Open University Cyprus **Hellenic** *Open University*

Master's joint degree/post graduate Program
Enterprise Risk Management (ERM)

MASTER THESIS

Perception of risk and borrowers' behavior

Liliana Androutsou

Supervising Professor
Antonios Targoutzidis

March, 2020

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Summary

Financial behavior has been mostly studied from the economic perspective. However, human behavior and borrowers' behavior particularly cannot be explored from a macro perspective and the statistical dependencies only. Borrowers' behavior ought to be studied within the field of economic psychology as well, a research field that applies theories from psychological science in the study of economic behavior.

Engaging in borrowing is a complex decision-making process that can be the reason for financial degradation which might even lead to bankruptcy. What is more, normalization of debt as well as constantly increasing credit competition renders it of crucial importance to study the factors underpinning borrowing behavior from all perspectives. This Thesis presents the factors determining borrowing behavior as recorded in the existing Literature, focusing on the factors mostly related to subjective risk perception. By analyzing the validity and applicability of existing Risk Perception Approaches with associated models, this Thesis manages to present how economic decision-making related to debt is influenced by the way and the extent borrowers perceive economic risks they are engaged in.

I dedicate this Thesis to my beloved daughters, Iokasti and Claire!

For the time you sacrificed immensely along the way, I love you!

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Introduction

Economists explain differences in financial behavior among people by means of their material situation. It is commonly acceptable that the more money people make the more savings they have, the more they spend, the more expensive products they buy and where income lacks, credit provides the means. No matter how simple this relation may seem it is true from a macro perspective and the statistical dependencies. ***However***, from an individual perspective of a single person the situation is different. Other factors, such as differences in financial behaviors that also depend on *social and psychological factors* such as emotions, personality traits, general approach to life, level of optimism, sense of control over life, relation to money, level of materialism, money spending style and last but not least ***risk perception***, have also a major impact**.**

Debt makes life easier as it allows for the earlier enjoyment of various goods or properties necessary at different stages of life. What is more, the increase of credit competition destabilizes the relation between lenders and borrowers in favor of borrowers: since there are several financial institutions which borrowers can apply for credit to, the negotiating power balance between borrower-lender changes at borrower's benefit. These two factors create incentives for borrowers to engage in potentially harmful behavior such as high cost borrowing, over indebtedness or multiple borrowing. Since engaging in borrowing is a complex decision-making process that can be the reason for financial degradation which might even lead to bankruptcy, this Thesis focuses on the factors (mostly related to subjective risk perception) underpinning this financial behavior.

Risk has been a subject of study in many different fields of Social Science research and with various approaches. Risk perception research originates in cognitive psychology and the research on heuristics and biases. Given that economic decision-making is probably influenced by how people perceive economic risks, it is of interest to study how these risks are perceived. How risk is conceived /perceived and at what level is an

area open for debate in the existing literature. Borrowers' risk perception related to Loans is the main interest of this Thesis. Financial decisions are widely accepted as complex ones and therefore need to be analyzed in terms of risk perception approaches as well.

The main question addressed in the present Thesis is the Risk Perception of borrowers related to Loans. By answering this question two gaps in the existing literature are intended to be addressed:

1. On the one hand, several studies on debt have focused on the effects of various factors such as income, financial literacy, psychological factors, demographics and macro-economic conditions. Yet, risk perception as related to borrowers' behavior has not received the same attention as the other factors.
2. On the other hand, risk perception research has focused mainly on issues related to health, road safety, environmental and dangerous substances issues. However, how borrowers perceive risk is only marginally discussed in the existing Literature.

By studying Risk Perception of borrowers related to Loans, borrowers' behavior can be better understood; their financial wellbeing can be protected, financial markets can be better regulated and economy will not be threatened by potential bankruptcy of individuals or financial institutions.

Methodology

This Thesis is the result of studying numerous studies that demonstrate the ways in which people behave in the area of finance, debts particularly. A targeted, thorough research of the literature combined with writer's critical viewpoints manage to offer a closer look at borrowing behavior determinants with *greater* emphasis on the role of subjective risk perception on processes before and at credit acquisition. The present Thesis is written within the field of economic psychology, a research field that applies theories from psychological science in the study of economic behavior.

The ***first chapter*** of this Thesis constitutes a literature review based on existing empirical quantitative and qualitative research study related to borrowing behavior. Applying PESTLE Analysis, this chapter analyses the evidence about socio-economic factors such as income, asset holding, age, gender et cetera that can affect borrowing behavior. Financial literacy and financial capability levels are studied in terms of borrowing behavior as studies have revealed a linkage between them. PESTLE analysis Apart from the individual level factors, external factors that determine borrowing behavior such as macro-economic conditions, consumer credit marketing, product design and digital transformation are also studied. Personality is also a point of interest when studying borrowing behavior; this is why the literature review of this chapter includes psychological factors such as personality traits, self control, self perception, perception of others, hope, patience, trust, et cetera.

As ***borrowers' risk perception*** is the main issue of study in this Thesis, chapter one includes a subsection of a brief literature review on Risk Perception Approaches and models as an Introduction to the concept of Risk Perception. The concept of risk is analyzed in a separate section indicating the importance of understanding the significance of the way it is perceived. Risk perception approaches, existent in the

literature, are presented in two main sub sections: a) theoretical positions focusing on the individual level and b) theoretical positions focusing on the social level.

Chapter two, the main chapter of this Thesis, is an analysis of the applicability of the Risk Perception Approaches reviewed in chapter one on explaining Borrowers' behavior in terms of risk perception. Research evidence is either affluent or sparse or even nonexistent for certain risk perception models. In all cases, findings from existing literature as well as the writer's conclusions are analyzed in order to determine the validity of the Approaches and Models and reach conclusions on how risk perception study can contribute to Borrowers' Behavior Study. The analysis is made mainly from the perspective of laypeople rather than of experts as it is laypeople who particularly evaluate risks based on subjective perceptions.

The last chapter includes the main conclusions by means of a reflective summary of the main findings in this Thesis.

Chapter 1

Literature Review

The borrower is a servant to the lender.

King Solomon

Access to the loan market is an important issue for many individuals in reaching goals such as smoothing consumption when necessary for several reasons or purchasing a home. However, what drives individual debt behavior? The term borrower might refer either to an enterprise or to an individual. In either case, borrowing behavior is pertinent to risk perception. The following literature review attempts to highlight the findings of several surveys around the world on borrowers' behavior.

1.1 PESTLE ANALYSIS

PESTLE is an acronym for six forces that drive change: political, economic, socio cultural, technological, legal and environmental. PESTLE Analysis is a powerful and widely used tool for understanding strategic risk. In the present Thesis, it is used to determine the factors that influence or determine individuals' borrowing behavior. It is of great importance to strategists of financial institutions as they seek to understand external factors and evaluate how financial institution models will have to evolve in order to adapt to their environment of operation.

Socio-economic factors

1.1.1 POLITICAL / DEMOGRAPHICAL

Gender

There is relatively little evidence of good quality indicating significant gender differences in borrowing behavior. Females are more likely to use some forms of high cost credit such as home credit, more than males do due to factors including existing high debt levels, low financial literacy due to being less likely to use technology to engage with financial information and last but not least due to impulse buying (Bermeo, 2017; Worton et al, 2018). While males are more confident to entering into financial commitments, mainly because of expecting higher incomes with lower propensity to experience financial stress and anxiety, generally females rate risks higher than men do (Finucane et al, 2000; Fromm, 2005; Sjöberg, 2003).

When variables of gender and income are combined, studies have shown that in socially and economically under-privileged communities, males are more willing to pay higher interest rates compared to females especially when their current financial costs are high. This behavior indicates that males are relatively ignorant of, or disregard, the risks that high interest rates can bring resulting in increasing their financial burden and deteriorating their low-income burden (Kim, Lee & Lee, 2018). Unlike males though, females are more likely to get into credit card debt as they are more emotional and more prone to negative moods and giving in to depressive states which interprets their greater propensity for compulsive buying (Vieira, Rovedder de Oliveira, & Reis-Kunkel, 2016). According to a single survey in Italy, female owned and ran enterprises though have on average a larger, but shorter, number of lending relationships and more frequently assisted with collateral, personal guarantees, or both which indicates that differences are apparent in credit access as a result of discrimination and structural differences between male- and female-owned firms (Calcagnini et al, 2015).

In a cross country research, this discrimination is highly reported in high-gender bias countries on the grounds that in such countries, female entrepreneurs are self deterred from the formal credit granting process, for fear their loan application will be denied although there are no statistical differences between female- and male-owned firms in loan rejection rates or in the terms on granted loans. The evidence suggests taste-based

gender discrimination that limits credit access of firms owned by females as a result of self choice to opt out of the credit granting process as a result of cultural attitudes and not taste-based discrimination at the level of the bank (Ongena and Popov, 2015).

One might wonder how much Ibsen's statement is still valid more than a century after it was first made:

"A woman cannot be herself in the society of the present day, which is an exclusively masculine society, with laws framed by men and with a judicial system that judges feminine conduct from a masculine point of view".

Henrik Ibsen, Ibsen's Workshop, 1912

Age

There is strong evidence about how levels of borrowing vary by age but very little about ***why*** young people start borrowing (Money advice Trust, 2016) or even how and why borrowing risk taking patterns vary over life - cycle. The consensus is that borrowing increases with age up to a point (Ekici & Dunn, 2010; FCA, 2017). However, pre 2008 data show that average total household debt was larger for younger households than for older ones (Brown & Taylor, 2008). The idea that debt is becoming normalized over time among young people (Cakarnis & Alessandro, 2015; Horton, 2017) is supported by the fact that over time each cohort of young people borrows more than the last one (Houle, 2014). That is true for older households as well that are engaged in mortgages at higher rates, and borrowing more than prior generations due to factors other than increasing levels of income or education, or cohort shifts in marriage rates, urban location or race, or rising wealth, or bequest motives. It has been evidenced that it is rising rates of homeownership that explain accelerated mortgage borrowing among older households (Collins, Hembre, and Urban, 2018). Aging effects though have been evidenced to overpower cohort effects on explaining borrowing patterns; the oldest-old are much less likely to have outstanding borrowing than their younger counterparts. With fewer than one in five cases, persistence in borrowing involves existing borrowers who become bigger borrowers in their late 60' or 70's with negative outcomes on their balances.

Another issue also raised by Finney (2013) is that of the increasing numbers of older people looking to support their children and grandchildren financially with a negative outcome also on their own debts particularly in the case of those who have difficulty in making ends meet at the end of the week or month. Age determines repayment rates as young borrowers make lower repayments than their parents did and even lower than their grandparents (Agarwal & Zhang, 2015) whereas older people are marginally less likely to overspend or default (Singh, Bozkaya, and Pentland, 2015). Another study among young students and young professionals revealed that despite greater knowledge young professionals appeared to decide on a credit card more impulsively than students, although greater knowledge did lead to better credit choices (Cakarnis & Alessandro, 2015). Although age seems to play a greater role than knowledge, according to Simcock, Sudbury, & Wright (2006), age differences are associated with specific risk factors and that the relationship of age and behavior towards high involvement purchases such as a loan is not always linear.

1.1.2 ECONOMIC

Income

Low income households are less likely to use consumer credit than those on higher incomes and mostly resort to it only to make ends meet and pay for essentials – the so called survival borrowers (Autio et al, 2009; Brown & Taylor, 2014; Brown & Taylor, 2008; Ejebu, 2018; FCA, 2017; FCA, 2014; French & McKillop, 2016). Unemployed and non asset-holding consumers are also reported to significantly consume credit less (Ottaviani & Vandone, 2011). High necessity of credit urges people in need to resort to high cost lenders and become risk ignorant (FCA, 2017; FCA, 2014; Lim et al, 2014; Personal Finance Research Centre, 2013). Shah, Mullainathan & Shafir, (2012) showed by use of experiments that poverty stricken persons undertake financial obligations that are too big in relation to their income which leads to further deterioration of their financial situation due to the fact that poverty related concerns deplete mental resources, leaving fewer resources for other problem solving. Poverty causes a shift on people's attention focusing merely on certain criteria and ignoring other that might be more crucial, such as the cost or the general impact of borrowing on their lives.

Reduction of cognitive capacity therefore makes poor people risk ignorant and less thorough when analyzing personal credit offers and their terms and conditions being vulnerable to unattractive or even deceptive financial products, something that wealthy people do not experience (Mani et al, 2013; Shah, Mullainathan & Shafir, 2012). The more income increases, the more credit use increases (Agarwal, & Zhang, 2015; Martin, 2018; Brown & Taylor, 2008; Ejebu, 2018; Whittaker, 2018). Walsemann & Ailshire, (2017) reported that where borrowing is required for social goods such as education, young people from high income households are more privileged as related to those coming from low income families as the higher the income the more student loans are taken on. Rasmussen's (2017) study has proved that higher income households are more likely to choose ARMs in mortgage choice. In another study, the effect of income has been reported to be ***stronger*** than the effects of personality traits (Brown & Taylor, 2014).

