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Assessment of the consequences of the introduction of a minimal collateral requirement in the Belgian mortgage credit market based on a social justice perspective.

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Table of abbreviation

ASBL : *Association sans but lucratif*

BIS : Bank for International Settlements

BRRRD : Bank Recovery and Resolution Directive

BNB : Belgian National Bank

CAD : Capital Adequacy Directive

CDE : *Code de droit économique*

CRR : Capital Requirement Regulation

CRR IV : Capital Requirement Directive

DGSD : Deposit Guarantees Schemes Directive

EBA : European Banking Authority

EIOPA : European Insurance and Occupational Pensions Authority

ESA's : European Supervisory Authority

ESMA : European Securities and Market Authority

FATF : Financial Action Task Force

FLFNW *: Fonds du Logement des Familles Nombreuses de Wallonie*

FVCs : Other Financial Vehicle Corporations

ICPFs : Insurance Companies and Pension Funds

Ifs : Investment Funds

MMF's : Money Market Funds

OFIs : Other Financial Institutions

SLRB : *Société de logement de la Région Bruxelloise*

SWCS : *Société Wallonne du Crédit Social*

SWL : *Société wallonne du Logement*

VMSW : *Vlaamse maatschappij voor Sociaal Wonen*

Table of figures

Table of contents

Introduction

On July 2007, the US were struck by a major economic crisis. The credit institutions were facing extreme difficulties and for the first time since the second world war, the real-estate prices decreased. By then, all the estates used as collateral in order to obtain a mortgage loan depreciated as well. This depreciation put banks in utmost conditions as they had granted risky loans (the subprime mortgage) for several years. These credits were granted to insolvent and poor citizens who were, as might be expected, extremely unlikely to pay back their engagements. So, why had the banks granted such loans? The logic employed by the bank at that time was rather simple: we are not opposed to lending to such individuals as the house they buy will be used as collateral. In other words, if they don't reimburse the credit, we shall seize the estate. As real-estates prices cannot go down, we will always get our money back and even make a benefit from the resale of the house. That logic could have worked if the prices had not gone down.

The real-estate market was rapidly flooded by thousands and thousands of houses to sell. As banks needed cash to fulfill their short-term obligations, the prices decreased even more as they were all willing to sell as quickly as they could. The inability to recover a higher or equal collateral to what they had lent at first, has resulted in huge losses for the banks which then led to a major financial crisis. To put it another way, the American mortgage loan market was a key to understanding much larger events such as a worldwide economic crisis. This could partially be explained by its large size. But how big is actually a market such as the credit market?

In the US, for the year 2017, the mortgage market weighed around 9,9 trillion dollars of debt[1]. In the euro area on the other hand, credit institutions represent 44.7% of all financial assets, which is approximately 33 trillion euros, as could be seen from figure 1. So, the credit market is the primary financial market, far ahead of insurance companies, money market funds and other financial markets.

[1] BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM (U.S.), *Households and Nonprofit Organizations; Home Mortgages; Liability, Level* [HHMSDODNS], retrieved from FRED, Federal Reserve Bank of St. Louis; [ON LINE], URL: https://fred.stlouisfed.org/series/HHMSDODNS September 28, 2017 consulted the 27th of October 2018.

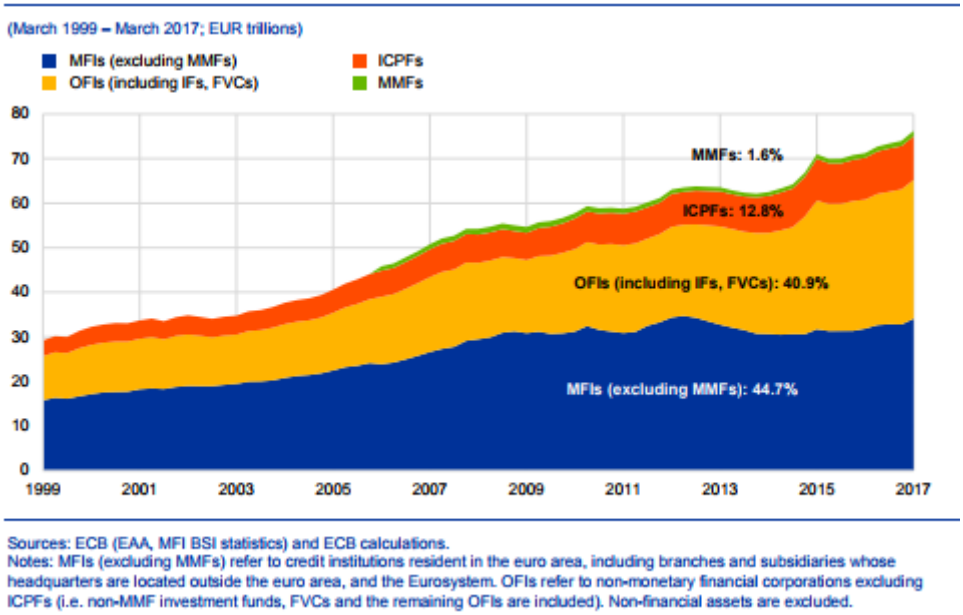

Figure 1 – Total assets of the euro area financial sectors[2].

The credit market, of which the mortgage credit market is a segment, is not something to neglect in any analysis. It is the biggest part of the financial market. By looking into its internal mechanisms, we should be able to understand wider issues. But, as we shall see, the mortgage credit market is rather imperfect and dysfunctional, which can cause even bigger problems on a wider range of macro-economic phenomena. These include, among other things, development traps, leapfrogging, persistence of inefficient recessions, recurrent boom-and bust cycles, reverse international capital flows, the rise and the fall of inequality across nations, and the patterns of international trade[3].

Moreover, the mortgage credit market is a market through which almost every person will go, or at least try to enter, once in their lifetime. In comparison to other financial markets, the mortgage credit market has direct effects on every citizen. **The objective of this thesis will be thus to assess a potential State intervention and its effects from a social justice perspective** rather than attempting to study macroeconomic consequences. More precisely, **the fixation of a minimal collateral requirement of 20%** for the applicant will be covered. As it can be expected, such a measure would hinder social justice as less people will be able to enter the market, but, less intuitively, it would also influence banks return, abilities and its mechanisms.

[2] ECB, *Report on financial structures*, European Centrak Bank (ECB), Frankfurt, October 2017, p. 7.
[3] MATSUYAMA K., *Aggregate implications of credit market imperfections*, National Bureau of Economic Research, Cambridge, Working paper 13209, 2007, p. 34.

This thesis is conceived as follows: it shall at first define the concepts used in the questioning (mortgage loans, the dysfunctionality credit market, State regulation, the credit stake etc.). Then, it will be argued that this questioning is a social justice issue and therefore needs to be seen as such. Afterwards, all the actual regulations will be listed. Next, we will draw the prequels of the new regulation, in our case, a minimal collateral requirement, and see how it will influence the actual credit stake. To conclude, we will review the potential consequences and issues that may appear on the market if such a measure is to be put in place.

Chapter I : Definition of the research question

Before even starting this paper, we need to get a firm grip on the concepts we will be using throughout the entire work. These concepts and definitions have been purposefully adapted to the Belgian case-study.

1. Belgian mortgage credit market : what is a mortgage loan?

First of all, we have to understand what a mortgage loan is. As our concern is based on the Belgian market, we will consider the Belgian definition of a mortgage loan. This definition was legally changed on the first of April 2017, when the new loan law came into force and modified several books of the Belgian Economics codex. This new law transposed the European Directive 2014/17/UE on credit agreements for consumers relating to residential immovable property. A mortgage loan is now defined as[4]:

- A real estate credit guaranteed by a mortgage.

- or a real estate credit not guaranteed by a mortgage except for renovations.

- A non-real estate credit guaranteed by a mortgage.

From these definitions, two conclusions may be drawn : First, a real estate loan is always a mortgage loan even if it is not guaranteed by a mortgage. Second, a non-real estate credits guaranteed by mortgages are known today as mortgage credits, whereas they were considered consumption credits in the past.

From a legal point of view, a mortgage loan is very different from a consumption credit. The obligations and duties for the parties are totally different. For example, marketing around mortgage credits is far more regulated than for consumption credits but this is not the only issue.

[4] Art.I.9 53° *Code de droit économique* (CDE).

2. Mortgage credits as a social justice issue

The main social issue regarding the financial market concerns the freedom to enter it. Financial exclusion[5] is a social and economic problem which involves a lack of equality of opportunity and which is a form of economic discrimination. From a rights-based social justice discourse that extends beyond political and civil rights to economic and social rights, we may argue that economic and social rights should be protected by State regulation in the same way that political and civil rights are[6]. The concept of economic and social rights can be found in the idea of 'services of general economic interest'[7], which are necessary to allow a person to lead a normal life, in order to avoid financial exclusion. Moreover, the World Bank has referred to the lack of access to finance as "*a critical mechanism for generating income inequality*"[8] . Therefore, financial exclusion from the credit market should be characterized as a social justice issue as it is linked to social exclusion for those who cannot access credit, and entrenches poverty and over-indebtedness for those who have access to high-cost forms of credit.

