rational and irrational aspects shape them. The behavioural Law and Economics gives astute insights on human behaviour in order to understand how to tackle relevant issues, not clearly understood in the classic field of Law and Economics. Thirdly, we have carefully described the incentive structure that affects brokers and lenders and then their customers. This financial structure promotes highly distortive incentives. The informational gap between parties then feeds moral hazard and adverse selection problems. In the last section of the paper, we put together the whole analysis made in the first three parts in order to address policy responses and explain their economic and legal justifications. We measure these responses on their ability to give the right incentives to reduce moral hazard and adverse selection, which are dominant problems. We model the responses in four areas:

1. Mandatory disclosure requirements and simplification;
2. Suitability test and “optional warranty”;
3. Assignee liability or retention mechanisms; and
4. Reputational mechanisms and stronger supervision.

We concluded that an efficient solution could be the mixed action of: stricter and wider mandatory disclosure (with separated disclosure of servicing fees), suitability test with optional features, retention mechanisms with flexible percentages
(disclosed), stronger supervision for subprime originators and promotion of self-regulated actions (e.g. code of ethics). This framework of interventions is based on a joint system of public (e.g. settlements or fines) and private enforcement solutions as, for instance, the proposed solutions for responsible lending and borrowing in the suitability test. Without an efficient enforcement system, the management of a risky market as the one for subprime mortgages can be out of control. We may conclude that the absence of regulation and supervision, and the presence of cognitive biases and misleading incentives have shaped the US subprime mortgages market and caused these failures along the chain, from the origination process to the sale of securitised products.

The analogy of subprime mortgages with experience and credence goods implies a distinct approach from the classical literature on credit markets. The aim of this paper is to shed new lights on credit markets and to propose responses to their failures. The policy and regulatory responses promote competition and reduce participants’ opportunism stimulated by the complex nature of the offered products. The securities regulation has given precious tools to thwart opportunistic behaviours and to improve the risk management. The final conclusion thus is not to ban the subprime market. Its idiosyncratic characteristics need, however, to be addressed with specific responses that may finally create an efficient structure of incentives. The whole financial system should learn from the lessons drawn by the recent financial crisis and understand how can be challenging the sophistication of modern financial markets. Regulators across world should work to design interventions more focussed on incentives and behaviours and less on products and market structure as such – more easily subject to be legally and strategically circumvented - if they do not want to experience another collapse like the one is shaking this intricate global economy.

As showed above, for example, public enforcement tools like social norms or considerations of fairness are not so effective in the subprime market, as they are respectively affected by loss aversion and lessening in “credit morality”, plus other cognitive biases as the self-serving one.

The public enforcement is extremely expensive but if it is particularly effective, like in US, it “could be run by public-regarding policymakers and can invoke sharp, criminal, financial and reputational penalties that deter egregious wrongdoing”, see Howell E. Jackson & Mark J. Roe, “Public and Private Enforcement of Securities Laws: Resource-Based Evidence”, June 3, 2008, www.ssrn.com; in addition, the effectiveness of the enforcement is quite different between States and, with the wide diffusion of the class action, the US experience correctly mixes public and private enforcement, solid characteristic of common law countries, see John C. Coffee, Jr, “ Law and the Market: The Impact of Enforcement”, Center for Law and Economics Studies, Columbia University School of Law, WP No. 304, April 4, 2007.


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