Asset holding

Housing wealth regulates levels of various forms of loans. It is well evidenced that homeowners have higher levels of borrowing as compared to non-homeowners (FCA, 2017; Brown & Taylor, 2008; De Veirman & Dunstan, 2012; Martin, 2018). Residential property prices have operated as a determinant of the mortgage debt increase (De Veirman & Dunstan, 2012; Kartashova & Tomlin 2017; Stockhammer & Wildauer, 2018). As with low-income households, renters appear more vulnerable before high-cost lenders (FCA, 2014; Personal Finance Research Centre, 2013). However, there is little evidence about the effect that liquid savings have on borrowing behavior although according to studies, lack of savings can increase vulnerability to debt problems (Martin, 2018). Co-holding borrowing and savings has been found to be the result of consumers' desire to maintain their self perception as responsible with borrowing serving as a shield to valued and earmarked savings (Sussman & O'Brien, 2016).

External factors shaping people's borrowing behavior

Research needs to go beyond the individual level in order to consider the evidence about the role of external factors that exert influence on people's borrowing behavior (Davies et al, 2019).

Macro-economic conditions

Macro-economic conditions, to wit economic factors that influence the state of the whole (aggregate) economy, such as changes in employment levels, gross national product (GNP), and prices (deflation or inflation) (businessdictionary.com, 2019) play a major role in shaping people's financial situations, their access to borrowing and the cost of borrowing with certain impact on their borrowing behavior (Davies et al, 2019). Particularly, rise in residential property prices has led to rise of aggregate household debt to income ratios (Disney, Bridges, and Gathergood, 2010; Stockhammer & Wildauer, 2018).

1.1.3 SOCIAL

"Any informed borrower is simply less vulnerable to fraud and abuse".

Alan Greenspan

Financial literacy, financial capability

Financial literacy as well as financial capability is included in this section because financial literacy levels are related to the way society perceives indebtedness. If the importance of financial literacy is recognized then society can provide citizens with proper education. Levels of Financial literacy, defined as the knowledge that leads to informed decisions about the use and management of money (Besharat, Carrillat, and Ladik, 2014), have thoroughly been researched and findings conclude that they are related to borrowing behaviors and particularly to high-cost over-indebtedness (Bahovec, Barbić, & Palić ,2015; Disney & Gathergood, 2013; Drexler, Fischer, & Schoar, 2014; Lusardi & de Bassa Scheresberg, 2013; Lusardi & Tufano, 2015; Ottaviani, & Vandone, 2018; Sevim, Temizel, and Sayılır, 2012; Stango & Zinman, 2009). There is evidence that lower financial literacy is linked to poor borrowing behaviors and over indebtedness with concerns that young people as well as the elderly are particularly at risk (Disney & Gathergood, 2013; Levinger, Benton, & Meier, 2011; Lusardi 2015; Bajo & Barbi, 2017; Stango & Zinman, 2009) as they are more vulnerable to poor borrowing decisions with negative impacts on them as they are more likely to default (Brown, &

Taylor, 2008; Patel, Balmer, and Pleasence, 2012; Ottaviani, & Vandone, 2018; Robb, 2011; Shen, Sam, and Jones, 2014) especially on mortgages (Gerardi, Goette, & Meier, 2013).

On the other hand, higher level of financial literacy, understanding of the principles of economy and of market mechanisms functioning makes people less prone to taking out significant interest-bearing payday loans (Kim, Lee, & Lee, 2018). SMEs (Small and Medium Enterprises) are another field of study which revealed that there is weak relationship between general financial knowledge and loan financial behavior (Aketcha & Odondo, 2017; Stefanitsis, Fafaliou, & Hassid, 2013). Although financial literacy education would be expected to change people's borrowing behavior, certain studies have revealed that it has little or no long-lasting effect on people's borrowing behavior (Agarwal, Chomsisengphet, and Lim, 2017; Allgood, & Walstad, 2016; Cakarnis, & D'Alessandro, 2015; Cole, Paulson, and Shastry, 2016) unless they focus on psychology and behavior (McNair et al, 2016). However, a former literature review has urged the need for financial education arguing that many existing approaches are effective as objective financial literacy ***does*** mitigate the use of high cost services (Chatterjee, 2013).

Perception of others and the social world

Fromm (2005) supported that individuals' risk perception is not restricted to personal experience but in many cases is a result of social communication with sources found in society, e.g. the media, friends and family. However, it is experts that play a crucial role in societal risk management, as from the position they hold their opinions can affect attitudes, beliefs and risk perception of common people particularly. Human senses cannot always perceive risks; individuals do not always personally experience and feel the negative consequences and therefore resort to other people's assertions (Rohrmann & Renn, 2000). In a society though that over indebtedness or simply indebtedness is normality, what other people do matters for borrowing and how we perceive of problem debt and the risks it entails.

The social norm effect of problem debt has been found to lessen the worry and anxiety aroused by the financial difficulty the borrower might be found in neglecting or ignoring therefore the risks (Gathergood, 2012). Greater social interactions and closeness of

social bonds (Brown, Ghosh, and Taylor, 2016) as well as frequent social network users with strong network ties (Wilcox & Stephen, 2013) are estimated to contribute to greater credit use as a result of the fact that borrowing is encouraged in order to live up to those expectations. Establishing a self-identity through social relations and consumption, expressing status and power through the use of money and generally trying to keep with peers or as they say with the Joneses all result in excessive borrowing. Unaffordable level of borrowing can therefore be attributed to how borrowers understand their peers' values while at the same time neglect the risks involved.

1.1.4 TECHNICAL

Marketing Practices

There is robust evidence that lenders' ***marketing practices*** can increase the risk of over-borrowing and problem debt (FCA, 2016; Skalamera-Alilovic et al, 2017). The idea is based on the marketing practices applied by lenders that create the feelings and assumptions on borrowers that they ***deserve*** and can ***manage*** further borrowing (Collard, Finney, and Davies, 2012). Marketing strategies that include pre-approved credit card solicitation, reward programs and zero interest offers boost credit card borrowing (Agarwal & Zhang, 2015; Bijak et al., 2015). However, such behaviors are adopted by high risk borrowers and commercial banks appear to make poor lending decisions as they lead to higher levels of default (Agarwal, Chomsisengphet, and Lim, 2017). In general, marketing practices take advantage of common behavioral biases and risk people over-borrowing.

Product Design Characteristics

Product design characteristics such as speed, convenience and easy access of e.g. payday loans are attractive to high-cost credit as well as risk ignorant borrowers especially when they can have no access to other forms of credit (FCA, 2015; Financial Consumer Agency of Canada, 2016).

Digital transformation

Digital transformation of financial services has contributed to product innovation and evolution with new entrants that aim to capitalize on consumer take-up of mobile and digital technologies and the ready availability of consumer and financial data (Davies et al., 2019). Although there is very little research or discussion about the impact of digital transformation of financial services on consumer borrowing behavior or about consumer views and experiences of the changes (bankingsupervision.europa.eu, 2019; capital.gr 2018; insider.gr, 2017; privatedebtinvestor.com. 2017), it is undoubtful that the digital transformation of financial services has induced the way people interact with their money and financial firms. Online loan offers are valued by borrowers who also prefer the confidentiality of online lending to visiting the lender's premises appreciating also the speed, convenience, and easy access no matter the high cost credit (Conduit Scotland, 2018; FCA, 2015; Financial Consumer Agency of Canada, 2016).

Increasing credit card debt can be a result of unlimited Internet access and higher online purchase frequency related to this along with the growing availability of online lending companies connected to this. Basnet & Donou-Adonsou, (2016) show the important role of psychological traits which determines financial behavior of Internet users who are characterized as impulsive, materialistic, and with a lower creditworthiness. There is a need for more research on how personal financial behavior may change in relation to the development of mobile and digital technology especially in the case of young adults who are repeatedly mentioned as particularly susceptible to the effects of digitization both as consumers and borrowers (Carlsson et al, 2017). What is more, intense online social network interactions lead, via a reduction in self-control due to increased self-esteem, to higher levels of credit card borrowing (Wilcox & Stephen, 2013).

1.1.5 LEGAL

Although the introduction of regulations intends to limit excessive borrowing, stricter borrowing regulations and requirements imposed since the financial crash has led new financial consumers towards high-cost credit or towards alternative (potentially cheaper) online products (Bermeo, 2017) mostly in order to make ends meet, financial

consumers referred to as “survival borrowers” (FCA, 2014). Borrowers’ information and enlightenment on loan terms can be achieved by means of KFS (Key Facts Sheets) which can successfully enhance borrowers’ decisions (Skelton, 2015).

The existence of bankruptcy Law provides evidence of the need to protect borrowers holding excessive debt as a result of wrong financial decisions due to various factors. In Greece, not only merchants but consumers as well can petition for the regulation and discharge of their obligations due to the current socioeconomic conditions and the overall odious financial environment (Zygouras, Karlou & Kaptanis, 2019).

1.2 PERSONALITY

Psychological factors

Psychological factors have been reported to shape people’s borrowing behavior (Davies et al, 2019; Maison, 2019).

According to Maison (2019), “*financial behaviors, apart from the level of finances held, depend on many social and psychological factors like, for instance, a person’s general approach to life, their level of optimism, sense of control over their life, relation to money, level of materialism, and money spending style*”. Maison (2019) argues that “*when psychological factors are taken into account along with demographic variables and income, when examining the drivers of various financial behaviors, the significance of demographics and income either ceases or clearly drops”,* pointing out thus the importance of psychological factors.

There is a diverse range of psychological factors that exert influence on borrowers’ behavior such as Personality traits, General impulsivity and self-control, spending self-control and spending orientation, self perception, perception of others and the social world, and the mental short-cuts that they make and may lead to biases in how they behave. Acknowledging the various interactions between psychological factors along with the capacity for one factor to mediate (and moderate or amplify) the effects of

another is of great significance in understanding borrowers' attitude towards the risk they decide to undertake.

Contrary to Maison (2019), other evidence suggests that the power of psychological effects that explain borrowing behavior may be less important than other personal factors, especially income, and other socioeconomic characteristics (Davies et al, 2019). *Research therefore is inconclusive and contradictory.*

1.2.1 The big five core personality traits

The five broad personality traits that serve as the building blocks of personality acknowledged by most contemporary personality psychologists are referred to as the "Big Five": ***extraversion, agreeableness, openness, conscientiousness, and neuroticism*** (Cherry, 2019). Behavior involves an interaction between a person's personality and situational variables that he/she is exposed to. The situational variables play a crucial role in the way people react but always consistent with their underlying personality traits. Surveys trying to relate personality traits to borrowing attitudes have concluded that ***Extraversion, agreeableness, openness and neuroticism are positively*** related to borrowing commitments while ***conscientiousness is negatively*** linked although their effect is much smaller than the effect of income (Brown & Taylor, 2014). According to Davies et al (2019), people's underlying personality traits may not be amenable to intervention; without diminishing the importance of their study when trying to understand individual differences in personality as potential drivers of behavior change.

1.2.2 General impulsivity or lack of general self control

General impulsivity or otherwise stated as a ***lack of general self control*** has been found to significantly predict of any use of unsecured borrowing, debt service-to-income ratio and borrowing for daily expenses (Kempson, Poppe, and Finney, 2017; Ottaviani & Vandone, 2011; Ottaviani & Vandone, 2018) and even of high cost, short-term credit (Appleyard, 2015; Worton et al, 2018). Higher levels of general self control on the other hand are linked with lower levels of (total) borrowing (Achtziger et al, 2015; Bearden and Haws, 2012). The impact of general impulsivity however should also be seen in

relation with other factors and not as a single factor. In fact, inclusion of impulsivity mediates or overrides the influence of financial literacy or debt service-to-income ratios (Ottaviani & Vandone, 2018). Age is highly positively linked to general self control as the older the borrower the more self controlled he/she is while gender and income are not linked (Achtziger, 2015).

1.2.3 Spending self-control

Spending self-control is related to over borrowing and people's willingness to pay more to borrow. Spending orientations which reflect consumerism and materialism also increase levels of borrowing, potentially via compulsive spending (Davies et al., (2019). From a macro perspective and the observed statistical dependencies there are differences in financial behaviors among people being explained by their material situation, the more money they earn the more they spend, the more expensive products they buy and the more savings they have. However, from an individual perspective of a single person ***<u>no</u>*** two people have the same propensity or preferences on spending. Materialism (the belief that material possessions provide happiness) may influence borrowing behavior indirectly as it strongly predicts compulsive buying which in turn predicts higher credit card borrowing (Brougham et al, 2011). As expected, lower spending self control along with compulsive buying (the inability to control purchasing behavior) lead to excessive borrowing (Achtziger, 2015; Bearden & Haws, 2012; FCA, 2014; Lo & Harvey, 2011). Although general self-control and spending self-control are related, they should be seen distinctively as lack of spending self-control is more strongly related than general self control to reporting having too much borrowing (Bearden & Haws, 2012).

1.2.4 Perceptions of self

The need to maintain a positive self-perception and a positive identity can influence borrowing behavior negatively. The tendency to co-hold savings and borrowing as a means of avoiding guilt and maintaining a responsible self-perception, indicative of the value placed on savings, leads people to protect them in favor of borrowing regardless the additional cost incurred and even considering it to be a sensible decision (Sussman & O'Brien, 2016). Recent home leavers in an attempt to establish a sense of total self-

identity (McNeill, 2014), individuals who seek self-worth promotion (Collard, Finney, and Davies, 2012) as well as social media users with strong social network ties who experience increased self-esteem (Wilcox & Stephen, 2013) are found to move from manageable to unmanageable borrowing as a result of their intense effort to maintain a positive self-perception and a positive identity.