Jacobs' theory of equality of opportunity argues that credit is a stake which is distributed through competitive processes, and that these processes should be constructed in a manner that is fair and just[9]. Jacobs' aim is to advance a three-dimensional model of equal opportunities for the regulation of the competition that distributes social goods as the core of egalitarian justice. The three dimensions of equal opportunity correspond to three aspects of fairness in competitions for social goods: **procedural fairness** reflects a concern with the basic rules of procedure that govern a competition, **background fairness** reflects a concern that there may be a level playing field for all competitors and **stakes fairness** focuses on the rewards to winners and losers in the competition[10]. Jacobs also follows Michael Walzer in stressing the diversity of social goods, and in arguing that different principles of justice may apply to different goods[11]

The current allocation form of credit in Belgium exhibits a lack of **background fairness**. There is a lack of fairness about the 'rules' governing the competition, which allows judgments about eligibility for credit from the institutions grating credits. As so, concerns about the risk of lending in the low-income

[5] Defined as a lack of access to the mainstream financial system.
[6] WILSON T., *Consumer Credit Regulation and Rights-base Social Justice: Addressing financial exclusion and meeting the credit needs of low-income Australians*, Griffith University, University of New South Wales Law Journal, 2012, p. 501.
[7] *Charter of Fundamental Rights of the European Union*, 2000, OJ C 364/1, art. 36.
[8] DEMIRGÜC-KUNT A., BECK T., HONOHAN P., *Finance for all? Policies and Pitfalls in Expanding Access*, Policy Research Report, World Bank, 13 November 2007, p. ix.
[9] WILSON T., *Op. Cit.,* p. 512 *based on* JACOBS L., *Pursuing Equal Opportunities : The theory and practice of Egalitarian Justice*, Cambridge University Press, 2004.
[10] VOORHOEVE A., *Review of Pursuing Equal Opportunities: The Theory and Practice of Egalitarian Justice*, appeared in Economics and Philosophy 21, 2005, 155-161, p. 1.
[11] *Ibid.,* p. 3.

market will rise, and perceived high-risk borrowers will face higher costs for their credit. It only serves to cement the "poor pay more" problem[12].

Jacobs' work focused on equal opportunities and argued that all inequalities are socially constructed: "*Inequalities have their origins in the design of social circumstances*"[13]. It refers to the concept of 'inequality by design'. The nature does not determine the level of inequality that people experience. It is the social and political response to a person's natural endowments which leads to inequality. As Jacob said: "[…] Why do some individuals get ahead and some fall behind? Certainly, genetic endowment helps. Being tall, slender, good-looking, healthy, male, and white helps in the race for success, and these traits are totally or partly determined genetically. But these traits matter to the degree that society makes them matter – determining how much, for example, good looks or white skin are rewarded. More important yet than these traits are the social milieu in which people grow up and live. "[14].

As all inequalities are socially constructed, they can thus be addressed through State regulation to alter the relevant social framework - in other words, through regulating the particular institutions, practices and the opportunities which engender such inequalities.

3. The Belgian mortgage credit stake

As has just been mentioned, receiving credit is a competitive process. Borrowers will be granted mortgages, whereas others will not or will under less favourable conditions. So, it is in this sense more at stake than an average administrative process. Jacob stated that causes of inequalities lie in the social design. So how is the process of getting a mortgage constructed in Belgium?

At first, we must review the legal obligations[15] of the lender and the borrower through the process. The law states: every lender who wishes to lend on the Belgian mortgage credit market has the obligation to collect information in order to appreciate the financial situation of the borrower. Therefore, **he must at least** ask and verify the following: the goal of the credit, the revenue, the dependents and the current financial commitments of the borrower. In order to establish all potential hypotheses around the financial situation of the borrower, they can ask for any document or

[12] CAPLOVITZ D., *The Poor Pay More : Consumer Practices of Low-Income Families*, Free Press, 1963.
[13] WILSON T., *Op. Cit.,* p. 504 *based on* JACOBS L., *Pursuing Equal Opportunities : The theory and practice of Egalitarian Justice*, Cambridge University Press, 2004, 61-2.
[14] *Ibidem.*
[15] Loi du 22 avril 2016 portant modification et insertion de dispositions en matière de crédit à la consommation et de crédit hypothécaire dans plusieurs livres du Code de droit économique.

information they need to evaluate the financial situation of the borrower (e.g ID, pay sheets, data from Central Credit for Individuals, a bank or insurance statement, pay checks, a medical certificate…)[16].

The lender **must** refuse to grant a loan if they reasonably believe that the borrower will not fulfill their obligation. For example, it is highly probable that an average citizen who makes roughly €2,000 a month net will not be granted a mortgage loan of €250,000 if they already have another ongoing mortgage credit plus two other consumption credits for their car and brand-new kitchen. This information is, in Belgium, centralised in the Central Credit of Individuals. In addition, in order to settle complementary security, the lender has the option to impose that the borrower subscribe to an outstanding balance, fire and/or theft insurance[17].

In any case, the lender must advise and inform the borrowers through a standard form (ESIS) which contains all the information about the loan itself: the rate[18], commission, fees, institution linkage and so on. In each and every case, the lender must deal in an honest, fair, clear and professional way[19]. On the contrary, the borrower has the only obligation to provide the compulsory document for the lender. Through the ESIS, the borrower can choose and compare the different conditions of their loan.

As described, this process seems very easy to adhere to. But, in fact, the ambiguity surrounding the evaluation of the borrower's financial situation allows subjectivity. What is the salary at which the lender will think the borrower will not be able to fulfill his obligations? What is the maximal amount of dependents or obligations? The minimum collateral? The maximum real-estate value? All these parameters only rely on the lender's assessment and personal judgement. There is only an obligation to refuse if the lender thinks that the borrower will not be able to fulfill their obligation, hence, there is no obligation to accept either. Some common-sense ratios may exist in the sector but there is discretion from one institution to another. Some institutions take into consideration certain characteristics such as the age, the type of contract, or, whether the project exists or not, whereas others do not. A dossier may be accepted in one institution while exactly the same dossier will be refused in another. This is called the power of discretion. This paper therefore argues that mortgage credit is a stake. Identical individuals will be granted loans in a particular institution, whereas, they will either not receive anything in another one, or they will but under more severe conditions. By contrast, different individuals will be treated differently by the same institution.

[16] NÖEL D., *La réforme du droit du crédit hypothécaire : quels changements?*, L'Observatoire du Crédit et de l'Endettement ASBL, Mai 2017, pp. 3-4.
[17] *Ibid.,* p. 10.
[18] Understood as TAEG = Taux Annuel Effectif Global.
[19] NÖEL D., *Op. Cit.*, p. 6.

4. Credit market (in)efficiency

Credit distribution operates through the market. It is the market that defines the average price and rate for credit. Under perfect competition, the financial markets are characterised by three types of efficiency: informational, operational and allocative. These concepts are described as they are used in finance theory.

4.1 Informational efficiency

A perfectly informationally efficient financial market does not exist in reality. This is what is known as the Grossman-Stiglitz paradox. The paradox can simply be resumed and demonstrated as follows: in a market where the price of an asset contained all private and public information, nobody would have an incentive to do any research on this asset because no gains could be made from obtaining superior information. Hence, the lack of research implies that information cannot be incorporated into the asset price. Thus, the price of the asset could not include all private and public forms of information[20]. Financial markets are efficient if the market prices already reflect all known information, which is, in fact, never the case.

As a financial market would never be perfectly efficient, it can be described it by its degree of efficiency. A market is weak form efficient if only the information in past prices is contained in the current price. A market is semi-strong form efficient if all public information is reflected in the asset price. A market is strong form efficient if prices contain all private and public information. In finance theory, private information refers to information held by sophisticated investors and not known by ordinary investors. This information could be insider information about a particular firm, a better forecast of public information that has not yet been released, or a clearer understanding of information that is in the public domain[21].

This paper argues that the mortgage credit market has a weak-informational form efficiency. Except from the legal documents the lenders can ask for, which are useful to compute basic economic ratios, they know little about the behavior, preferences and expectations of the borrower. Those preferences and expectations, can have a major impact on the value of the property and therefore on the collateral. These terms are related to moral hazard and contract breach issues. The lenders must hence form their opinion on the little information given through the requested documents.

[20] BAUER G., *A Taxonomy of Market Efficiency*, Financial System Review, p. 37.
[21] *Ibidem*.

4.2 Operational efficiency

Also called transactional efficiency, operational efficiency is a measure of the cost of transferring funds from savers to borrowers. In a perfectly functioning market, the transaction costs of the credit market should reflect the marginal costs of providing the services to the market participants. This question concerns the liquidity of the market, in other words, can investors trade in "reasonable" size without paying large transaction costs?

To consider the costs of transferring funds is not an easy task. These costs are numerous and difficult to evaluate. As the number of intermediaries can sometimes be high, which could lead to weaker operational efficiency. For example, an applicant could get its loan through a broker who himself went to a bank which, at that time, did not have sufficient funds and borrowed from another bank etc.

Furthermore, the degree of operational efficiency is strongly linked to the degree of informational efficiency[22]. As the market is not informationally efficient either, and the number of intermediaries could be low to high; we assume in this paper that the Belgian mortgage credit market has a weak operational efficiency.

4.3 Allocative efficiency

A market is allocatively efficient when the marginal rate of return is equal for all borrowers and savers. This implies that investors provide funds for projects that have the highest net present value and that "bad" investment projects go unfunded. The amount of allocative efficiency in the market can be viewed as depending on the degree of informational and operational efficiency as well[23].

To evaluate whether the market is allocatively efficient, it requires a sophisticated model of the economy. Yet, the mortgage credit market can be intuitively evaluated. As it is known, even bad investment projects can go funded. An applicant is most of the time able to find a credit contract, even in more severe conditions. For example, if they experienced a denial from another institution, the applicant could still get a credit from another one, but this time, under more severe conditions such as a higher interest rate. In addition, the degree of allocative efficiency depends on the degree of informational and operational efficiency. As these two are weak as well, the Belgian mortgage loan market can be evaluated as weak allocative efficient, which means that even some "bad" projects may be funded and therefore the marginal rate of return is not equal for all borrowers and savers.

[22] BAUER G., *Op. Cit.,* p 39.
[23] *Ibid.,* p 40.

The Belgian mortgage credit market is neither informationally efficient, nor operationally efficient, nor allocatively efficient. This means some of the basic principles of perfect competition[24] are not respected; these are, among others, perfect information, no barriers to entry or exit, perfect factors of mobility, every participant is a price taker, profit maximisation of sellers and zero transaction costs.