1.2.5 Patience

Inter temporal choice theory (Fisher, 1930) predicts that patience is negatively related to debt accumulation. Since 1930s, little but robust evidence has been recorded relating debt behavior to time and risk preference. Patience along with risk willingness has been significantly positively related to higher cognitive ability (Dohmen et al, 2010). It has been evidenced by Dohmen et al (2010) that lower cognitive ability is associated with greater risk aversion, and more pronounced impatience. The significance of these relationships is significant, and robust to controlling for personal characteristics, education, income, and measures of credit constraints.

Rasmussen (2017) established empirical evidence that elicited time and risk preferences are significantly correlated with observed real-life economic behavior. He found that heterogeneity in individual-level patience and risk aversion is important for debt behavior. He documented a negative relationship between patience and paid interest rates which suggests that behavior on the loan market relates to time preferences. The purpose of borrowing money is to increase current consumption at the expense of future consumption; therefore, the interest rate on debt can be viewed as the price paid for being impatient, as individuals who are more patient pay a lower price on average.

In general, patient individuals have lower ratios of non-mortgage loan to income, postpone the incurrence of their first non-mortgage further and pay a lower average interest rate on their debt once incurred. When referring to mortgage loans, patient individuals appear more willing to sacrifice present consumption to repay a mortgage loan, individuals are less likely to choose mortgages with deferred amortization (interest – only mortgages) and are less likely to be delinquent on loans. An IOM (interest-only mortgage) is a type of mortgage in which the mortgagor is required to pay

only interest with the principal repaid in a lump sum at a specified date (Kagan, 2018). Impatient individuals choose mainly IOMs as they are less willing to sacrifice present consumption to repay the mortgage. IOMs can enhance the welfare of individuals who expect their future income to be higher and can be used as a means to smooth consumption to repay the mortgage.

When deciding on a mortgage loan psychological factors may explain why ARM (Adjustable Rate Mortgage) borrowers tend to be ignorant of associated risk factors, focusing merely on pricing factors (Mori, Diaz, & Ziobrowski, 2009). According to the Nobel Prize winning Prospect theory's reflection hypothesis (Kahneman & Tversky, 1979) people tend to be more risk-averse in positive decision situations, while they tend to be more risk-seeking in negative choice situations.

Mori, Diaz, & Ziobrowski (2009), concluded that risk-averse people tend to become more risk seeking when deciding on a mortgage type, preferring mainly ARM as they frame mortgage choice problem as part of a loss situation, an attitude explained by psychological factors in the US as well as cultural ones worldwide. When the short-term rate level is high (low), the borrowers perceive low (high) risk of a short-term rate rise, thus deciding on ARMs (FRMs) (Fixed Rate Mortagages). Moreover, during a down housing market borrowers become more risk-averse perceiving higher risk in choosing ARMs. The perceived risk level alters the borrowers' sensitivity to the long-term bond risk premium (Kim & Ziobrowski, 2016). In Campbell & Cocco's model (2003) supported by Rasmussen (2017), ARMs are less beneficial to risk-averse households as they place high importance on the cash-flow risk of ARMs.

In the Australian market households choose between ARM products and CM (complex mortgage) products instead of FRMs like in the US and the determinants are interest rate differential between the products and the prevailing economic conditions (Dungey, Wells & Yanotti, 2012). Borrowers facing income risk and wealth risk are more likely to choose products which reduce their initial repayments, that is, CM products, while those facing mobility risk tend to choose flexible products such as an ARM (Dungey, Tchatoka, Wells & Yanotti, 2015; Konig, 2016). When refinancing, the past development of contracted interest rates affects borrowers' propensity to shop around. Particularly, if interest rates have increased compared to previous loans efforts to screen the market

for alternative offers are intensified compared to an environment of decreasing or constant rates (Lukas & Noth, 2019).

1.2.6 Hope

Hope is considered to be an antecedent of important marketing variables, such as trust, expectation and satisfaction (MacInnis & Mello, 2005) and therefore exerts an important influence on risk perception (MacInnis & Mello, 2005) and propensity for indebtedness (Fleming, 2008). Baros & Botelho (2012) proved that higher levels of hope predicted an increase in the propensity to accept the mortgage loan, independent of actual risks such as fixed installments or income stability, and an increase in the propensity of college students to get indebted to pay for their studies. High hopes decrease perceived risk levels and consequently contribute to an increase in the likelihood of getting indebted (Baros & Botelho, 2012). The idea presented by MacInnis and Mello (2005) that hope influences propensity for indebtedness due to a feeling that running any risks may be worthwhile should be investigated further.

1.2.7 Trust - Relationship banking

Studies have revealed great importance on the relationships between banks and retail customers prior and ex post to a loan application as the default rates of loans given to such customers score low. Relationships refer to different forms: transaction accounts, saving accounts, prior loans, scopes: credit and debit cards, credit lines and depth: relationship length, utilization of credit line, money invested in savings account (Brown & Zehnder, 2007; Chen, Lou & Van Slyke 2015; Mester, Nakamura, and Renault, 2007; Norden and Weber 2009; Puri, Rocholl, & Steffen, 2011; Schoar, 2012). Personal relationships remain an important marketing strategy especially for certain credit products such as mortgages (Bermeo, 2017; FCA, 2014). Relationship banking policies lead to increasing trust levels and declining complaint rates. Increase in survey-reported interpersonal trust is associated with decrease in online lending.

Especially in the case of mortgage loans, contrary to credit cards which are considered more impersonal, banks benefit from improvements in interpersonal trust. Trust and factors that affect trust have pushed on line lending and bank-based lending in opposite

directions determining thus online lending growth and generally FinTech development (Bertsch et al, 2018; Gropp & Guettler, 2017). Where there is lack of trust due to thin formal financial histories, particularly in developing countries, using behavioral patterns revealed by mobile phone usage can contribute to predicting repayment, lifetime customer value, or the social impact of a loan (Bjorkegren & Grissen, 2015). In relation to the relationship lending, trust can make amends for the asymmetry of information available so that the lending decision making can be enhanced and benefit both the lender and the borrower (Baskara et al, 2016). Trust levels therefore can influence levels of risk taking on behalf of individuals and financial institutions as well by establishing a relationship based on solid foundations minimizing risk level on both parts.

1.2.8 Borrower's bounded rationality

The importance of examining bounded rationality lies in the fact that it generates excessive borrowing as a result of a number of psychological mechanisms like procrastination, myopia, cumulative cost neglect, unrealistic optimism, and miswanting impairing their welfare (Sunstein, 2006). Comparing risk attitudes of homeowners across Europe, in an attempt to examine the rationality of borrowers' behavior, the general conclusion is that buyers in all countries are risk-averse, even when focusing on the different groups, as they choose options with relatively low risks and high-expected costs given the range of mortgage products on offer on the market, also influences the optimal mortgage (Neutboom, 2008). Overconfidence as well as lower objective financial knowledge could be a critical factor in some AFS users' decision to borrow (Bertrand and Morse, 2011; Lusardi and de Bassa Scheresberg, 2013; Robb et al, 2015; Seay and Robb, 2013). When referring to enterprises, evidence from psychology has long ago revealed that misperceptions of risk are widespread among aspiring entrepreneurs due to over optimism in evaluating future prospects and risk loving (De Meza & Southey, 1996).

1.3 RISK PERCEPTION

Risk perception is one of the most complex processes that happen in human brains and this is why researchers do not recognize a single theory that can combine all the dimensions that influence it. How risk is conceived /perceived and at what level is an area open for debate in the existing literature. Risk perception refers to people's subjective judgement as well as evaluations of hazardous and dangerous situations (Sjoberg, Moen, & Rundmo, 2004). Another definition of risk perception is that of AF Wahlberg and Sjoberg (2000) according to whom risk perception is either a cognition or a personality trait or a behavior. When evaluating different risks, the criteria people consider may vary depending on the individual and the situation he/she is involved in. Perception of risk is not based on rational judgments due to factors that include: systematic biasing of risk information, the use of mental shortcuts, and the way that risk information can be presented (Williamson and Weyman (2005). The scope of risk perception research is to create a better understanding of the processes of evaluating and tolerating risks (Rohrmann & Renn, 2000). Risk perception identifies subjective judgments made by people about the likelihood of negative occurrences. Paek & Hove (2017) distinguished two main dimensions of risk perception; the cognitive dimension and the emotional one. The first one relates to how much people know or can understand about risks while the latter relates to how people feel about risks. The emotional side of risk perceptions has been extensively studied by Slovic (2000).

Williamson and Weyman (2005) support that there is a division between approaches to risk that reflects the debate within the social sciences between the *realist and constructionist* continuum, about what is knowable in some "final" sense (Renn, 1992). The same division was supported by Thomson and Dean (1996) who posit risk conceptions on a continuum between probabilistic and contextualist models.

Because this thesis focuses merely on the subjective perception of risk, only the constructionist position will be discussed further.

According to the constructionist position, reality is constructed and represented through discursive social processes. Risk judgments and assessments are characterized by relativity, arising from the culture they are placed in and reflecting the values and social

organization of that culture. According to the Royal Society report (Pidgeon, 1998, in Williamson and Weyman, 2005), cultural variables are important in how people understand risk and that "differences in public evaluations of risk might consider the social and cultural context in which those exposed to a risk are located." Weyman and Kelly's (1999) conclusion is in the same context; effective understanding of people's reactions to risk is dependent on taking account of the social and cultural contexts in which hazards arise as well as the way these variables form people's attitudes, beliefs and behaviors. A *more* comprehensive understanding of risk perception can be achieved with the *combination* of the realist and constructivist positions, which though constitutes a real challenge (Williamson and Weyman, 2005). Pidgeon (1998) grouped *social science research* into two broad schools, the psychometric approach and cultural theories of risk.

1.3.1 The concept of Risk

Risk has been conceptualized as the probability of events and the magnitude of their specific consequences (Taylor, 1974). "The concept of risk is as old as mankind" (Garaczi 2013, p. 1), yet arguably the role of risk became significantly more prominent in late modernity. In all stages of life, individuals are exposed to various risks, among which economic ones are an important area. Within social sciences, risk is considered a complex issue which incorporates both quantitative and qualitative aspects. Apart from the factors mentioned so far, that regulate borrowers' behavior, the way borrowers perceive the economic risks they are engaged in, when taking out a loan, is explicit of the decisions they make.

The reason behind the study of risk perception regarding borrowers' behavior lies in the fact that the decision of taking out a loan is risky itself. Taking out a loan means short or long-term financial commitment which impacts financial wellbeing particularly in the case of over indebtedness. Indebtedness is closely related to uncertainty which constitutes a prerequisite for the existence of risk (Renn, 1992). Renn's (1992) argument was supported by Bernstein, (1998) who also argued about the non-existence of absolute certainty since the mass of available information in all circumstances is either inaccurate or incomplete. Power (2004) described the concept of risk as "elusive, contested and inherently controversial".

Certain approaches have been captured in the literature in order to interpret factors that determine the subjective perception of risk. The basic categories are the following:

- Behavioral Approach
- Cognitive Approach
- Socio-technical Approach

The present thesis aims at focusing on the study of the effect of subjective risk perception on borrowing behavior. A *brief* summary of relevant literature on risk perception approaches is presented in the following section.

1.3.2 THEORETICAL POSITIONS FOCUSING ON THE INDIVIDUAL LEVEL Rational actor models

These approaches are based on the assumption that human behavior is the outcome of rational choice; *behavioral decision theory* and *value expectancy models* are the main categories of this approach.

1.3.2.1 Behavioral decision theory

This theory originates from economic models of rationality relating to the concept of utility and benefits associated with an activity. Starr's work (1969) cited in Williamson and Weyman (2005) introduced the concept of "revealed preferences" where risks are evaluated in terms of costs and benefits. However, according to researches that followed, the concept of "bias" was introduced as people do not always make rational decisions due to "short-cuts" or heuristics that people use to reduce and manage the complexity of the situation they might be involved in.

1.3.2.1.1 Risk Homeostasis Theory

The **Risk Homeostasis Theory** (RHT) (Wilde, 1982) addresses mainly individuals' way of risk perception. The theory of risk homeostasis, also known as "risk compensation",

was primarily developed and validated in the area of road safety, however, the mechanisms that are involved in risk homeostasis are probably universal as supporting data come from quite different behavior domains (Wilde, 1998). Wilde (1982) states that there is a level of risk which people are generally willing to take. According to this Theory, the individuals' intention is to preserve an optimum balance of benefits and potential losses of the risky choice by maintaining a constant level of risk. In order for this theory to be better understood one might resemble it with the level at which a thermostat is set to stimulate the heating to keep the temperature in a house at the target level so that the temperature will therefore remain homeostatic. RHT transfers the homeostatic effect of a thermostat to risk behavior. According to RHT, like a thermostat is given a target temperature, people have a target level of risk. People will change and develop their behavior in order to maintain their target level of risk. This model is applicable only in cases that the individual is able to comprehend the level of risk and adjust as a result of increased controllability and direct feedback. Wilde (1982) introduced four different factors upon which the level of risk which people are willing to take depends:

1. The expected benefits of risky behavior alternatives (e.g., gaining time by speeding, fighting boredom, increasing mobility)
2. The expected costs of risky behavior alternatives (e.g., speeding tickets, car repairs, insurance surcharges)
3. The expected benefits of safe behavior alternatives (e.g., insurance discounts for accident-free periods, enhancement of reputation of responsibility)
4. The expected costs of safe behavior alternatives (e.g., using an uncomfortable seat belt, being called a coward by one's peers, time loss)

1.3.2.1.2 Prospect theory

Another analysis on the individual level is that of **Prospect theory** according to which the notion of selection between perceived benefits and losses is prevalent. The theory was developed by Kahneman and Tversky in 1979 as a psychologically more accurate description of preferences as compared to expected utility theory. Prospect Theory, which is an example of framing-effect approaches, is based on the notion that individuals make choices of risk against the secure choice based on their feelings for the

situations they are presented with (Tversky & Kahneman, 1981). People make decisions based on the potential value of losses and gains rather than the final outcome, and people evaluate these losses and gains by using heuristics.

According to Prospect Theory, decision making process takes place in two stages: editing and evaluation. In the first stage, some heuristics are used to order outcomes of the decision. In particular, people decide on the outcomes that they see as identical, set a reference point (e.g. current wealth) and then consider lesser outcomes as losses and greater ones as gains. In the next stage of evaluation, people behave as if they were able to compute a value, based on the potential outcomes and their respective probabilities, and then choose the alternative with the higher utility. Prospect Theory indicates that people are loss-averse since they dislike losses more than they like equivalent gains; they are more willing to take risks to avoid a loss.

1.3.2.2 Value expectancy models

Value expectancy models have been developed designed to provide an insight into the wide variety of variables that determine people's motivation to adopt cautionary, self protective behavior. According to Wenstein (1993), this approach gives answers to questions raised why people are motivated to protect themselves in relation to their understanding of risk and perception of vulnerability. It draws on assumptions from behavioral decision theory, that risk behavior is based on a rational decision making process where outcome alternatives are evaluated in terms of their utility (relative benefit). These models have been widely applied in health behavior and typically in non-workplace contexts. Wenstein (1993) identified that the various expectancy models have four characteristics in common:

1. Motivation for self-protection is a result of anticipation of negative consequences and the intention to minimize these outcomes
2. The impact of an anticipated outcome on individual action depends on perceived seriousness of consequences
3. The impact on motivation depends on the perceived likelihood of such an event occurring

4. The expected benefits of a particular action must be weighed up against or evaluated according to the costs of taking the protective actions

The best known and most influential value expectancy models are:

1. The Theory of Reasoned Action (Fishbein & Ajzen, 1975)
2. Theory of Planned Behavior (Ajzen, 1991)
3. The Health Belief Model (Becker & Janz, 1985)

All the above models are based on Subjective Expected Utility Theory and the central idea that health concerns, and subsequent behavior, are based on some form of intuitive cost benefit analysis.

1.3.2.3 The Psychometric Approach

This approach investigates the variables which determine people's judgement of risk. According to this approach, acceptance of a hazard is related systematically to qualitative characteristics of the hazard (Pidgeon, 1998). Within this approach a new conceptualization of risk has been given (Slovic, 1998): "… risk is inherently subjective. Risk does not exist out there waiting to be measured, but it is an abstract concept…". Cross cultural differences in tolerability of risk are also emphasized, indicating the influence of social context on perception of risk (Weyman and Kelly, 1999).

1.3.2.3.1 The Psychometric Paradigm

The psychometric paradigm developed by Slovic and his associates (Slovic, 2000) is a theoretical framework that incorporates both the cognitive and emotional dimensions of risk perceptions. A combination of a wide range of perceived risk characteristics distinguished between dread risk and unknown risk is used to judge the riskiness of a hazard. According to Slovic (2000), dread risk includes: "perceived lack of control, dread, catastrophic potential, fatal consequences and the inequitable distribution of risks and benefits" (Slovic, 2000, p. 225) whereas unknown risk includes: "hazards judged to be unobservable, unknown, new, and delayed in their manifestation of harms" (Slovic, 2000, p. 226). Paek & Hove (2017) argue that the psychometric paradigm has increased experts' understanding of the complex psychology behind people's risk

perceptions and of the reasons why certain risk issues are given greater importance than others even when in fact they are not as serious as they are perceived.

1.3.2.4 More.... Models

The risk perception model, the mental noise model, the negative dominance model and the trust determination model identified by Covello et al (2001) apply several of the risk characteristics identified in the psychometric paradigm in the context of risk communication in order to explain the way people perceive risks, the way they process information and the way the decide accordingly (Paek & Hove, 2017). Particularly, according to the *risk perception model*, factors such as: "voluntariness, controllability, familiarity, equity, benefits, understanding, uncertainty, dread, trust in institutions, reversibility, personal stake, ethical/moral nature, human versus natural origin and catastrophic potential" influence people's risk perceptions (Paek & Hove, 2017, p.4). The *mental noise model* is based on the assumption that the higher the level of mental noise or stress the less the ability people have to process information related to risk due to factors that resemble the risk perception model. The *negative dominance model* focuses merely on situations that produce risks and negative emotions such as fear, dread and anxiety which result in people focusing mainly on negative messages. The *trust determination model* stresses out the importance of perceived trust of the communicator in people's perceptions of risks and the way they respond to them. Caring, and empathy, competence and expertise, honesty and openness are several of the trust determination factors that contribute to building the communicator's trust (Paek & Hove, 2017).

1.3.2.5 The Mental Models Approach

The mental models approach to risk research is a technique based on insights from both cognitive and psychometric psychological research. Mental models are cognitive tools, which enable people to reason and put in order what otherwise would be disordered and incomprehensible. This approach is designed to study insights into lay people's perceptions of hazards and to map these onto expert models of risk. The key assumption of this approach is that people understand the world by using the internal representations they create of it and use these representations to reason with and so understand their environment and impose order and predictability on it.

Mental models are considered within Psychology as a primary mechanism by which individuals explain events and experiences, integrating knowledge, attitudes, beliefs, impressions and images. They can be therefore applied as a psychological tool for a better understanding of the world and reducing uncertainty (MacGregor & Fleming, 1996). In the case of risk perception, when people's mental models involve misunderstandings which can lead to wrong conclusions, this can lead to people being exposed to harm although they consider themselves to be safe, due to the presence of flaws and inaccuracies in their mental model for a particular risk. This qualitative approach applies processes to identify eventual gaps in understanding of hazards between expert and lay models of risk in order to achieve effective target of risk communication at these gaps. Weyman and Kelly (1999) went beyond the identification of common characteristics between the Mental Models Approach and cultural approaches noting that it is "fundamentally cognitive rooted within the psychology of the individual".

People's perceptions can be studied in relation to what biases influence their perception. Optimistic bias is considered to be the difference between the ratings of general and personal risk – a positive score indicating optimistic bias, which means the general risk is seen as larger than the personal risk. In other words, people tend to rate their own risks as lower than the risks to their peers. In risk perception research (Svenson et al, 1985; Weinstein, 1989), this tendency is referred to as unrealistic optimism or optimistic bias (Weinstein, 1980).

Economic risk perceptions are optimistically biased; general risk has been tested in relation to personal risk and was rated higher on all the included economic risks (Fromm, 2005). Optimistic consumers have been evidenced to hold around twice the amount of borrowing as pessimistic ones (Krumer-Nevo, Gorodzeisky, and Saar-Heiman, 2017). Age and power prestige are two variables strongly positively correlated with individual optimistic biases. In fact, the higher the age and the more importance one places on money, the stronger the optimistic bias was calculated by Fromm (2005). On the contrary, as expected in the same study by Fromm (2005), the better the insurance coverage the weaker the optimistic bias. Insurance coverage is a form of precaution measure. Optimistically biased individuals are not expected to take precautions as they

judge their actions as less risky than the others' as their own perceived control, the personal importance they place on risk and their economic behavior are more important aspects (Sjoeberg, 2003).

Study of optimistic bias is important due to the hampering effect optimistic bias is presumed to have on precautionary behavior. The general thought behind this is that laypeople might wonder why take personal precautions to avoid a risk if they strongly believe that it will only happen to others. Risk and neglect are two concepts that are often combined; neglect of risk, to wit giving little attention to risk, can be explained in terms of optimistic biases. What one person perceives as risky may be viewed as free of risk by other people even in the same situation due to neglect or ignorance. The latter terms should not be seen as the same as they are the result of different aspects. Risk ignorance may be the result of lack of knowledge about their existence while neglect implies limited but not lack of knowledge.

The theory of unrealistic optimism is unchallenged, however moderators have been found: a potential group size effect of personal risk judgments, cultural adherence as well as biological explanation. In the first case, by studying the group size effect, Price (2001) found that the size of the comparison group can contribute to explaining unrealistic optimism. A member of a large group is generally considered to be at higher risk compared to a member of a small group. This might be an explanation to the fact that people who usually score high on unrealistic optimism consider themselves to be at lower risk for negative events than their peers.

Cultural adherence of people has been researched in relation to unrealistic optimism and has been found to be influential to the degree of optimism. Benefits deriving from cognitive and motivational tendencies in order to maintain positive illusions may vary among cultures (Heine & Lehman, 1995). Several researchers have confirmed that there are pronounced cultural differences with respect to optimism between the two cultures under investigation (Hayakawa, Fischbech, and Fischhoff, 2000; Heine & Lehman, 1995; Lajunen, Corry, Summala and Hartley 1998;).

Another possible explanation of unrealistic optimism might be biological in terms of gender and/ or age. Men have been found to assess risk differently than women in numerous studies (e.g. Boholm, 1998; Glendon et al, 1996).

1.3.3 THEORETICAL POSITIONS FOCUSING ON THE SOCIAL LEVEL

The significance of social, cultural and political processes in shaping individual attitudes towards and the social acceptability of risks has long ago been identified (Royal Society, 1992).

1.3.3.1 Cultural Theory

Cultural Theory, proposed by Douglas and Wildasky (1982), is a general sociological theory and one of the first attempts to examine risk from a sociological perspective. As a result of extensive research, there has been a gradually increased approval for the fact that risk perception is a social phenomenon which cannot be studied in isolation (Boholm, 1996). A simple explanation is the fact that since humans are social beings it is natural to consider the social context of a person when considering his or her perception of risk, as in order to explain how people perceive and understand risks social contexts cannot be ignored.

It consists of a conceptual framework and an associated body of empirical studies which aim to explain societal conflict over risk. Instead of stressing economic and cognitive influences, Cultural Theory supports that structures of social organization present individuals with perceptions that reinforce those structures in competition against alternative ones. What is more, risk perception is a socially, or culturally, constructed phenomenon not governed by personality traits, needs, preferences, or properties of the risk objects (Douglas, 1978).

This theory attempts to answer the question why different cultures select different risks to focus their attention on. According to cultural theory, selective attention to risk can best be understood in terms of two major domains: cultural biases, that is commonly accepted values and beliefs (e.g. world views) and social relations which are

distinguished among hierarchical, egalitarian, individualist, fatalist and hermit interpersonal relations which make up the central part of the cultural theory. Differences in perception of risk across groups are the result of the various combinations that can occur within these two domains, cultural bias and social relations.

According to the Cultural Theory, by describing the cultural groupings people belong to, we can reach conclusions on the group members' perception of risk through their common viewpoints. The context of the group determines which hazards to focus the attention on, which risks to accept and what reactions to risk can be legitimized in order to serve not only the individual but to express "wider socio-political interests and agendas" (Weyman & Kelly, 1999). Wildasky and Dake (1990) supported that cultural adherence and social learning can explain the way people perceive and understand risk, as according to them the cultural theory of risk is capable to "predict and explain what kind of people will perceive which potential hazards to be how dangerous".

1.3.3.2 The Social Amplification of Risk

Risk cannot be confined to its technical definition when referring to its social experience. What human beings perceive as risks or threats that affect their well-being is determined by their values, beliefs, attitudes and social influences. This is why in 1988, researchers at Clark University and Decision Research collaborated on a new framework for risk analysis, which they termed the "social amplification of risk" based on the main idea that risk is a complex phenomenon that involves both bio-physical attributes and social dimensions (Kasperson et al, 1988).

Risk analysis, can be more effective if based on an approach that is capable of illuminating risk in its full complexity, takes into account the social settings in which risk occurs, and also recognizes that social interactions may either amplify or attenuate the signals to society about the risk. The social amplification of risk is a conceptual framework that intends to relate systematically the technical assessment of risk with psychological, sociological, and cultural perspectives of risk perception and risk related behavior (Kasperson et al, 1988). Behavioral patterns as a result of risk perception, in turn, generate secondary social or even economic consequences that go beyond direct harm to humans or the environment including indirect impacts such as liability,

insurance costs, loss of trust in institutions or alienation from community affairs (Kasperson et al, 1988).