5. Regulation, deregulation and liberalization of the market

Before going any further, basic concepts such as regulation and deregulation must be understood. As the body of this work examines one Belgian State intervention, and therefore, regulation, we have to agree on the meaning of this concept.

Regulation means the infringement of free competition on the market (ideal competitive market). It can occur through legal limitations on the competition or by agreements among the market's participants[25]. The State's restrictions of the market are, among others, access and exit restrictions on the market, price regulations, supervision, conditions of contracts and so on.

On the contrary, **deregulation**, its opposite, means a reduction of existing limits or import of regulating assumptions of the State on a lower level. Hence, deregulation efforts lead to reducing the above-explained interference of the State on the market[26].

Finally, **liberalisation** results from the deregulation process. It can be defined as a process that leads to establishing the liberal market, on which interventionism of the State is limited to the indispensable minimum (e.g. consumer protection rules.)[27].

Nonetheless, the entire withdrawal of the State from an economic market would be possible only if the economy is perfectly competitive, which means some principles are respected, such as rules to access and withdraw from the market are easy, there are no mutual agreements among the participants (e.g. oligopoly), perfect information on traded goods, which is obviously not the case here.

However, this is an ideal construction. No market works as such and this is not the purpose of liberalisation to create such a market. Moreover, liberalisation means the removal of barriers limiting

[24] As defined in ARROW K. J. & DEBREU G., *Existence of an Equilibrium for a Competitive Economy*, Econometrica : Journal of the Econometric Society, Vol. 22, No. 3, July 1954, pp. 265-290.
[25] STERZYNSKI M., *The European Single Insurance Market: Overview and impact of the liberalization and deregulation processes*, Belgian Actuarial Bulletin, Vol. 3, No. 1, 2003, p. 44 and supplement by FARNY (1987) and MOGOWITZ (1958).
[26] *Ibid.*
[27] *Ibid.*

free competitiveness and does not mean a complete withdrawal of State authority. A legal structure must coexist with a free development of the market[28].

As such, economists such as Stiglitz & Weiss (1981)[29], Mankiw (1986)[30] and Gale (1991)[31] estimate that the market's imperfections justify State interventionism on the credit market, in particular, by giving access to solvent borrowers who were denied because of credit rationing. However, Gale (1991) nuanced his thoughts and proved that the results of the State's intervention sharply depends of the elasticity of bank deposits. In contrast, for Williamson (1994)[32] and Lacker (1994)[33] such interventions accentuate the negative effects of asymmetric information which leads to a decrease of social welfare.

From an economic point of view from the authors aforesaid, there is no agreement on a State intervention on the credit market. These may be good or bad for social welfare and economic efficiency. The whole analysis lays on the means and aspects of these interventions and their impacts on the market. Nonetheless, we assume that credit market imperfection should be regulated through State intervention to ensure equality of opportunity. The Belgian State must regulate the mortgage loan market by giving access to the denied solvent borrowers in order to ensure that the stake offers an equal opportunity to all citizens.

The Belgian mortgage credit market is an imperfect market which is neither informationally efficient, nor operationally efficient, nor allocative efficient. Now that we are aware the Belgian credit market is efficiently weak and that State intervention is necessary, we can have a view on the different State interventions trying to relieve it. In this way, we will hypothetically choose a new one and investigate its effects and consequences from a social justice point of view. For now, we will categorise and list the existing ones.

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[28] *Ibid.*

[29] STIGLITZ J. & WEISS A., *Credit Rationing in Markets with Imperfect Information*, American Economic Review, Vol. 71, 1981, pp. 393-410.

[30] MANKIW N.G., *The allocation of credit and financial collapse,* The Quarterly Journal of Economics, 101, Issue 3, 1986, pp. 455-470.

[31] GALE W.G., *The Economic effects of federal credit programs,* American Economic Review, Volume 81, No. 1, 1991, pp. 133-152.

[32] WILLIAMSON S. D., *Do Informational frictions justify federal credit programs,* Journal of Money, Credit, and Banking, Volume 26 No. 3, August 1994, pp. 523-551.

[33] LACKER J.M., *Does adverse selection justify government intervention in loan markets?,* Federal Reserve Bank of Richmond Economic Quarterly, Vol. 80, No. 1, 1994, pp. 61-95.

6. Existing regulation

6.1 International regulation

The Belgian State regulation regarding mortgage credit is a top-down approach. Most of the rulings come from the European Union (EU) which itself receives some impulses from supra-national entities. Here, we review two main institutions having a significant effect on bank and credit regulation.

The Bank for International Settlements (BIS) has the mission to serve central banks in their pursuit of monetary and financial stability, to foster international cooperation and to act as a bank for central banks[34]. To do so, it supports and fosters dialogue and collaboration among central banks and other authorities responsible for promoting financial stability. Moreover, it hosts the Secretariat of the Basel Committee on Banking Supervision and cooperate with it for the Basel Framework.

The Financial Action Task Force (FATF) is the supranational entity which has the objectives to set standards and promote effective implementation of legal, regulatory and operational measures for combating money laundering, terrorist financing and other related threats to the integrity of the international financial system. The FATF is therefore a "policy-making body" that works to generate the necessary political will to bring about national legislative and regulatory reforms in these areas[35].

The Basel ruling is especially significant for bank and credit institutions as it binds them to ensure minimal capital to hold according to their assets' credit risk.

6.2 European regulation

In response to the financial crisis that emerged in 2008, the European Commission also pursued a number of initiatives to create a safer and sounder financial sector for the single market. The European Commission has therefore set up three supervisory authorities (a.k.a ESA's for European Supervisory Authority) that work closely together, mainly around the composition of a single rule book on which the Banking Union sits.

1. The European Banking Authority (EBA) is an independent EU Authority created in 2011 whose purpose is to ensure effective, consistent, prudential regulation and surveillance across the European banking sector. Its main objectives are to preserve financial stability in the EU and to safeguard the integrity, efficiency and orderly functioning of the banking sector. Therefore, one of the primary tasks of the EBA is to contribute to the creation of the European Single Rulebook in banking, whose objective is to provide a single set of harmonised prudential rules for financial institutions. Moreover, it also

[34] Bank for International Settlements, *About the BIS – Overview*, ON LINE, [URL]: https://www.bis.org/about/index.htm?m=1%7C1, consulted the 28th of Februari 2018.
[35] Financial Action Task Force, *Who we are*, ON LINE [URL]: http://www.fatf-gafi.org/about/, consulted the 28th of Februari 2018.

plays an important role in promoting convergence of supervisory practices and is mandated to assess risks and vulnerabilities in the EU banking sector[36].

2. The European Securities and Market Authority (ESMA) is also an independent EU Authority created in 2011 which contributes to safeguarding the stability of the European Union's financial system by enhancing the protection of investors and promoting stable and orderly financial markets. It achieves this by: assessing risks to investors, markets and financial stability, completing a single rulebook for EU financial markets, promoting supervisory convergence and directly supervising credit rating agencies and trade repositories[37].

3. The European Insurance and Occupational Pensions Authority (EIOPA) core responsibilities are to support the stability of the financial system, transparency of markets and financial products as well as the protection of policyholders, pension scheme members and beneficiaries. It is commissioned to monitor and identify trends, potential risks and vulnerabilities stemming from the micro-prudential level, across borders and across sectors. The main goals are: better protection for consumers, rebuilding trust in the financial system, ensuring regulation and supervision, greater harmonisation and coherent application of the ruling, promoting coordinated EU supervisory response, and, finally, strengthening oversight of cross-border groups[38].

Moreover, through several Directives, the European Commission undertook initiatives to impose stronger prudential requirements for banks, to improve depositor's protection and to create rules for managing failing banks. These Directives are the essence of the ruling of banking sector and form the single rule book: the Capital Requirement Regulation (CRR), the Capital Requirement Directive (CRD IV), the Bank Recovery and Resolution Directive (BRRD), the Capital Adequacy Directive (CAD) and the Deposit Guarantees Schemes Directive (DGSD).

These were also called the Basel Accords. They set rules for governing the capital banks must hold, according to their assets credit risk. Under Basel I, each asset will be financed partly by the debt and partly by the capital according to the assets credit risk. The riskier assets must be financed by at least 8% of capital. However, the risk weights were vaguely defined.

Nonetheless, since 2004, Basel I has been replaced by Basel II. These new accords purely and simply replace the old ones and are far more ambitious in risk calculation. One notable change is the

[36] EBA, *The European Banking Authority at a glance*, The European Banking Authority (EBA), London, UK, 2016, pp. 3-4.
[37]ESMA, *Who we are*, The European Securities and Market Authority (ESMA), [ON LINE], URL: https://www.esma.europa.eu/about-esma/who-we-are, consulted the 1th of March 2018.
[38] EIOPA, *Missions and tasks*, The European Insurance and Occupational Pensions Authority (EIOPA), [ON LINE], URL: https://eiopa.europa.eu/about-eiopa/missions-and-tasks, consulted the 1th of March 2018.

unexpected loss hold capital. The core idea is that, under Basel II, the banks are obliged to weigh and asses the risk of default risk of potential borrowers. In the past, the banks tended to refuse bad borrowers and didn't asses potentials risks. Basel II reversed this logic and stated that you could not determine a good and a bad borrower. The asymmetric information is too important. So, instead of trying to identify and refuse bad borrowers, banks should incorporate potential and unexpected risks of default into their capital and equity minimum level in order to face potential calamities.

Nowadays, we are progressively coming under the Basel III reform which is an enhancement of the Basel II framework. Basel III aims at reinforcing the capital base of banks as well as introducing new priorities such as better management of liquidity risks of bank's leverage. It also refines limits regarding specific assets and activities. Basel III should be totally implemented by the end of 2019.

6.3 Belgian State regulation

The Belgian State also has some specific interventions. Unlike upper level approaches, Belgian State interventions are more mundane and specifically oriented.

6.3.1 Loan guarantees

The Belgian State does not offer any kind of guarantee on mortgage loans. The only guarantee for the bank is the collateral requirement. Lenders may impose to subscribe particular insurance to protect themselves but these insurances are not provided by the Belgian State. So, loan guarantees do not exist in Belgium.

6.3.2. Interest rate subsidies

In the past the federal Belgian State provided an interest rate subsidy for every citizen who was sealing a mortgage. The tax and income code states: "Interest on a debt contracted for a single property may be deducted from all real estate income"[39]. On the one hand, if reported real estate income is greater than interest, there will be a full deduction of interest paid. On the other hand, if the income is lower than the interest paid, there is an additional interest deduction. In short, whatever your real estate income is, you can always deduct interest from it.

As you can deduct it from your tax sheet, it is actually a hidden subsidy. However, this subsidy runs only for mortgages settled before 2015. Since 2015, this jurisdiction has been delegated to the regions which can choose their own system of subsidy.

Wallonia chooses the habitat check system. All Walloon residents who settle a mortgage credit (except those not granted for a real-estate) can benefit, once in their whole lifetime, from the habitat check

[39] *Les avantages fiscaux liés au prêt hypothécaire*, NOTAIRE.BE, [EN LIGNE], URL : https://www.notaire.be/acheter-louer-emprunter/fiscalite-immobiliere/avantages-fiscaux-lies-au-pret-hypothecaire, consulted the 14 of January 2018.

system. The check is paid each year through tax benefits calculated on the net taxable income of the inhabitant. Moreover, a lump sum premium of €125 per child is added. This system is however limited to 20 years and for specific income ranges[40].

The Flemish Region chooses the integrated housing bonus system. It is a tax reduction of 40% calculated on a basis amount of €1,520 (specific increase possible). As in Wallonia, this reduction only works for real-estate mortgage loans. Moreover, from 3 dependent children, the inhabitant benefits from a complementary reduction. In other words, the maximum yearly tax reduction is equal to €944[41].

The Brussels Region does not grant any fiscal reduction nowadays. On the other hand, for the first real-estate purchase, the future owner can benefit from a tax rebate on registration fees (under specific conditions) to a maximum of €175,000 of the value of the real-estate. Hence, the buyer is immediately exempted from paying €21,875 of registration fees to the Brussels Region[42].

6.3.3 Down-payment Assistance

One of the primary problems facing low-income-families who wish to purchase homes is the lack of a substantial equity stake for a loan. To deal with this problem, some non-profit organisations (asbl) can offer grants and low-interest loans specifically to provide borrowers with a sufficient down payment to obtain a loan. These social loans are characterised by a very low interest rate and an almost non-existent collateral requirement. Eligibility for this type of assistance is generally limited to low and very low-income families. These social loans are provided by : *asbl Association du Logement Social, asbl Crédit du Logement Social, Fonds du Logement de la Région de Bruxelles-Capitale, Fonds du Logement des Familles Nombreuses de Walonnie (*FLFNW*), Société Wallonne du Crédit Social (*SWCS*)* and *Vlaams Woningfonds* depending on where you live. These non-profit organisations are supervised by *Société de logement de la Région Bruxelloise* (SLRB), *Société wallonne du Logement* (SWL) and *Vlaamse maatschappij voor Sociaal Wonen* (VMSW).

6.3.4 Housing cost reductions

Many State programs provide grants to State and local governments and various profit and non-profit organisation to help them build, rehabilitate or purchase housing for sale, resale or rental to low-income families. One of the major housing cost reductions in Belgium concerns the real estate tax. Depending on the Region you live in, you can benefit reduction from your real-estate tax.

In Brussels, Wallonia and Flanders, you benefit from real estate tax reduction if you live in a modest dwelling, you are disabled or invalid, have disabled children or if the property is protected and

[40] DE ROUCK P. & DYKMANS I., *Quel avantage fiscal votre crédit logement vous procure-t-il ?*, l'Echo, Mon Argent, Guide immobilier, février 2018, pp. 57-58.
[41] *Ibidem.*
[42] *Ibidem.*

classified. Moreover, you can benefit from a total exoneration of the tax if you rent your estate to a social estate agency[43]. The Region of Flanders also grants a reduction for high energy performance estates.

6.3.5 Educational Assistance

Besides the credit institutions website, non-profit or official organisations provide information on restrictions, laws and obligations around mortgage loans, for example: notaire.be, observatoire-credit.be, finances.belgium.be, belgium.be and so on. It is always possible to make an appointment or to phone to ask further questions.

6.3.6 Bank Assistance

The State does not provide any form of bank assistance. However, customers are quite well supported by their bank if they need any information or explanation.

6.3.7 Bank Regulations

Many of the most forceful and potent interventions on the credit market are those toward the banks and other financial institutions. As seen earlier, the international context, the European Directives transposed in the Belgian law strongly regulate the needs and obligations for institutions willing to enter the mortgage credit market.

Chapter II : A minimal collateral requirement

The different existing State interventions have been examined. This work aspires to review the actual stake conditions and to choose a new regulation and study its consequences. **So, what would happen if the Belgian State, in order to regulate the market and ensure economic stability, decided to enforce a minimal collateral requirement of 20% of the loan value for any new applicant**? Several consequences, not only economical but as well as social problems may appear. Afterwards, we will draw general conclusions from an economics and social justice point of view using Jacob's theory of social justice.

In this chapter, we first reviewed the general context which has led us to such a regulation draft. Then, other stake's ratios often used in the sector to evaluate applicant's economic situation will be detailed. These ratios are important as they are useful to consider the economic consequences drawn from our model.

[43] DE ROUCK P. & DYKMANS I., *Comment votre bien est-il taxé ?,* l'Echo, Mon Argent, Guide immobilier, février 2018, pp. 52-54.

1. The genesis : the BNB recommendation

In a context of an economy recovering after two economic crises, the BNB has stated that lending institutions should be more cautious with their grants.

The recommendation stated that a credit with a loan to value superior to 80% should be granted more cautiously. There are two different interpretations of this recommendation. Either banks increase their capital for the amount lent; (nowadays, the actual requirement for the banks is to have a capital counterpart of at least 1% of the amount lent, which is unpopular among bankers), or they refuse to grant such loans, which they do not dispute.

For example, if you want to borrow for a house valued at €100,000, you have to put up a minimum collateral requirement (personal contribution) of €20,000. The 20% collateral rule comes from what is called the forced-selling value and the depreciation risk for the bank. So, in the aforementioned example, it can be argued that the forced value of that house has to be around €80,000. That would mean the bank does not operate any losses if the borrower stops paying back within the first month. The bank can seize the property and sell it back at a minimum of €80,000 (+ the €20,000 the borrower had put up). So, what has led to such a recommendation?

2. The political context

During 2017, hardening the conditions of access to mortgage loans was seriously considered. First, according to the media, the Belgian National Bank (BNB) announced in February that credit having a loan to value above 80% should no longer be granted to ensure the stability of the market and the financial world as a whole[44]. A few weeks later, a politician launched a petition against this "new law" of Michel's government. The moto of his action was "*Après la chasse aux chômeurs, la chasse aux propriétaires*"[45] which can be translated as "*After hunting the unemployed comes hunting the owners*". In fact, it was not a project of law at all. The government was only examining the recommendation of the BNB. But it was too late. A large number of citizens had already shown their displeasure against this recommendation.

[44] CRIVELLARO R., *Contrôle des banques renforcé, l'emprunt hypothécaire coûtera plus cher*, RTBF, avril 2017, [ON LINE], URL : https://www.rtbf.be/info/belgique/detail_controle-des-banques-renforce-l-emprunt-hypothecaire-coutera-plus-cher?id=9591512, consulted the 10 of February 2018.

[45] Interview of LOFTI M., *Limitation des prêts hypothécaires : « Le gouvernement est en train de briser le rêve de nombreux belges »,* RTBF, avril 2017, [ON LINE], URL : https://www.rtbf.be/info/economie/detail_limitation-des-prets-hypothecaires-le-gouvernement-est-en-train-de-briser-le-reve-de-nombreux-belges?id=9592391, consulted the 10 of February 2018.

As we mentioned earlier, the BNB only recommended behaving more cautiously in the mortgage credit market. As observed in figure 2, more than 40% of Belgian mortgages were granted for a value above 80% of the property during the last years. The BNB reminded the government that the institutions should provide complementary security for those loans to shore up potential losses.

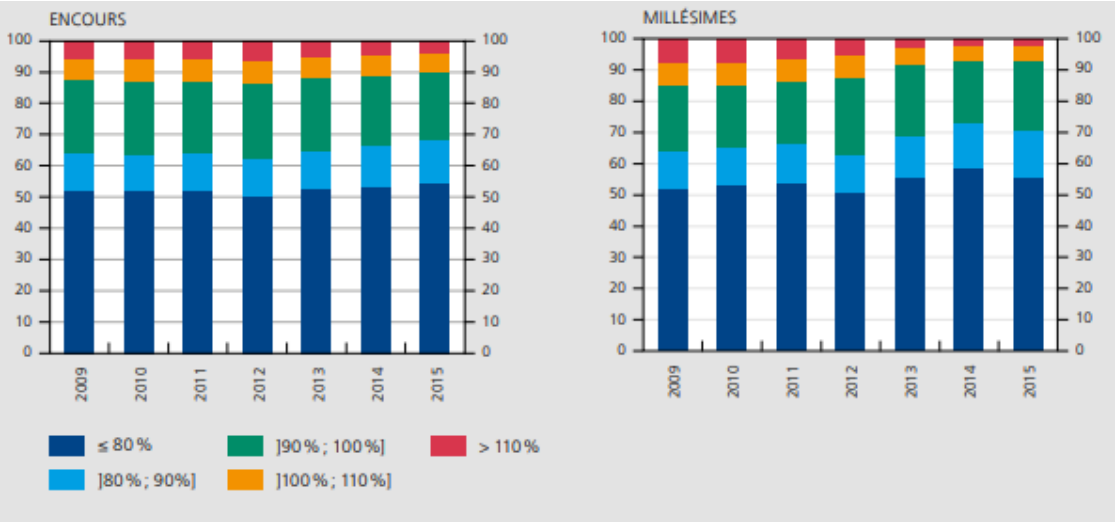

Figure 2 - Ratio between the amount of the mortgage loan and the value of the real estate (or loan to value)[46].