The social amplification of risk manages to integrate multidisciplinary approaches to risk, particularly how characteristics of a hazard interact with social, institutional, cultural and psychological processes in a way that may amplify or attenuate public responses to the risk or event so that they either strengthen or weaken risk perception.

Amplification of risk occurs at two stages: the first one refers to the transfer of the information about the risk and the second one to the response mechanisms of society. The framework for the social amplification of risk regards risk as both a social construct and an objective property of the hazard. Social processes, formal ones, such as mass media and sources of risk information increase public concern of risk and socio-political activity over some hazards and events that experts judge as low risk (Kasperson et al 2003). Similarly, informal and interpersonal communication networks, such as friends, family and co-workers may also amplify or attenuate risk perceptions by sharing information or reinforcing habitual perceptions and cultural biases.

Renn (1992) conducted a study that investigated the functional relationships among five sets of variables that are entailed in the amplification process: physical consequences, amount of press coverage, layperson perceptions, public responses and the socioeconomic and political impacts. According to the findings of this study, perceptions and social responses are more strongly related to risk exposure than to its magnitude.

Chapter 2
Analysis

Polonius:
"Neither a borrower nor a lender be,
For loan oft loses both itself and friend,
And borrowing dulls the edge of husbandry."

(*Hamlet*, Act-I, Scene-III, Lines 75-77)

2.1 Introduction

Deciding on a loan is a significant financial decision, choosing on a home loan perhaps the most significant one, as the quality of such decisions affects not only borrowers but sector competitiveness and the national economy as well. Choosing a loan is a complex decision involving elements of financial literacy and consumer behavior; complexity has been thoroughly highlighted in the literature (Lacko & Pappalardo, 2007; Malbon, 1999; O'Shea, 2010; O'Shea & Finn, 2005). The actual loan decision is influenced by a myriad of variables and not simply by the interest paid, on which most attention is usually focused. This overarching commentary, that interest is the main factor, has been thoroughly scouted by the numerous qualitative and empirical studies on the factors that determine borrowers' decision process. This chapter focuses on the borrowers' subjective risk perception identifying thus its importance in borrowing decision making process. It is focused in analyzing the applicability of risk perception approaches/models to borrowers' decision making process. The potential barriers and obstacles inherent in the decision making process due to borrowers' risk perception will be analyzed by means of certain risk perception models and approaches that are applicable.

The importance of understanding the decision-making environment and the information available for loan decisions is vital in order to effectively regulate the loan market taking

into account all aspects of borrowers' decision-making behavior. The importance stems from the complexity of loan decisions and the impact heuristics have on such decisions. Understanding how borrowers choose their loans allows lenders as well to better cater to borrowers' needs. Borrower-lender relationship therefore can be reinforced and potential compliance issues can be highlighted.

Credit is defined as a "system by which goods and services are provided in return for deferred rather than immediate payment" (Black, 2002, p. 99). Credit use is a financial practice socially accepted and what is more socially *normalized* as the foundations of a consumer society have long ago been laid as a result of bold advertising practices that enhance consumerism; where income lacks, credit provides the means (Merskin, 1998; Watkins, 2000). Taking out a loan involves short or long-term commitment with uncertain future implications. The concept of uncertainty is closely related to risk: a risky situation is always determined by a certain degree of uncertainty concerning the results of future actions. Since the outcome of a course of actions cannot be guaranteed, risk is prevalent (Maldonato and Dell'Orco, 2011). The assessment of the degree of risk and uncertainty constitutes one of the core components of every decision-making process.

Quite often several factors either vanish risk perception or exaggerate it. Subjective risk perception goes hand in hand with the presence of incomplete information and in conditions of risk or uncertainty. According to research, people's perceptions of risk are even more complex than believed and a wide range of factors, pertaining both to the risk source and to the individual, influence them. There are a number of explanations to why people's risk perception is not based on rational judgments including: systematic biasing of risk information, use of mental shortcuts as well as the way that information related to risk can be presented.

Credit acquisition is a complex process with potentially risky implications and therefore a popular subject for study. Credit use process has been distinguished into three distinct phases: (1) processes before credit acquisition, (2) processes at credit acquisition, and (3) processes after credit acquisition (Kamleitner & Kirchler, 2007).

Borrower's subjective risk perception has been researched on credit use as a reflection of the person focusing mainly on the first phase of the credit process. The first phase involves issues of motivation and decision-making process as a result of acknowledging the 'need' for a good / service and deciding on credit use as a means of financing it. The second phase involves decision making processes that lead to the choice of a pertinent loan type. The effectiveness of the decision-making process in this phase though is related to borrowers' rationality on taking out a loan that meets their requirements. Subjective risk perception is prevalent in this phase as well, as not always borrowers make rational decisions. Risk perception research can also be applied on the third phase: whether or not a person is intended to repay the loan can be investigated by means of risk perception. Strategic bad payers on the one hand and naïve imminent borrowers on the other, can be recognized by identifying the way they perceive the risk they are involved in. Taking into account risk perception research findings, Authorities can also institutionalize restrictions on lending and loan marketing processes.

According to Kaplan and Garrick (1981) cited in Maldonato and Dell' Orco (2011), risk analysis requires the following elements: risk scenario (R), a range of consequences (D = damage) and a probability of the occurrence of the risk phenomenon (P). In many cases knowledge of probabilities of a possible damage and of the dangerous event cannot be very exact or may even be non-existent. In such cases we are dealing with conditions of uncertainty or ignorance. Decision making process of a loan entails the previous characteristics. Rationality in decision making process is determined not only by the eventual inadequacy of the architecture of the human minds but also by an "external" model of uncertainty that does not necessarily relate to the way in which our mind naturally functions. In other words, the difficulty stems from the model of risk that we adopt/perceive; the difficulty is not 'inside' but 'outside' our head (Maldonato and Dell'Orco, 2010).

Several theories/approaches along with their relevant models have been developed to explain how people perceive risks, how they process risk information, and how they reach decisions about them. The following analysis will be made mainly from the perspective of laypeople and not of experts. Laypeople, borrowers in particular, have been found to evaluate risks based on subjective perceptions, heuristic evaluations and

inferences made from media coverage and their social interactions-limited information in general.

2.2 Types of Risk response:

Ignorance, Neglect, Tolerance or Rejection

According to the way borrowers perceive risk they can ignore, neglect, tolerate or reject it. Ignorance of a risk takes place due to lack / absence of particular knowledge (Fromm, 2005). As against to ignorance – lack of knowledge, neglect implies a certain degree of knowledge. Tolerance of risk implies recognition of risks; a borrower that identifies the risk of indebtedness and is fully aware of them cannot be said that neglects them. Rejection of a risk implies recognition of it and taking all the necessary precautions such as insurance.

The importance of a better understanding of economic risk denial / neglect lies in the fact that economic risk denial exerts great influence on economic decision making and the preventive actions taken by individuals to avoid risks. Risk can be neglected in cases that it is new and unknown or when there is a certain degree of knowledge about the risk. Despite knowledge of risk, the necessary precautions to avoid or mitigate the risk or mitigate its consequences are quite often neglected. Risk and neglect are two concepts that are often combined; neglect of risk, to wit giving little attention to risk, can be explained in terms of optimistic biases. What one person perceives as risky may be viewed as free of risk by other people even in the same situation due to neglect or ignorance. The latter terms should not be seen as the same as they are the result of different aspects. Risk ignorance may be the result of lack of knowledge about their existence while neglect implies limited but not lack of knowledge.

2.3 Theoretical positions focusing on the individual level - Rational Actor Models

2.3.1. Behavioral Decision Theory

Several theoretical models and empirical studies have long ago investigated the heuristic principles and cognitive strategies applied by individuals to deal with risky and uncertain situations. According to these theoretical models and empirical studies, the asymmetries between the models of rational choice and people's specific behavior can be interpreted by means of rules of rationality and informal choice criteria which are defined by the interference of ***cognitive and contextual elements*** that are used in the assessment of the problem and the available information.

Kahneman and Tversky (1979) were the first to recognize that choices cannot be optimal because of the ways in which the problem is presented and the information is processed. Their researches focused on the way people tend to envisage events not by objective calculations but according to structured memories or even authentic representations of conflict in cases where fear is involved. According to Kahneman, Slovic, and Tversky (1982), heuristic judgment often constitutes the only practical way to evaluate uncertain elements. A decline in cognitive and mathematical capacity as well as inattention as a result of age is related to poor borrowing decision-making and financial mistakes (Agarwal et al., 2017; FCA 2016). Cognitive biases, to wit psychological short-cuts or heuristics which people use on decision-making contribute to limited cognitive capacity and consequently to poor borrowing decision-making and financial mistakes (Davies et al., 2019).

Cognitive psychology "specifically examines internal processes, mental limitations, and the way in which the process of individual judgments is shaped by these limitations" (Scott, 1985, pp. 333-334). The sheer volume of product characteristics, especially those attributes contained in mortgage contracts, often turn out to be overwhelming towards borrowers' limited cognitive powers to process the relevant information (Chioveanu & Zhou, 2013; Eppler & Mengis, 2004; O'Shea, 2010). By means of behavioral decision

theories, the impact of individuals' limited cognitive capacity on their abilities to gather and process information can be explored.

2.3.1.1 Heuristics

Taking out bank loans is a complex decision-making process which demands both mental effort as well as time consumption. In order to cope with such a complex process, people tend to adopt mental processes that reduce effort and provide quick, rough judgments (Simon, 1990; Todd & Gigerenzer, 2012). These shortcuts, people revert to, are termed *heuristics*. As a result of heuristics, the optimal choice is dismissed by a satisfactory option due to intuitive judgments instead of rigorous evaluations that rational decision-making processes require (Gigerenzer & Selten, 2002; Payne, Bettman, & Johnson, 1993; Shah & Oppenheimer, 2008; Simon, 1955, 1972).

Heuristics have been identified by several researchers who argued that as a result of them the decision-making process gets limited enabling people to efficiently arrive at accurate judgments (Dawes, 1979; Gigerenzer & Goldstein, 1996) at the risk of systematic errors though (Tversky & Kahneman, 1974). How accurate specific heuristics can be depends largely on the complexity of the decision task as well as on the availability of relevant information to the decision maker (Gigerenzer & Selten, 2002; Kerstholt, 1992; Söllner, Bröder, & Hilbig, 2013; Todd & Gigerenzer, 2012). Research into complex decision making, such as that required for home loans, has reached the conclusion that there is potential for sub-optimal decision-making (Gabaix & Laibson, 2006; Huck & Zhou, 2011; O'Shea, 2010).

2.3.1.1.1 Affect heuristics

Affect heuristic is a term introduced by Slovic and his associates which as far as risk perception is concerned refers to people's tendency to rely their judgments of risk on their current emotions. In fact, Loewenstein, Weber, Hsee, & Welch (2001) regard emotional reactions to risks as being independent of cognitive assessments of risks and stronger determinants of people's behavior.

2.3.1.1.2 Consent Heuristic

The *consent heuristic* is a cognitive strategy based on the observation that when a reasonably large number of people consent on the assessment of an event, when individuals are taken one by one are subjected to some kind of psychological pressure and are inclined to adopt the common point of view or behavior reacting in a gregarious and conformist but at the same time rationally inexplicable way. ***Normalization of debt*** has led to such behavioral patterns which have resulted in over indebtedness and deterioration of people's well-being (Gathergood (2012).

2.3.1.2 Borrowers' bounds - limitations

From a behavioral perspective, decision makers face three key limitations which may cause their deviation from traditional economic predictions:

- Bounded self interest
- Bounded will power and
- Bounded rationality (Camerer, 2004, p. 2; Jolls, Sunstein, & Thaler, 1998).

Any deviation from rationality that occurs because of one of the above bounds is considered non-rational but not irrational behavior. Scholars have argued that the introduction of heuristic shortcuts is non-rational but not irrational (Gigerenzer & Gaissmaier, 2011; Simon, 1990) on the grounds that the individuals' mental capacity and time are both limited when having to deal with the multitude of variables that make up loan packages.

Behavioral economists' robust findings on consumers' cognitive biases regarding consuming and credit decisions show that they come into play when consumers make decisions under uncertainty that require them to estimate the probability of future events and give relative weights to present and future utilities. Most people lack sufficient information on which they can base probabilistic assessments of the likelihood of idiosyncratic events like death, divorce, the rate of wealth accumulation, changes in income, consumption demands and house moves, or of future exogenous events like interest rate changes, possible recessions, house price changes, tax changes as well as other changes in law and regulations. Biases are more likely to appear in decisions

involving risk and uncertainty, when multidimensional goods are involved difficult to be compared and when some of the dimensions mentioned cannot be already priced. Credit products are characterized by all the above features and lead to borrowers' confusion when decision needs to be made (Laibson and Zeckhauser, 1998).

Dealing with complex information, that e.g. loan decision making process entails, is negatively influenced by *bounded rationality* due to individuals' limited cognitive capacities (Simon, 1955). Scholars have argued that it is unreasonable to expect borrowers even to attempt to consider all the relevant information available to them let alone compare all the information available (Eisenberg, 1995). Other scholars went further identifying that deciding on a complex task decision makers often lack some combination of a) information, b) sufficient time or c) sufficient cognitive power (March, 1978; Simon, 1972). Bounded rationality constitutes an extension to the recognitions that scholars have long time ago made: a) individuals have "limited intelligence" (e.g. Adams, 1886, p. 103), b) "incomplete rationality" (e.g. Oakeley, 1922, p. 435) or "limited rationality" (e.g. Almond, 1945, p. 224).