The BNB never actually made such a recommendation but by reading between the lines two ideas could be deduced. Either the banks provide more securities to finance those loans or they stop granting them. As banks are leveraged businesses with little equity, the assumption was made that they should stop making such risky loans and therefore should only grant loans for a maximum value of 80% of the amount demanded (the 20% left should be put up by the applicant as collateral). If they still wish to grant a loan to a value higher than 80% (see below for more details on a loan to value), they would have to provide more securities, which the banks do not dispute.

3. The economic context : increasing debt and real-estate value and decreasing interest rate

In approximately 12 years, as it can be observed from figure 3, the average value of a property in Belgium had jumped from €110,000 to €225,000[47]. Then, between 2002 and 2015, the average price of real-estate transaction more than doubled (+111,95%)[48]. The increasing price of real-estate had pushed the citizen to borrow more and more. In 2002, roughly 44.7% of the value was borrowed. In

[46] Banque nationale de Belgique, *Rapport macroprudentiel 2016*, BNB, Eurosystème, Juin 2016, p. 30.
[47] *In* DUVIVIER R., *Vers un durcissement de l'accès au crédit hypothécaire : genèse et conséquences*, 15 mars 2017, Observatoire du crédit, p. 1, based on SPF Econmy and BNB data.
[48] *Ibidem*.

2015, the debt rate jumped to 90.6% of the property's value[49] as confirmed in the figure 3. So why did the debt rate jump so high?

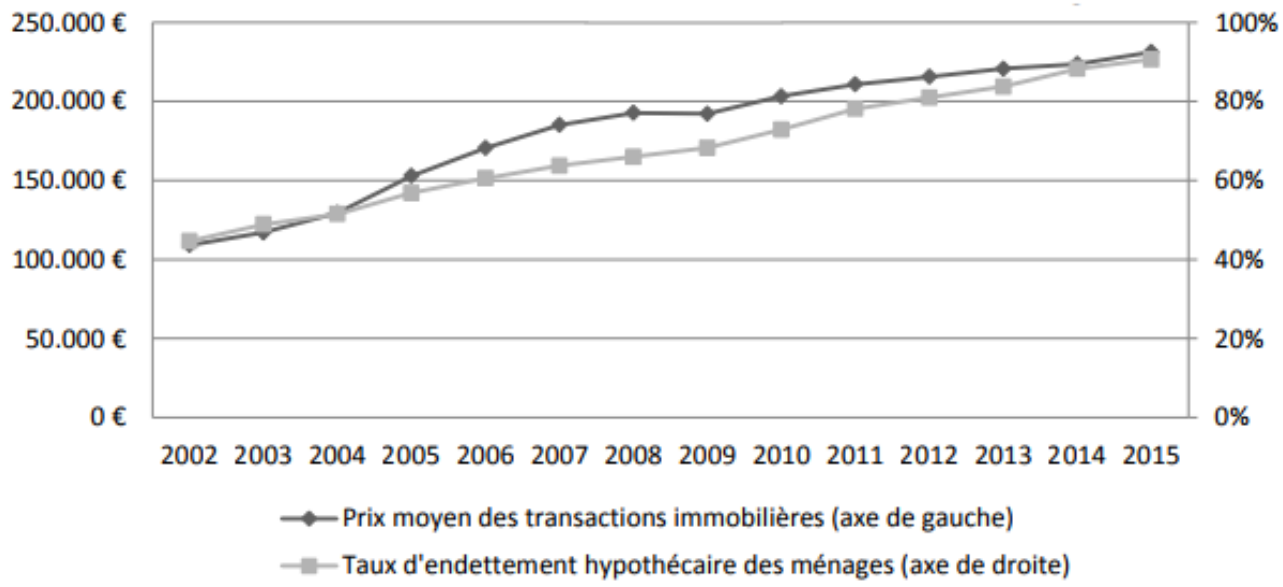

Figure 3 – Compared evolution of the average price of real-estate transaction and households' mortgage to debt ratio[50].

The decreasing of the average interest rate throughout the last decennia is the prime cause that had led the debt rate to jump so high. Or, it should have been even more correct to state that the growing debt rate was made possible by the decreasing average interest rate. In a context where the average price of real-estate transaction had more than doubled, the decreasing interest rate on mortgage credit had allowed citizens to a greater loan amount at a lesser price. What could have cost in the past about €100,000 of interest rate, would have nowadays only cost about €20,000. Greater projects were started, even with fewer funds. This extraordinary reduction in interest rate has made possible the growing debt rate.

As seen from figure 4, the interest rate in 2003 has dropped from around 5,5% to around 2% in the middle of the year 2016. In June 2019, the interest has further decreased to below 2%. It is impossible that the average interest rate will ever go below to the inflation rate, which would mean that banks are losing money by granting credit, and then, will stop doing so. With a low stagnant interest rate, it can be expected that the average debt rate will stay high as the household will consider the period as being an opportunity to undertake specific acquisition or projects.

[49] *Ibidem*.
[50] *Ibidem*.

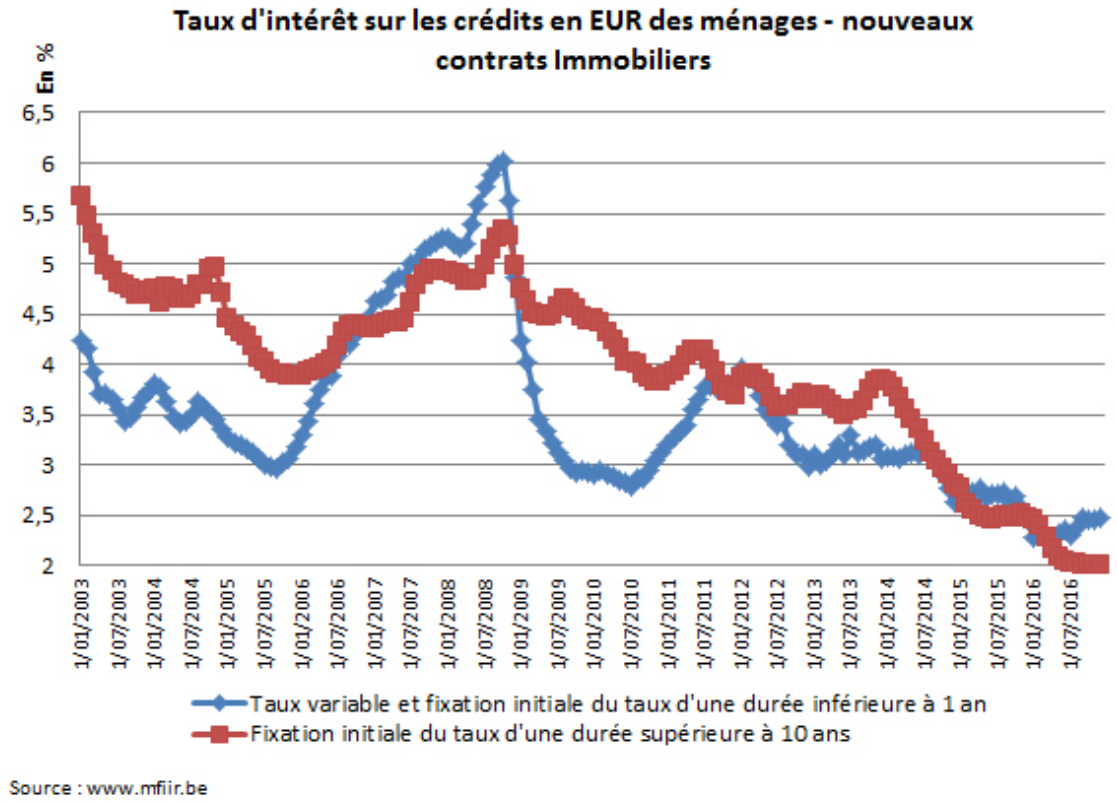

Figure 4 – Evolution of the mortgage interest rate for the period 2003-2016[51]

The increase in the debt rate is also to input to the revenue of households that increased less than property values. Households were therefore obliged to borrow more in order to buy a house. In this context of high debt ratios, it could be legitimately asked if the banks could live through a wave of repayment failures. Some may argue that, by nature, the mortgages are safe for banks as they can resell the houses to recover the credit, but this is only true in the general context of inflation of the price of property. What if the prices decreased, such as Spain, the Netherlands, Greece, Ireland and the US have recently experienced?

As we mentioned previously, the lenders evaluate the risks and the financial viability of their borrowers based on different documents from which they calculate two particularly relevant variables to illustrate the financial viability of a customer and the recent trend in the real-estate sector. These variables will now be examined; they are the corpus of the institution's discretion power and hence the stake people participation to.

[51] L'OBSERVATOIRE DU CREDIT ET DE L'ENDETTEMENT, *Taux d'intérêt hypothécaire*, data from mfiir.be, [ON LINE], URL : http://www.observatoire-credit.be/content/view/208/1/lang,fr/, consulted the 14 of May 2019.

4. Debt service to income ratio

The debt service to income ratio measures the ratio between monthly payments and the income of the borrower. In the credit sector, an informal rule states this ratio should not exceed one third. Specifically, one should not be able to borrow an amount which has a monthly payment higher than €600 if you only earn €1,800 per month, although this an informal rule and it seems than only a few institutions respect it nowadays. Twenty years ago, only 19% crossed this threshold, while about 43% do so nowadays[52]. This is to input to the average price of the estate growing faster than the available revenue, as depicted in figure 5.

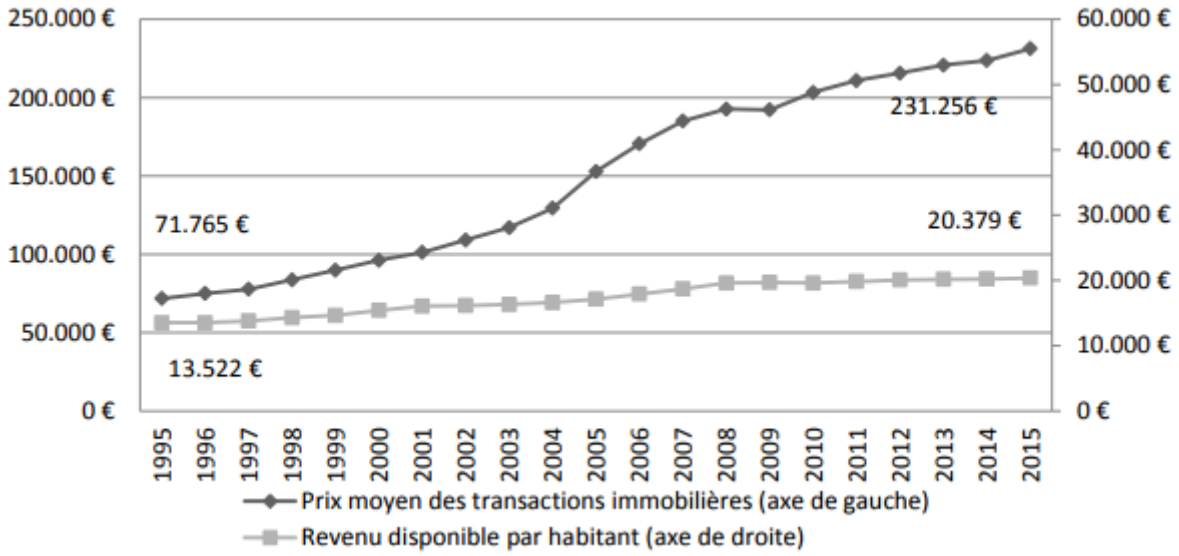

Figure 5 – Compared evolution of the average price of real-estate and available income per inhabitant[53].

In a context where the average real-estate price grew quicker than the average available income, one solution was to accept a larger debt service to income ratio. The informal threshold of one third is no longer respected. Among other solutions, the very low interest rate has offered households the possibility of financing this increasing gap.

5. Loan to value

The loan to value is the ratio between the amount lent and the value of the real-estate. If the applicant wishes to borrow the total value of the real-estate, the loan to value is 100% (we do not consider annex fees and so on.). The loan to value ratio is not to be mixed with the collateral requirement. The loan to value is the amount a person wishes to lend. On the other hand, the collateral requirement is the

[52] *Ibid.,* p. 3, based on a study of AXA BANK.
[53] *Ibid.,* based on SPF Economy and BNB data.

amount (or any other safety) that an applicant is willing to put down into the deal in order to seal it. Most of the time, these two go together, but, it is not necessary so. For the banks, a credit with a loan whose value is higher than 80% is considered as risky, but why is this so?

For example, if a credit institution has to lend 100% of the value, it has absolutely no margin to recover its money in case of failure to pay. The estate offered as collateral never equals 100% of the value. First of all, forced selling is always at a lower price than a normal sale. There exists a difference between the "normal" value and the "forced" value in the case of forced sale. This difference usually lies between 20% and 30%[54]. Secondly, it is also vital to calculate the margin for the potential depreciation risks such as real-estate break down, crisis, physical deteriorations etc. Finally, applicants who cannot put any money on the table (personal contributions or some collateralise wealth) to negotiate a mortgage credit are usually seen as profligate and expensive people who fail to save money. It makes them appear as people who fulfill their obligation with great difficulty.

Does this mean banks should not lend money to people they perceive as risky? No, even after the subprime crisis. On the contrary, the data show that the loan to value of 80% rule is barely respected. For an institution like BNP Paribas Fortis, in 2016, loan to value was on average 79% (73,7% the year before). For young households, this goes even further to 86%. Belfius Bank stated that one third of their loans had a loan to value higher than 80%. KBC is still granting credit with a loan to value of up to 100%[55].

Nonetheless, as we can deduce from the graphic below (figure 6), we observed that the personal contribution of households increased over the last few years. It increases in the gap between the average real-estate value and the average mortgage. This proves, on the other hand, that even though banks are granting risky loans (understood here as a loan to value superior to 80%), the average personal contribution is growing.

[54] Although, it exists no clear academic references supporting that number, the outstanding majority of estate expertise will set the forced selling value in that range due to short time for sale and annex fees. Moreover, numerous websites defined the Forced Sale Value (FSV) as: a credit slang term for what price mortgage lenders expect from a property which is to reach at auction if sold after repossession. This is usually around 70% of the market value (the price it would fetch if sold normally). It can also be referred as Forced Liquidation and it is usually only taken as the last resort for a lender to collect on the money they are owed (Checkmyfile.com/jargon/forced-sale-value-(fsv)).

[55] *Ibid.,* p.4 based LE SOIR article dated from 25/02/2017 « *La Banque nationale veut durcir l'accès au crédit immobilier* ».

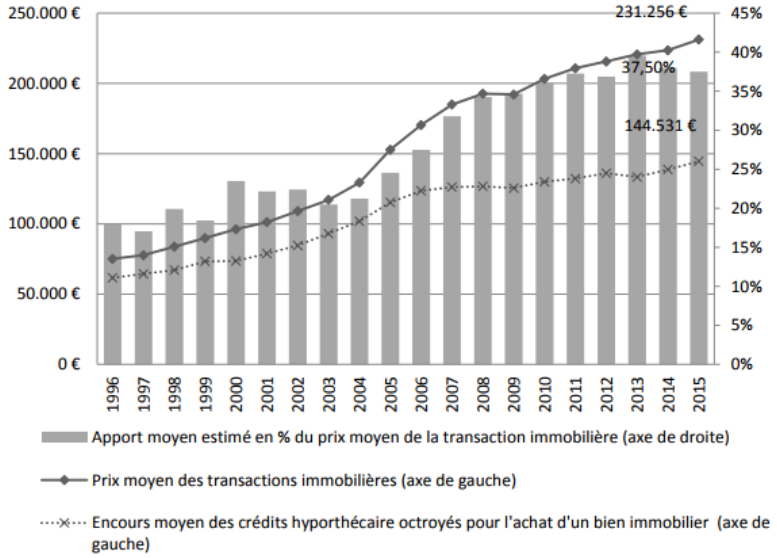

Figure 6 – Estimate average personal contribution[56].

6. Reputation

The literature agrees on the fact that reputation may play an important role in the credit market. By knowing their borrowers, a lender may grant loan contracts with advantageous conditions. A lender can bestow a credit with or without a personal contribution if the borrower has always fulfilled their past obligations. Thus, the relationship that both the lender and the borrower may build over the years may have a role on the parameters of the contract.

7. Type of income

The type of income is also something relevant to determine the parameters of the contract. The banks do not want to take many risks about being paid back. So, some institutions only take into account the steady and regular incomes for the calculation of the borrower's ability[57]. The steadiest income is obviously the salary. As so, credit institutions are extremely reluctant to lend to fixed-term contract applicant. In addition, fluctuating income are also being disregarded and only fixed ratio is being retained in the calculation. As so, diverse premium or bonus can also be retained by some institutions whereas they are being disregarded in others[58]. Moreover, rental incomes are only considered to be

[56] *Ibid.,* p.5 based on SPF Econmy and BNB data.
[57] HYPOTHEQUE.BE, *Quels sont les revenus pris en compte pour votre emprunt hypothécaire ?*, février 2018, [ON LINE], URL : https://www.xn--hypothque-53a.be/fr/blog/quels-sont-les-revenus-pris-en-compte-pour-emprunt-hypoth%C3%A9caire, consulted the 17 of May 2019.
[58] *Ibidem.*

about 80% because of numerous costs associated with it[59]. Obviously, the more secure incomes you have, the more beneficial conditions will be experienced.

8. Conclusion

The general context and the geneses of the introduction of a mandatory collateral requirement have been reviewed. The variables on which a majority of the institutions evaluated the capability of the contract have been reviewed as well. The collateral requirement intervenes solely on the loan to value ratio which is just one of the different variables considered. Moreover, it can also help to build some reputation with the banker as people putting down some collateral are considered as less profligate. Furthermore, collateral requirement also aims to lower the interest rate and the debt service to income ratio: as less has to be lend, less has to be paid back. To conclude, the collateral requirement is the key aspect of all the crucial elements used to assess the applicant's situation.

Chapter III: the credit market issues

Before going any further, we must review the main characteristics of financial market, which the credit market is a segment. This market is featured by four restrictions to perfect competition: asymmetry of information, which could lead to: adverse selection, moral hazard and costly state verification.

1 Asymmetry of information

Akerlof (1970) is a well-known economist who focus on quality and uncertainty in various markets. He declared that "*the existence of goods of many grades poses interesting and important problems for the theory of market*."[60]. To illustrate his thought, he used the example of the car market from which he simplified the characteristics.

In his model, the automobile market has four kinds of car: new/used cars and good/bad cars (known as lemons). A new car may be a good or a lemon, and the same is true for used cars. The individual in this market buys new vehicle without knowing whether it is good or bad. But they are aware that q is the proportion of good cars and (1-q) is therefore the proportion of lemons. As so, q is the probability of getting a good car and (1-q) is the probability of getting a bad one.