Bounded rationality assumes that, when deciding under conditions of complexity, borrowers will revert to decision heuristics, that is, they will focus on a small number of salient cues to base their decision on. However, although heuristics enable individuals to decide in shorter time and with less effort, this is often done so at the expense of accuracy. Research on mortgage decision making has revealed that human cognitive reasoning falls short due to myopia, hyperbolic discounting and lexicographic search behavior (Eisenberg, 1995; Epstein, 2006; Korobkin, 2003; O'Shea, 2010). Research has revealed borrowers' tendency to irrationally focus on the short term or the most obvious target variables such as the advertised interest rate instead of the long term costs and benefits (Kilborn, 2005; Sunstein, 1997). This translates into long term higher repayment costs at the expense of the borrower and the entire economy as well.

In order to deal effectively with overload in complex decision-making, borrowers, apart from introducing "mental shortcuts' or "heuristics", facilitate their choice with the associated decision-making biases that stem from the shortcuts (Eisenberg, 1995; Hillman, 1999; Scott, 1985). Cognitive biases, that is the systematic errors in the

heuristics (short cuts) used in thinking and judgments – related to borrowing specifically have been distinguished between *behavioral and informational* ones.

2.3.1.3 Behavioral biases

Behavioral biases that borrowers are explicit of are apparent in several circumstances. Risk perception related to borrowing is inhibited by the fact that people think about money as having distinguishing-separate purposes. This has been evidenced in the tendency people have to co-hold savings and borrowing with intent to preserve savings and at the same time facilitate liquidity (Agarwal et al., 2017; Agarwal & Zhang, 2015; Gathergood & Weber, 2014; Citi Autralia, 2010) as well as in the intention to avoid guilt (related to spending savings) and maintaining a responsible self-perception (by not spending savings) (Sussman & O'Brien, 2016).

Borrowing risk is undermined due to the great value placed on savings leading people to protect them in favor of borrowing ignoring the associated risks. Risk related to the additional cost incurred is also undermined on the grounds that such behavior is held responsible and rational (Sussman & O'Brien, 2016). This sort of behavior becomes more apparent in the “narrow bracketing” effect which has been reported for borrowers using the same credit line once repayment is complete instead of using it to repay other borrowing by borrowers (Worton et al., 2018).

On the other hand, behavioral biases are responsible for borrowers’ tendency ***to feel financial losses more greatly than equivalent gains***. This effect called “loss aversion” operates on one hand positively to borrowers’ behavior as it helps them avoid higher levels of borrowing but on the other hand negatively as it might be related to fear or regret (when not being able to afford buying a product) and therefore increase borrowing (Worton et al., 2018).

2.3.1.3.1 Hyperbolic Discounting

Credit transactions in general have been identified with two particular biases that cause consumers to underestimate repayment needs and as a consequence their capacity to

afford credit (Duggan, 2010): optimism bias, in which decision-makers tend to be overoptimistic about risks and future outcomes (Van den Steen, 2004) and imperfect self-control (bounded willpower). Both of them lead to *hyperbolic discounting* or "*the discrepancy between a consumer's initial estimates and intention and the reality of future borrowing and transacting"* (Ali, McRae, & Ramsay. 2012 p. 128; Cvjetanovic, 2013).

Hyperbolic discounting is a common bias according to which people tend to overweight the present and discount the future. In other words, consumers tend to prefer small payoffs now to larger payoffs in the future and to avoid considering the possible negative future events so as to indulge in the present satisfaction. This implies that possible future consequences are outweighed by immediate consequences in the decision making process. The reasons behind borrowing at high interest rates have been explained through ***hyperbolic discounting*** (Gabaix et al., 2006; Harris and Laibson, 2001). Hyperbolic discounting has been viewed as a result of other psychological tendencies, such as problems with commitment, self-control and desire for instant indulgence.

Hyperbolic discounting has been combined with optimism bias about the future-believing that one's chance of experiencing bad events is less than the average person's chance (Retsinas & Belsky, 2008). When combined with hyperbolic discounting, optimistic bias encourages consumers to take on risky loan products despite partial knowledge of the decision's consequences; eventual interest rate payment shocks or house price declines are neglected. Optimism and hyperbolic discounting result in consumers being vulnerable to marketing practices that emphasize current satisfaction and deemphasize long-term costs and subsequent risks (Retsinas & Belsky, 2008).

2.3.1.3.2 Optimistic Bias or Unrealistic Optimism

The study of perceptions of laypeople is often related to what biases influence their perception. Although the discussion of optimistic bias has mainly focused on health related risks and behavior, studies have shown that ***optimistic bias*** is present for other risks as well, e.g. internet use and environmental hazards. Undoubtedly, economic decision making processes on behalf of private households or enterprises exert great influence on a national economy due to the fact that they regulate a large part of the

financial resources in a country (Kirchler, 1995). Economic decision making is influenced by people's economic risk perception.

How economic risks are perceived on grounds of optimistic biases is an important field of study. Risk involved in borrowing decision is undoubtedly complex and the effect of the consequences of such decisions is very often not immediate but delayed. However, biases do not occur in isolation but are influenced by the situation in which the individual is found when taking the decision on a loan. Although this relationship has not been clarified it cannot be perceived as insignificant by experts who urge for further research on this issue (Williamson & Weyman, (2005).

Optimistic bias is considered to be the difference between the ratings of general and personal risk – a positive score indicating optimistic bias, which means the general risk is seen as larger than the personal risk Unrealistic optimism is closely connected to the illusion of control. It represents the difference between what we consider risky for ourselves and what we consider risky for others (Slovic, Fischhoff, and Lichtenstein 1980). In other words, people tend to rate their own risks as lower than the risks to their peers. In risk perception research (Svenson et al., 1985; Weinstein, 1989), this tendency is referred to as unrealistic optimism or optimistic bias (Weinstein, 1980). Individuals also rate positive events to be more likely to happen to them than to their peers based on the assumption that they possess positive features or characteristics such as risk decreasing attributes to a greater extent (Weinstein & Klein, 2002).

Although unrealistic optimism has been widely researched there is no consensus over the factors that can effectively explain its occurrence. Apart from perceived control, the factors that have been suggested to cause optimistic biases / unrealistic optimism are distinguished between two groups – motivational factors and cognitive biases (Lee & Job, 1995; van der Pligt, 1994). The motivational factors explain *why* unrealistic optimism takes place while the cognitive mechanisms explain *how* cognitive biases occur (Hoorens, 1994). Weinstein (1980) was the first to identify these factors. Cognitive mechanisms particularly refer to overestimating the number and efficacy of precautions individuals take as compared to those taken by others. This is explained by the fact that one's own behavior is considered to be more readily accessible in one's memory than that of others. The immediate consequence is distorted evaluation due to a

recollection that favors oneself. Motivational factors support that individuals use optimistic distortions as a shield to safeguard self-esteem. These distortions help to preserve a positive self-image as otherwise risks would be perceived inherent in consciously dangerous activities.

Economic risk perceptions are optimistically biased; general risk has been tested in relation to personal risk and was rated higher on all the included economic risks (Fromm, 2005). The concept of general risk might be twofold in research on optimistic bias though; it might be distinguished between a peer group or people in general. Research has shown that if comparison targets are psychologically close to each other the level of optimistic bias of the respondent is reduced (Harris & Middleton, 1994; Klar, Medding, & Sarel, 1996) due to the fact that people base their judgement on singular and personal information. When the target group is generalized judgments of other people's risk are based on rates and statistical information. Optimistic consumers have been evidenced to hold around twice the amount of borrowing as pessimistic ones (Krumer-Nevo, Gorodzeisky, and Saar-Heiman, 2017). In Fromm's study (2005), more importantly though is that economic risks related to debt ranked high in terms of optimistic biases. Particularly, optimistic bias was most pronounced for the risks of 'note of non-payment of debt' which ranked third whereas 'Loan matures prior to expected date' risk ranked fifth among 22 risks in terms of optimistic biases. The explanatory variable that correlated significantly with 'note of non-payment of debt' risk was general self-efficacy while the explanatory variable correlated with 'Loan matures prior to expected date' risk was Power prestige. Age and power prestige are two variables strongly positively correlated with individual optimistic biases. In fact, the greater the age and the importance one places on money, the stronger the optimistic bias was calculated by Fromm (2005). On the contrary, as expected in the same study by Fromm (2005), the better the insurance coverage the weaker the optimistic bias. Insurance coverage is a form of precaution measure. Optimistically biased individuals are not expected to take precautions as they judge their actions as less risky than the others' as their own perceived control, the personal importance they place on risk and their economic behavior are more important aspects (Sjoeberg, 2003b).

Study of optimistic bias is important due to the hampering effect optimistic bias is presumed to have on precautionary behavior. The stronger the optimistic bias the less

incentive for taking necessary precautions to avoid the risks. The general thought behind this is that laypeople might wonder why take personal precautions to avoid a risk if they strongly believe that it will only happen to others. The hampering effect of optimistic bias would mean a negative relationship between optimistic bias and precautionary measures. However, a positive relation found between optimistic bias and precautionary behavior might reflect perception of lower exposure to risks when the precautions are taken. In this respect, the assumed negative relation between optimistic bias and economic decision-making did not appear (Fromm, 2005).

2.3.1.3.3 Illusion of Control

Langer (1975, 313) defined Illusion of Control "*as an expectancy of a personal success probability inappropriately higher than the objective probability would warrant*". This concept is based on the fact that people tend to believe that risks inherent in certain behavior can be controlled by their own ability. This is evidence of excessive and unjustified belief in oneself or in other words overconfidence, since no one can control all the factors that may contribute to disconformities. Taking out a mortgage is a long term commitment and no one can be confident of the positive conditions that he/she will experience throughout this period. Yet, numerous mortgages are issued everyday and the question raised is: *does every borrower exert the same control over his/her life conditions or are there borrowers that get out of control in their life due to unmanageable commitments*? Illusion of control is highly related to unrealistic optimism discussed above.

2.3.1.3.4 Availability bias

Tversky & Kahneman, (1981, 1974) named "*availability bias*" the bias that occurs when decision makers are more likely to focus on familiar information or information that attracts them over more valid information. What information borrowers focus on and consider when presented with loan disclosure is explained via "availability bias" (Hoek et al., 2011; Söllner, Bröder, & Hilbig, 2013). What is more, borrowers tend to seek loans with lenders they are well acquainted with or they had previous relations with (Skelton, 2015).

2.3.1.3.5 Confirmation Bias

Another aspect studied is that of *confirmation bias*. In decision making process people interpret events but with a general tendency to attribute little importance to the contradictory information or otherwise they choose to consider events that are coherent with their expectations. This is due to the fact that people appear to base their judgments on information that confirms their hypothesis rather than the contrary. An individual that decides on a loan makes the hypothesis that it will enhance his/her well being or that it will save him/her out of a difficult situation. Although this might be the case, quite often other negative factors which might result in deteriorating a person's financial well being as a result of the loan might be ignored. Wason (1960) presented these affirmations by the well-known experiment known as the four-card selection task.

2.3.1.4 Informational biases

Regarding *informational biases*, they have been reported to make borrowers more prone to marketing and poor financial decisions on the grounds that biased or unclear information lead to false risk perception. Information asymmetries result in borrowers relying merely on cognitive biases (Korniotis and Kumar, 2013) which are persistent and unsuccessful in case of either infrequent (they are not acquainted with) or complicated (e.g. mortgage loans) financial decision (Stango, Zinman, 2009). Marketing practices, by means of product promotion strategies that stress short-term benefits and understate risks, manage to diminish the riskiness and the extent of potential losses and costs of being involved in a loan.

Borrowers have been consistently reported to be vulnerable to the way risks are framed as a result of such marketing practices (Lowe, 2017) especially when they are in favor of debt consolidation (Bolton, Bloom, and Cohen, 2011). The hint behind this is that borrowers are incapable of perceiving the risk associated with borrowing; instead they assume that since they ***are*** being offered credit by lenders it is a ***tacit*** signal that they are capable of managing borrowing even when their financial situation may already be

precarious as a result of either low income or of existent borrowing condition (Collard, Finney, and Davies, 2012).

By ignoring the relevant information that is related to borrowing decision process the initial intuitive judgment, based on heuristics cannot be bias-free due to the following explanations:

- overconfidence in judgement, which may arise because it comes to mind effortlessly (Simmons & Nelson, 2006)
- laziness (Cacioppo, Petty, & Kao, 1984; Petty & Wegener, 1999)
- limited cognitive capacities (Gilbert, Pelham, & Krull, 1988)
- stopping at the first plausible answer (Epley & Gilovich, 2004, 2006; Gilbert, Gill, & Wilson, 2002; Tversky & Kahneman, 1974

2.3.1.5 The Risk Homeostasis Theory (RHT)

The Risk Homeostasis Theory was primarily developed and validated in the area of road safety, however the mechanisms involved in risk homeostasis can be regarded universal since supporting data of the theory originate from different behavior domains (Wilde, 1998). RHT initially was introduced as Risk Compensation Theory and suggests that people typically adjust their behavior according to perceived level of risk; risk is tolerated not ignored (Masson, Lamoureux, de Guise, 2019). Thus, people become more careful where they sense greater risk and less careful if they feel more protected. Risk taking is a common phenomenon apparent in several activities including loan taking. A further understanding of borrowers risk behavior can provide the means to improve borrowers' decision-making process and therefore decrease risk-taking and preserve financial wellbeing.

Risk Homeostasis Theory offers an explanation why despite the proficiency of safety measures risk is still prevalent and its outcomes still take place. In the case of driving a car, safety belt is a compulsory safety measure; although in this way risk is diminished it is not vanished completely and lethal accidents still take place. Comparatively, in the case of taking a loan, loan insurance operates as a "safety measure" as previously mentioned. However, what percentages of borrowers pay for loan insurance can be

surveyed. Paying for loan insurance implies that borrowers are aware of the risk involved and intend to insure them. Risk is therefore tolerated, neither ignored nor neglected. However, as long as borrowers perceive that the risk taken is insured and therefore decreased they may decide on increasing risk levels by deciding on another loan in the same way that a thermostat operates. Risk Homeostasis Theory can also explain the reasons behind borrowers' attitude towards their savings which might be regarded as a safety measure when they co-hold savings accounts and debts at the same time. Last but not least RHT could provide answers to why people are prone to cumulative indebtedness as well as why they tend to recycle borrowing.

Risk perception is one of the most important features of RHT. For homeostasis to occur, the decision maker (borrower in this case) should perceive a level of risk belonging to deciding on a loan. When indebtedness is perceived as being risky to some extent, the borrower can decide whether the risk is acceptable or not and from that decision to alter his/her behavior.

People must choose a level of riskiness in their decisions such that the net expected benefit of their behavior is maximized. This net benefit depends on four utility factors. The level of risk which borrowers are willing to take depends on the following utility factors stated by Wilde (1998):

The expected benefits of risky behavior alternatives
The expected costs of risky behavior alternatives
The expected benefits of safe behavior alternatives
The expected costs of safe behavior alternatives

The first factor can explain why a borrower would be willing to behave risky by committing to further debt. More debt, which involves further risk, also has some expected benefits. The borrower would probably become e.g. a homeowner or a car owner sooner and therefore live a more comfortable or prestigious life. The fourth factor, (the expected costs of safe behavior alternatives), is relevant to the first factor as in this case not taking out a e.g. home loan would mean that the individual would have to spend more time in rent or in parents' home. Second and third factors are also somewhat similar to each other. The expected costs of risky behavior could be

precarious financial situation as a result of over indebtedness (being unable to repay the loan) whereas an expected benefit of safe behavior (not taking out a loan) would be not to have to repay an unaffordable debt preserving and even enhancing thus financial wellbeing. The higher the expected benefits of risky behavior alternatives and the expected costs of safe behavior alternatives are the higher the level of risk that borrowers are willing to take. In the same sense, the lower the expected costs of risky behavior alternatives and the expected benefits of safe behavior alternatives are the lower the level of risk that borrowers are willing to take.

The balance of these factors determines the level of risk that people (borrowers) are willing to take as they consider it acceptable referred to as *target risk.* Knowing that, as target risk is exceeded behavior is then adjusted in order to reduce risk. What is interesting though is the inverse; according to RHT when people drop below target risk level, they tend to alter their behavior in order to increase their risk toward the target. It is common for people to increase risky behavior proportionately as safeguards / shields are introduced. The concept of *target risk* finds application to several domains such as food intake, drinking, smoking, love life, social relations, mobility (traffic) and moral, ethical dilemmas, and sports; finance management which is the focus of this Thesis is one of these domains.

However, despite its presumed applicability in borrowing decision process, specific research on the field is limited (e.g. Power, 2009). As borrowers, people appear subject to the phenomenon of risk homeostasis as risk is both ubiquitous and constant; the longer the repayment period, the higher the risk; it changes as people and conditions change. Despite safety measures taken to respond to already taken (tolerated) risks, borrowers expose propensity to risk taking adjustment in order to bring risk back into their equilibrium. Loan recycling e.g. in the form of credit cards and overdrafts is one form of such adjustment. No fundamental decision is usually made to cause harm, however a series of seemingly harmless borrowing decisions as a result of homeostasis might prove detrimental to individuals' financial wellbeing.

2.3.1.6 Prospect Theory

Developed by Kahneman and Tversky (1979), Prospect Theory is a theory of decision making under conditions of risk and uncertainty; borrowing belongs to this category of decisions. It was advanced into Cumulative Prospect Theory by Tversky and Kahneman (1992). The theory asserts that decisions are based on judgment, where it is difficult to foresee the consequences of the decision taken with clarity; in the same way borrowers cannot be certain of the outcomes of their decision to borrow regardless of the amount or the duration of the loan for several reasons. In other words, risk attitude is determined by the outcome's relation to subjective judgment and not an objective value of the outcome. Prospect Theory defines the value function determined by gains and losses instead of final wealth. It is the reference point individuals conceive that is important in determining one's risk attitude. According to Prospect Theory, borrowers are expected to be risk averse in a domain of gains or when the circumstances are in favor of them, and risk seeking in a domain of losses when they encounter a crisis. Risk taking behavior of the banking sector has been studied by Godlewski (2007).

Prospect theory directly addresses how choices are framed and evaluated in the decision-making process. According to this theory, decision making process is distinguished in two stages: **editing and evaluation**.

While *editing*, borrowers particularly order possible outcomes of the decision following some heuristic. Particularly, they decide which outcomes are roughly the same, and then they set a reference point. Lower outcomes as compared to the reference point are regarded as losses whereas larger ones as gains. In the following *evaluation* stage, based on the potential outcomes and their respective probabilities people behave as if they would compute a value-utility. After editing and evaluation stages people decide on the alternative with the higher value-utility.

The reference point is determined by the *subjective* feelings of the individual-borrower. This reference point operates like status-quo or current state of affairs against which the individual makes comparisons of the outcomes (Montier, 2006). By analyzing the value function suggested by Kahneman and Tversky, the following deductions can be made:

- there is a bigger impact of losses than of gains.
- people tend to overreact to small probability events,
- people tend to under-react to medium and large probabilities.

When reaching the point of making the decision, when choosing among options that appear to be gains compared to the reference point borrowers tend to be risk averse whereas when choosing between options that appear to be losses compared to the reference point, they tend to make risk-seeking choices.

The phenomenon of feeling more strongly about the negative impact of a loss than the pleasure of an equal gain is known as loss aversion (Chandra, 2005). The decision-making process is a result of framing, framing dependence is on account of a mix of both cognitive and emotional factors that affect people-borrowers. Mental structures are the result of framing by which reasoning is made over the decision taken. Research indicates that decision making process is affected by how outcomes are framed. It has been evidenced that the use of simple description of a single offer rather than a multidimensional one had the same effect on credit demand as dropping the interest rate offered significantly (Retsinas & Belsky, 2008). This implies that credit offers that are presented in a simple, neat way, not confused by the presentation of alternatives can increase loan take up. Kahneman and Tversky's Prospect Theory along with Thaler's (1999) experimental evidence suggest that whether the identical offer was framed as a gain or loss also had an excessive impact on whether a consumer took out a loan (Retsinas & Belsky, 2008).

2.3.1.6.1 Framing Effect

The *framing effect* is a cognitive bias where people decide on options according to the way they have been presented, e.g. as a loss or as a gain and not just on the facts themselves. It is intriguing to know that if the same facts are presented in two different ways they can lead people to make different judgment and reach to different decisions. Behavioral finance accepts the fact that individuals may react to particular information offered differently depending on how it is presented to them. Indicative of this assumption is Abraham and his associates' (2018) research paper that provides evidence of framing effects for borrowers' take up of student loans. They investigated

how take-up is affected by the framing of IDR (Income Driven Student Loan Repayment) through a survey of University of Maryland undergraduates. Simulation results of this empirical test suggest that even a simple change in the framing of IDR could generate substantial reductions in loan defaults with little cost to long-run federal revenue. Positively framed risks are normally avoided whereas when risks are presented in a negative frame people become more risk seeking. This occurs in accordance with Prospect Theory that supports that loss is more significant than the equivalent gain. Particularly, a definite gain is preferable to a probabilistic gain and a probabilistic loss is preferred to a definite loss (Tversky, and Kahneman, 1981).
Prospect Theory can offer more insights to help in the credit assessment of borrowers. Though research designed to make inferences of the theory to identify the underlying causes prompting the risk seeking behavior of people that result into borrowing is ***not*** sparse, this Thesis cannot offer an exhausting but rather an indicative review of the relevant literature available (e.g. Garling et al, 2009).

Kumar (2010) conducted an experiment aiming at understanding customer behavior of borrowers through Prospect Theory with reference to Indian microfinance clients. The sector of multiple borrowing is witnessing a tremendous growth path worldwide and particularly in developing countries.

2.3.1.6.2 Mental Accounting

Richard Thaler, 2017 Nobel Memorial Prize in Economic Sciences winner, dedicated his scientific work in identifying individuals' irrational behavior in economic decision. He is worth mentioning in this Thesis because Mental Accounting framing – a concept in the field of behavioral economics - is an extension to Kahneman and Tversky's Prospect Theory used to predict that consumers will prefer to finance purchases of goods with loans whose terms correspond with the life of the good. The exact definition given is: "Mental accounting is the set of cognitive operations used by individuals and households to organize, evaluate, and keep track of financial activities" (Thaler, 1999).

In Mental Accounting framing individuals are hypothesized to form psychological accounts for the costs and benefits of outcomes based on ***subjective*** criteria with quite often detrimental results. Generally, Mental Accounting contends that individuals make

different decisions on classifying funds and as a result are prone to irrational investment decision making and behave in financially counterproductive or detrimental ways; e.g. people may fund a low interest savings account while at the same time they carry large credit card balances. Underlying the theory is the concept of fungibility of money that is regardless of its origins or intended use, all money is the same. By treating money as fungible when allocating different accounts, either a budget account or a spending account or a wealth account, mental accounting bias can be avoided and rational decisions can be made without detrimental outcomes to people's financial wellbeing. The origin of money matters as well and regardless its origin money should be treated as of equal, either it is a product of hard work or tax refund.

Mental Accounting and Outcome Contiguity and casual reasoning in Consumer-Borrowing decisions within the framework of Prospect Theory framework have been experimented before the Official introduction of Thaler's Mental Accounting framing as a Theory. Hirst, Joyce and Schadewald (1994) conducted a study via four distinct experiments on the role that inter temporal contiguity (the concurrence of multiple outcomes) in mental accounting for consumer-borrowing decisions. Their study went beyond mental accounting's consequences by studying its determinants and the processes that underlie mental accounting. The results of their experiments provided among others support for the prediction that consumers would prefer to finance purchases with loans which do not exceed the expected life of the benefit stream provided. What is more, consumers are prone to associate loans with long-lived assets regardless of whether assets were tangible or intangible.

2.3.2 Value Expectancy Models

The Approach of Value Expectancy Models attempts to investigate the reasons behind people's motivation to protect themselves in relation to their understanding of risk and perception of their vulnerability. Alike behavioral decision theory, according to value expectancy models approach, risk behavior is related to rational decision-making process. Value Expectancy Models have been developed in several fields such as health, communication, marketing and economics. The general idea is that subsequent behavior is affected by expectations as well as values or beliefs. In terms of borrowers, their borrowing behavior is the product of cost benefit analysis. When investigating the

relationship between perceived risk and propensity for indebtedness, findings have revealed that although different people perceive a given situation as equally risky, the benefits can be seen either as worthwhile by those who are willing to engage in this behavior or less appealing to others who are merely risk averse (Conchar, Zinkhan, Peters, & Olavarrieta, 2004; Farley, 1986), which is aligned with Expected Utility Theory.

When deciding on a loan, the decision-making process involves choosing between the expected outcomes of borrowing, while acknowledging the values of the chosen alternative. The expected outcomes can be distinguished among outcomes associated with primary loan demand such as payment for something already bought and payment for unexpected expenses and outcomes associated with selective demand factors such as payment of low interest rates, ease in obtaining the loan, and obtaining favorable terms (Ryan and Bonfield, 1980).

Traditionally, the majority of Value Expectancy Models relate to health behavior with foundations in Behavior Decision Theory assuming that risk behaviors reflect a conscious decision process where outcome alternatives are assessed in term of their utility.

2.3.2.1 The Fishbein's Intentions Model

The *Fishbein's Intentions Model* (Fishbein and Ajzen, 1975) has been tested on its External and Pragmatic Validity by Ryan and Bonfield (1980) in the field of Economics, loans particularly. The model has been very appealing in marketing since it correlates behavior to underlying causes, an attitudinal and normative component, through a mediator, intentions. The model therefore constitutes a predictor and explanation of borrowers' behavior. Being able to predict and explain borrowers' behavior, marketing strategies can be developed aiming at influencing loan making intentions. Such marketing strategies can prove to be useful as a way of affecting an increase in loan application activities. What is more, the model appears to provide information useful in ascertaining how to plan promotional strategies.