After a certain period, each new owner knows exactly the state of their car. They know precisely if it is a lemon or not. If they want to sell it again as a used car, they own capital information that the potential

[59] *Ibidem.*
[60] AKERLOF G., *The Market for Lemons: Quality, Uncertainty and the Market Mechanism*, Quarterly Journal of Economics, vol. 84, 1970, p. 488.

buyer is not aware of. Nonetheless, good and bad cars are sold at the same average price as it is impossible for buyers to determine the quality of the vehicle. Even if good cars are more valuable, the price is still set at an average level.

Henceforth, it definitely becomes advantageous for the owners of lemons to trade their used cars for a new one, getting q probability of having a good car. Thus, most used cars will be lemons as good cars will never be exchanged again: « *The bad cars tend to drive out the good.* »[61].

In the presence of asymmetric information, a market obeys the generalised Greshman's law[62]: bad products drive out the good to such a point that the market dies out. In fact, in such a market, a drop in price does not lead to a higher demand for the exchanged good as potential buyers learn that only bad products are sold at such a price. In such circumstances, the presence of institutions having privileged-centralised data about exchanges and discriminating against bad products may be beneficial[63]. To conclude, in a market of asymmetric information, the decentralised and competitive performance of markets jeopardises efficiency and effectiveness, which justifies specific interventions[64].

However, Arkerlof himself even assumed that his analysis was strongly limited by the notion of good and bad cars. A car may not be totally good or bad, a multiplicity of states exists. Nevertheless, the author limits his thought to a binary minded model. However, he justified that in a more continuous case with different grades of goods, even worse pathologies can exist. In this way, the author suggested: « *For it is quite possible to have the bad driving out the not-so-bad driving out the medium driving out the not-so-good driving out the good in such a sequence of events that no market exists at all.*»[65] In the 1981 model, there is only a single information problem, either adverse selection or moral hazard. We shall now define these terms and review other problems bound to the information problem.

2 Adverse selection

An asymmetric information market can lead to adverse selection consequences: as the price falls, sellers of high-quality assets withdraw from the market, leaving only low-quality assets (lemons in the

[61] *Ibid.*, p. 489.
[62] « *If there are two forms of commodity money in circulation, which are accepted by law as having similar face value, the more valuable commodity will disappear from circulation*». In Akerlof's example, bad cars drive out good cars. Britannica: Greshman's Law - Economics.
[63] AKERLOF G., *Op. Cit.*, pp. 499-500.
[64] BLOCH L. & COEURE B., *Imperfections du marché du crédit, investissement des entreprises et cycle économique*, In : Economie & prévision, n°120, 1995, p. 163.
[65] AKERLOF G., *Op. Cit.*, p. 490.

aforesaid example). The same logic applies if the interest rate increases in a market where it is the key component. A higher interest rate increases the likelihood that high-quality borrowers will withdraw from the market, causing an average decrease of quality, which in turn raises the interest rate even further[66].

The adverse selection effect of interest rates is a consequence of different borrowers having different probabilities of repaying their loans[67]. The expected return of the bank depends on the probability of repayment. As such, the banks would like to distinguish between "good" borrowers and "bad" borrowers. Bad borrowers are those who do not pay off their loan. To do so, banks have developed a variety of screening devices. The interest rate already acts as a screening device itself: on the one hand, those who are willing to pay high interest rates may be, on average, riskier. They perceived their probability of repaying the loan to be very low. These mechanisms play a role before the contract is signed, which is a key component differentiating it from other effects. To sum up, as the offered interest rate rises, the average riskiness of those who wish to borrow increases, possibly lowering the bank's profits[68].

Adverse selection may cause banks to impose credit rationing. By limiting the supply of loans, banks diminish the average default risk and therefore reduce adverse-selection problems. To do so, banks may impose various instruments to alleviate default risk such as minimum collateral requirement, additional compulsory insurance policies, specific evaluations, particular contracts and so on. Even if the borrower does not pay back their loan, the lender can recover losses by selling the collateral[69]. In the case of mortgages, the estate often plays the collateral role.

3 Moral hazard

Moral-hazard consequences result in, after a loan is granted, a probability that the borrower may engage in activities that do not reflect the information gathered by the lender before the contract is entered with the borrower and with their planned projects[70]. For instance, a borrower can have good intentions, but when the access to funds becomes a reality, they take on higher risk projects or adopt riskier behaviors.

[66] KIRABAEVA K., *Adverse selection and financial crises*, Bank of Canada Review, Financial Department, Winter 2010-2011, p. 12.
[67] *Ibidem.*
[68] STIGLITZ J. & WEISS A., *Op. Cit.,* 1981, p. 393.
[69] KIRABAEVA K., *Op. Cit.*, p. 12.
[70] EBRARY, *Credit risk, Moral Hazard*, [ON LINE], URL: https://ebrary.net/765/economics/credit_risk, consulted the 13 of March 2018.

These moral hazard problems may lead to credit rationing in exactly the same way as adverse selection does. As in Stiglitz-Weiss (1981), moral hazard may generate a nonmonotonic relation between quoted interest rates and expected rates of return and therefore lead to credit rationing[71]. In that model, "Criterion-a rationing" occurs when, among observationally identical borrowers, some get loans and others do not, and the rationed borrowers cannot get credit at any interest rate[72]. So, if we suggest there are several types of observationally distinguishable borrowers, only one type is subject to rationing because this rationing only occurs among identical borrowers. One may conclude that as the amount of observationally distinct borrower groups increases, criterion-a rationing becomes less significant.

"Criterion-b rationing" occurs when entire types cannot receive credit at any interest rate, although they would get credit if the supply of funds were sufficiently large[73]. Nonetheless, the main assumption of Stiglitz and Weiss' model is that borrowers are endowed with projects with identical expected internal rates of return and with non-observable riskiness. With a single class of borrowers as assumed in the model, equilibrium credit rationing can occur with a hump-shaped return function. Assuming the fact that the return function is not hump-shaped, banks offer credit in two stages. In equilibrium, there may be excess demand in stage one, but not in stage two. With several observationally distinguishable borrower classes, the firms in a borrower class are redlined only under special circumstances which imply that they would not get credit in a perfect capital market either[74].

However, in the mortgage credit market, it is relatively easy for credit institutions to control the project of an applicant in advance because the loan is only granted for a particular estate or project. The moral hazard may, on the other hand, concern the behavior of the borrower during the credit time-lapse. These behaviors may affect the income and/or the safety housing habits of the borrower which may lead to sharp decrease of the estate value followed by the collateral of the bank.

To be concise, moral hazard is definitely something that banks try to manage as best they can. But, as it is something which occurs while the credit is being paid back, it is quite out of the limits for our work which concerns a punctual State intervention before the credit is signed. In addition, moral hazard is rather limited on the mortgage loan market. Nonetheless, moral-hazard consequences may have effects on the banks' behaviors, which could justify State intervention. Hence, it could be interesting

[71] FREIXAS X. & ROCHET J-C., *Microeconomics of banking*, The MIT Press, Second Edition, Cambridge, Massachusetts, 2008, p. 178.
[72] STIGLITZ J. & WEISS A., *Credit Rationing : Reply*, The American Economic Review, Volume 77, Issue 1, March 1987, p. 228.
[73] *Ibidem.*
[74] LUTZ A., *On the possibility of credit rationing in the Stiglitz-Weiss model*, University of Regensburg, Discussion papers in Economics, No. 403, February 2005, p. 1.

to study punctual public intervention on moral hazard as bank loan rates have strong effects on both the moral hazard of personal loan and credit risk[75].

4 Costly state verification

Another way for credit institutions to get around asymmetry of information is to develop a mechanism of state verification. From the initial paper by Townsend (1979)[76], Gale and Hellwig (1985)[77], the model developed assumes that the borrower is the only one who can observe the yield, risk and outcome of their project. In such a case, banks may undertake an audit to observe whether the project it financed is running well or badly. The mission of the audit is to establish a clear inventory of all assets and liabilities and to assess the net value of the firm. It leads to additional agency costs for the banks and the modification of the type of contract. This way, the asymmetry of information is reduced. Moreover, costly state verification allows entrepreneurs to raise any money from investor since rational investor anticipates that the entrepreneur will lie concerning realized profit to avoid paying back to the investor.

However, we shall not go into details regarding this theory as it seems irrelevant to consider audits or control for the mortgage credit market. In this case, the project of the borrower is quite simple: acquire a property or buy something with a mortgage which could lead to some costly state verification theory, but we consider it as complex. Moreover, the general yield of real-estate can be observed by the lender in the economy as a whole which can give a general idea about how the project is running. Nonetheless, the banks want to observe whether the applicant will be able to pay back its loan. To do so, banks may propose special reduction in interest rate if the applicant chooses to open up an account in their institution. That way, the banks can directly oversee the movements of the account. The applicant will have to use it as a main account, which means all their steady and secure incomes (like the wage) will have to go through that account. Generally, a direct debit mandate is also given to the bank, so it can pay itself back. The debit happens at a fixed date, generally, a few days after the steadiest and highest income is paid to the account. This practice is not illegal and is frequently chosen by the applicants who benefits from further interest reductions whereas the banks benefit from further securities in their contract.

[75] LIA S., YANG Y., ZONGFANGA Z., *Research on Impact of Moral Hazard on Individual Credit Risk*, Information Technology and Quantitative Management (ITQM 2014), School of Economics and Management, UESTC, ChengDu, 610054, China, p. 577.
[76] TOWNSEND R., *Optimal Contracts and Competitive Markets with Costly State Verification*, Journal of Economic Theory, Vol. 21, n° 2, 1979, pp. 265-293.
[77] GALE D. & HELLWIG M., *Incentive-Compatible Debt Contracts: the One-Period Problem*, Review of Economies Studies, vol. 52, 1985, pp. 647-664.

5 Type of people

The way individuals behave in presence of risk can also have an impact on the credit market. If the lending institution is afraid of risks, would it be willing to lend to the applicant who is risk-seeking? The three-common types of behavior will here be reviewed.

The risk averse: those individuals will try to lower uncertainty when they are exposed to it. They will prefer more predictable and certain payoff, even if it is lower than greater but uncertain payoff. For them, the utility of the expected value of wealth is greater than its expected utility. They prefer to have the mathematical expectation of wealth gain rather than actually participating in a game which could bring higher payoff. These individuals have a concave utility function[78].

The risk neutral: are those individuals who are indifferent to risk. A risk-neutral person is not affected by the degree of uncertainty in a set of outcomes, so they are indifferent between choices with equal expected payoffs even if one choice is riskier. It is an intermediary state between risk averse and risk-lover people. In that specific case, the wealth expected utility is exactly equal to the utility of the expected value[79].

The risk lover: This type of individual has a preference for risk. They are sometimes also called risk-seeker. They will prefer a random distribution of their wealth rather than receiving the expected value of wealth. These individuals have a convex utility function.In brief, the convexity or concavity of the function measures the consumer's attitude towards risk[80], as shown in figure 6.

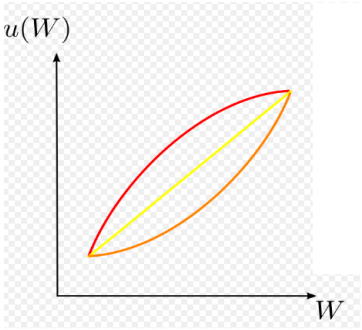

Figure 6 – Setting of wealth and utility of wealth of risk averse (red), risk neutral (yellow) and risk lover (orange) individuals[81].

[78] HAL R. VARIAN, *Introduction à la microéconomie*, Ouvertures économiques, de boeck supérieur, Traduction de la 9e édition américaine par Bernard Thiry, 8e édition, 2e tirage 2016, pp 257-258.
[79] *Ibid.,* p. 259.
[80] *Ibid.,* p. 258.
[81] WIKIPEDIA, *Risk Aversion,* [ON LINE], URL: https://en.wikipedia.org/wiki/Risk_aversion, consulted the 16 of March 2019.

That means, loan applicants and institutions will be considered as risk-averse people. That shape sticks to many economic theories which often consider consumers and investors as risk-averse individuals. In addition, the data have shown that savings accounts in Belgium are getting bigger and bigger each year. The Belgians are putting aside a lot of their income in a period of uncertainty and economic crisis, even though the interest rate is close to 0%. On average, they do not seek higher payoff, and that is, because of risk. So, considering them as risk averse is not far away from reality.

Chapter IV : Conclusion

1. Consequences for credit institutions

Determining a minimum collateral fixes a maximal rate.

Each contract is characterised by a locus collateral and rate. If the collateral becomes fixed, by definition, the rate becomes fixed as well. The negotiation space, determining both, definitely becomes limited. In the Belgian stake, applicants who were denied in one particular institution could have been accepted in another under tougher conditions (a higher interest rate or duration for example). Fixing a minimal collateral requirement denies variation of the basic interest rate of the loan. The negotiation margin which could lead to a higher rate and lower collateral becomes insignificant. It becomes impossible to obtain a higher rate for a lower collateral.

Increasing minimum collateral may cause an increase or decrease of the bank's return.

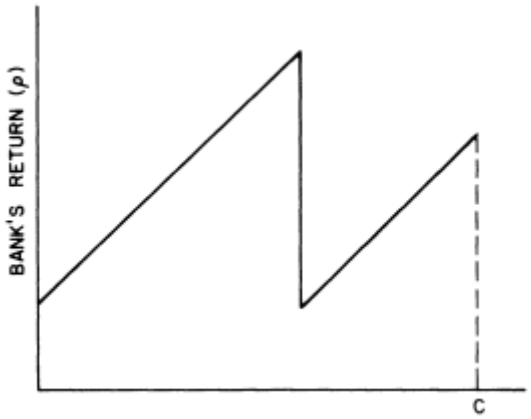

Figure 7 – Increasing collateral requirement lowers bank's return[82].

In the real world, while the direct effect of more collateral serves to increase the bank's profits[83], the net effect is ambiguous and depends on the extent to which absolute risk aversion decreases with

[82] STIGLITZ J. & WEISS A., *Op. Cit.,* 1981, p. 405.
[83] STIGLITZ J. & WEISS A., *Op. Cit.,* 1992, p. 705.

wealth. As such, increasing the collateral requirements of lenders may beyond some point decrease the return of the bank by either decreasing the degree of risk aversion or by inducing applicants to undertake risker projects[84], as depicted in figure 7.

Collateral as incentive mechanism

Borrowers need incentives to pay back their debt. Collateral is used as an asset that banks can seize if the borrower defaults. Collateral requirement is also used by banks as an incentive mechanism. By putting down a collateral requirement, borrowers can benefit from a lower-interest rate throughout their contract. It creates an incentive to pay back the loan, otherwise the person will lose the collateral, but, also, to put down some collateral, as they will benefit from an interest-rate reduction. By imposing a minimal collateral requirement, this incentive mechanism could disappear as it is no more an incentive but an obligation.

Why would banks therefore want more collateral?

The answer is rather simple: banks are also risk averse. They prefer stable and certain income over high volatility and high-risk income. As a leveraged business, they need steady and secure income in order to fulfill their daily financial operations. They do not like to hold reserve cash because it could be yielding somewhere else. Therefore, by asking more personal contribution and increasing the collateral, they diminish the compulsory reserve for loans and make their credits safer. Moreover, it could also be possible that banks may try to anticipate the future international obligation of Basel IV translated into the BNB recommendation.

Exclusion of risk seeking institutions from the market.

It should be reminded that the actual credit market strongly polarized between high-taking risk institutions and low-risk institutions. The first one's looks for the less risks as possible and therefore put high selection criteria for their applicant. The second one's looks for risky applicants in order to get higher yield and are even specialized in the resolution of contentious cases. Such a measure will restrain right for these institutions to continue their activities on the market.

The financial market as a whole

The financial sector as a whole becomes more secure and stable because it experiences fewer contentious issues. The credit considered as risky is not allowed anymore, which ensure more stability and security on average. The new loans have less probability of going to default. It could also be expected that a more stable and secure market will perform better.

[84] STIGLITZ J. & WEISS A., *Op. Cit.*, 1987, p. 228.

2. Consequences for the Belgian population and the social justice

In the previous chapter, it was argued that the mortgage credit market is a stake in which the State should intervene to ensure protection of basic economic rights. The different existing State's regulations have been reviewed. Although, the loan application process could seem framed by the law, it is definitely a competitive and a subjective process. With the official documents they can ask for, credit institutions assess the situation of applicants and make contract conditions from it. Each institution has its own method of evaluation and calculation. Moreover, they vary the rate and collateral requirement to gauge the financial situation and create incentives for their potential borrowers.

In a context of crisis, increasing debt, loan to value and debt service to income ratio, some banks are still playing a role to allow particular citizens to access the credit market. But, others, more reluctant to grant risky loans, demand more framing from the State. This is exactly what the BNB recommendation is all about. Either banks save more equity aside for those risky loans which they definitely do not want to do, or they stop granting such loans. A law specifying this request could end this issue for banks as it would then become 'officially' acceptable to refuse to grant specific loans. Nowadays, this subjectivity of appraisal may be seen as discriminatory and unfair.

This law could be summed up as "The minimal contribution law" which would make "illegal" loans to any individual who could not provide at least 20% of the value of the real-estate. We surely agree that loans with a loan to value ratio superior to 80% are not the only risky credits as it exists other ways to assess the riskiness of a loan (debt service to income ratio, reputation, type of income and so on).

By ensuring this kind of regulation, the State does exactly the opposite of what a State intervention should embody. To draw upon Jacobs' theory of social rights, inequalities are socially constructed and lie in the political, the social and economic framework. The State must alter the social framework to correct those inequalities. The introduction of such a measure will hinder social justice across the country. The cement "Poor pay more" got even worst. Before the introduction of the measure, the allocation form of credit in Belgium exhibited a lack of **background fairness**, a lack of fairness about the 'rules' governing the competition, which allows judgments about eligibility. After the introduction, the rules became crystal-clear, there is no space left for judgments from the institutions. The allocation exhibits now a lack of **procedural fairness** as the basic rules governing the competition are unfair.

The potential effect on the person falling behind the twenty-percent obligation is clear: they do not have anymore the right to participate on the credit stake. They will automatically be denied access to the market, whatever the reason could explain their situation and so, even though the other parameters were green for granting the credit. In a situation where the average prices of the market

increase more than the average salary, such a measure will exclude a lot of people from the stake. In that sense, it also exhibits a lack of **stakes fairness** meaning that they are more losers than ever before in the competition.

3. Limits to this analysis

The analysis lies solely on our understanding of the Belgian stake market. No economic models or data were used in this study. Other social justice perspective could have also been apprehended.

4. Further research

Further research could be done with a focus on how State interventions should regulate the moral hazard effect. Other interventions could be apprehended as well. A microeconomics study could also be conducted.

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Résumé

The objective of this thesis is to assess a potential State intervention and its effects from a social justice perspective. More precisely, the fixation of a minimal collateral requirement of 20% for the applicant will be covered. As it can be expected, such a measure would hinder social justice as less people will be able to enter the market, but, less intuitively, it would also influence banks return, abilities and its mechanisms.

This thesis is conceived as follows: it shall at first define the concepts used in the questioning (mortgage loans, the dysfunctionality credit market, State regulation, the credit stake etc.). Then, it will be argued that this questioning is a social justice issue and therefore needs to be seen as such. Afterwards, all the actual regulations will be listed. Next, we will draw the prequels of the new regulation, in our case, a minimal collateral requirement, and see how it will influence the actual credit stake. To conclude, we will review the potential consequences and issues that may appear on the market if such a measure is to be put in place.