2.3.3 The Psychometric Approach

The Psychometric measurement approach assumes that risk perception is a multidimensional construct and uses multidimensional scaling, clustering, and factor analysis in order to establish its underlying psychological dimensions (Slovic, Fischhoff, & Lichtenstein. 1986). Risk studies based on psychometric perspective apply quantitative measures including questionnaire studies, magnitude estimation, numerical scaling, and attitude surveys (Taylor-Gooby and Zinn, 2006) as well as methodologies involving models such as Logit Model (Agarwal and Wang, 2008; Barasinska, 2009), Probit Model (Bellucci, Borisov, & Zazzaro, 2010; Ravina, 2008), Tobit Model (Ravina, 2008) and qualitative methodologies such as interviews in association with quantitative measures (Buttner and Rosen, 1988). This plethora of measures can be applied on individuals-borrowers.

2.3.3.1 The Psychometric Paradigm

The most commonly used methodology, by means of which Psychology has contributed considerably to risk analysis by progressing research to the concept of subjective risk based on perception and individual evaluation, is the **Psychometric Paradigm** introduced by Fischoff and his colleagues (1978) and further enriched by Slovic and his group (1980). The Psychometric Paradigm is a theoretical framework that incorporates both the cognitive and emotional dimension of risk perceptions. Until then, discussion of risk had been restricted to technological safety aspects but after Slovic's study, sectors such as Psychology and Sociology have been highly involved. Psychology has contributed considerably to risk analysis as the concept of subjective risk on perception and individual evaluation was highlighted. The main aim of this methodology is to identify the mental strategies people use in formulating risk assessments (Di Nuovo, 2008). In fact, uncertainty can be evaluated effectively only through heuristic judgement. Heuristic evaluation of probability does not involve formal calculus of probabilities, as Economics originally supported (Keynes 1952) but is generally based on immediate solutions. The decisions made are based only on limited factors at stake, considering only specific features of the object being evaluated, the way in which the problem has been formulated, how clearly the situation has been displayed, the degree of control, the impact and seriousness of consequences, previous knowledge and experiences and so

on. These factors, whether separately or in conjunction, determine decision making process and can cause distortions of judgement or biases.

The psychometric tradition identifies links between perceived control and the concept of personal vulnerability as well as links to the voluntariness of exposure to risk or the extent that it is perceived as within the individual's span of control or volition. Weyman & Kelly (1999) not only recognized the importance of these variables used in lay evaluations of risk but also illuminated the concept of control as "a source of cognitive or attributional bias" that can lead to "unrealistic optimism", vulnerability and social comparisons effects that can lead to lower precautionary behavior. The theory's capability of predicting perceived risk has been questioned though but not refuted (Sjöberg, Moen, Rundmo, 2004).

The process of decision making analyzed above can perfectly fit in financial decision-making process as well though no scientific research has yet been recorded. High availability of loans in several forms constitutes the immediate solution to several financial difficulties that laypeople or enterprises may encounter. The Psychometric Paradigm is based on the fact that people differ not only in their perceptions of risk but also in the way, they assess them: "…perceived risk…can be distorted by numerous factors, including faulty memory, strong prior beliefs, inability to think probabilistically, and the manner in which risk information is expressed and communicated to the public" (Jasanoff, 1998, p. 92). The above mentioned factors can be identified in borrowers' decision process. Although the Psychometric Paradigm with the use of the questionnaire on risks originally formulated by Slovic, Fischhoff, and Lichtenstein, (1980) has been applied in the field of natural hazards and safety issues its applicability in credit issues remains a question to be answered by experts. The questionnaire's modification so as to fit risks perceived by borrowers or study how the perceived risks are formulated could be the first step.

Boholm (1998), based on her review of twenty years of research on Comparative studies of risk perception, supports that all available comparative studies on the perception of risk tend to subscribe to the Psychometric Paradigm and that this field of research has attracted scholars from many disciplines concluding thus that the study of risk as social and psychological phenomena ought to be interdisciplinary. This interdisciplinary

research by means of psychometric approach should not exclude the study of borrowers' risk perception.

2.3.4 The Mental Models Approach

The perspective of the Mental Models Approach is "fundamentally cognitive and rooted within psychology of the individual" (Weyman and Kelly, 1999). Mental models are perceived as cognitive tools which people use to reason and put in order what otherwise would be disordered or incomprehensible. This approach assumes that people make internal representations of the world for better understanding which they use to reason with. It mainly focuses on lay understanding of hazards in a "bottom up" data driven process as expert conceptualizations are not imposed as opposed to a "top down" conceptually driven process reflected in other risk perception approaches (Williamson and Weyman, 2005). The technique applied involves eliciting insights into lay people's understandings of hazards and to map these onto expert models of risk so as to identify "critical knowledge gaps" in lay understanding of risk. The findings can be used so that risk communication techniques can be adjusted in order effectively to target at these gaps.

In the case of borrowing concerns, people's mental models may not be straightforward and entail misunderstandings stemming from e.g. asymmetries in information, accumulation bias, framing effect biases, optimistic biases, which consequently lead borrowers to erroneous conclusions and decisions. In other words, although borrowers might consider themselves to be making the right decision they may be exposed to the risk of e.g. over indebtedness or high cost loan product as a result of inaccuracies in their mental models for the particular risk.

Proponents (Royal Society report, 1992) of the Mental Models Approach advocate the use of qualitative research so as "*…to elicit people's beliefs that neither puts new concepts in their minds nor leaves existing ones unstat*ed" by means of largely unstructured individual interviews so as to elicit qualitative information on perceived risk, using a combination of "think aloud" and "free-associative" interview techniques as well as structured interviews (Bostrom, Fischhoff and Morgan, 1992). Although this process has

initially been intended to be used for hazardous substances, risks involved in borrowers' decision-making process can thus be evaluated as well.

By means of mental models approach several issues related to subjective risk perception differences between lay people-borrowers and experts-financial institutions can be explored. Such issues involve e.g. perceptions of individuals about the fairness of lending practices managing thus to bridge the gap between borrowers and lenders by restoring trust and confidence between both parts.

Mental models can be applied in learning systems to enable better interaction between lenders and borrowers by offering the right products on behalf of lenders and by ensuring full understanding on behalf of borrowers (Tong, 2016). Regulated financial inclusion which is of particular policy interest, access to regulated financial services, can be enhanced by means of mental models as well. Another indication of the importance of applying mental models approach in Finance is the working paper of Niño-Zarazua, and Copestake (2009). Their qualitative evidence suggests that less easily measured socio-cultural processes are important (along with individuals' human and material resources which are measured by indicators such as educational attainment, employment and housing status) in explaining variation in effective use of financial services. The socio-cultural processes are referred to as mental models which provide a powerful approach to understanding financial inclusion that the bare economic rationality has failed to explain.

2.4 Theoretical Positions Focusing On the Social Level

Sociological perspective offers a significant contribution to classical risk studies that assume that individuals are rational actors. The importance of studying risk perception on the social level is apparent in Miller's (1990, p. 343) statement in which he makes distinction between Economics and Sociology:

"*Economics is about how individuals make choices, and sociology is about how individuals have no choices to make. The gap between economics and sociology has certainly shrunk dramatically as economists have learned to accept the possibility that individual choices in coordination games are rationally constrained by social conventions and norms. However,*

individuals in social settings constrained by social norms still have important choices to make".

Slovic (1987) identified that the studies of risk perception using social-psychological judgment theory assumes that risk is perceived subjectively and influenced by psychological, social, institutional and cultural factors. While psychological studies focus merely on intuition, personality traits, emotions and perceptions, in social psychology, the main focus is the study of the way social factors influence the psychological aspects in reaching final judgments.

2.4.1 Cultural Theory

Cultural theory, launched by Mary Douglas (1978) and Douglas and Wildasky (1982) has been thoroughly discussed on risk perception aspects and risk interpretations (Dake, 1991; Wildasky and Dake, 1990). Wildavsky and Dake (1990: 42) stated that the cultural theory of risk is capable to "predict and explain what kind of people will perceive which potential hazards to be how dangerous". Cultural adherence and social learning have been surveyed in order to explain how people perceive and understand risk. Since Douglas's initial launching of Cultural Theory several scientists have contributed to it. Swedlow et al, (2016), based on previous studies (e.g. Ellis and Thompson 1997; Gastil et al. 2011; Jackson 2014; Jacoby 2012; Ripberger et al., 2012) on Cultural Theory released a research paper in an attempt to assess the Validity of Different Approaches to Operationalizing Cultural Theory in Survey Research. The conclusions are contradictory but the Theory's Validity cannot be refuted.

The significance of this approach to understanding borrowers' risk perception and behavior in general lies in the fact that it can provide a way of justifying the effect of group and culture level variables on borrowers' behavior. Cultural theory suggests that culture indicates individuals where the interests lie and what variables and events pose risks to those interests and ways of life. Particularly, for borrowing behavior study, implicit in this theory of risk perception is the hypothesis that trust in institutions drives differences among perceived risk in different cultures.

Cultural Theory is an approach to risk perception which constitutes a deviation from mainstream psychological analysis, based on work in anthropology and political science. Perceived risk is argued to be selected in order to sustain and strengthen social relations. Clusters of values and risk perceptions can be interpreted by reference to four distinct cultural biases: hierarchy, egalitarianism, individualism, and fatalism. Borrowing behavior related to risk perception is widely affected by bias; cultural bias can be added to the list of other kinds of bias mentioned in this paper.

Cultural Theory specifically claims that how people perceive and act upon the world around them is largely determined by social aspects and cultural adherence, pinpointing thus the wide span of risks the theory can be applied on. From a borrower's perspective, the focus on different kinds of risk is dependent on whether one is socially participating and which group one belongs to.

Research on cultural differences has revealed that the benefits of cognitive and motivational tendencies to maintain *positive illusions* vary among different cultures (Heine & Lehman, 1995). An important aspect that influences the degree of optimism leading to unrealistic optimism is the cultural adherence of people. Cultures have been reported to differ in their emphasis given on two types of tasks: Independence (e.g. task related to agency and autonomy and interdependence (e.g. tasks related to society and relations). People characterized with interdependent construal of self put emphasis on their interrelatedness to others and to the environment. Generally, the interdependent society displays less optimism on behalf of themselves and more optimism on behalf of the group they belong to (Heine & Lehman, 1995; Lajunen, et al., 1998). The fact that there are pronounced cultural differences among borrowers with respect to optimism among cultures has been surveyed. Classical works by Greif, Lal, Landes, North, and even Max Weber – Stulz and Williamson (2003: 314, references therein) emphasize their general belief that culture is highly important for the effective study of financial phenomena.

Cultural differences may be attributed to biological factors as well. Literature is rife with studies assessing genders' attitude towards risk (e.g. Bermeo, 2017; Boholm, 1998; Flynn, Slovic, & Mertzh, 1994; Worton et al, 2018). White males have been found to judge risk to be less compared to females. Generally females rate risks higher than men

do (Finucane et al, 2000; Fromm, 2005; Sjöberg, 2003a). Risk has been found to be judged to be less by females and by white people as compared to Afro Americans' attitude towards risk. Regarding findings of cross-cultural surveys on Differences in the Individual Risk-taking Behavior, they are interpreted by means of Prospect Theory value functions identifying therefore the importance of integration of particular Risk Perception Approaches (Hens & Wang, 2007).

Cross cultural or cross national surveys have taken place or are in progress so as to improve lending practices and the loan decision making process for future borrowers (fhfa.gov, 2019). However, in the context of finance and debt particularly, cultural differences have not gained enough attention from finance research community. One main reason as suggested by Hens and Wang (2007) could be that traditionally finance has been considered a discipline focused on the rational decision making process under perfect or imperfect conditions. It is behavioral finance that has managed to adopt culture factors into the analysis. The reason for inclusion of cultural factors in behavioral finance studies is the acknowledgement that each culture has its advantages and disadvantages and as a result people from different cultures are subject to different cognitive biases.

Emotion plays a crucial role in making economic and financial decisions. Risk taking behavior is determined by different emotions. Although the fundamental emotions are universal across all societies, the importance of studying emotions' effect on risk taking behavior across cultures is found in the fact that different cultures may encourage some emotions but suppress others (Aaker and Williams, 1998; Berry, Dasen and Sarawathi, 1997). *This is why the following section on Emotions is included in the present Thesis*.

As a conclusion, the rapid process of globalization has contributed to different cultures inevitably confronting and interacting with each other. Cross-cultural studies in Finance and financial market therefore have become more necessary and at the same time more feasible. Further study of cross-cultural difference in risk-taking behavior and financial decision-making process can contribute to gaining more insights of the development of financial markets, and facilitate higher efficiency among others as far as lenders and borrowers are concerned.

2.4.1.1 Risk Assessment and Emotions

Consumer financial decisions are characterized by a number of psychological and social values, many of them originating from feelings and emotions (Vitt, 2004). The importance of studying emotions in risk perception lies in the fact that certain emotions can diminish precautions to maintain financial balance. For example, a person who is optimistically biased about future earnings is more prone to get indebted (Norvilitis, Szablicki, & Wilson, 2003). According to Fleming (2008), people would get indebted to achieve a goal which would allow a dream to come true. Due to high hope, the information search process was simplified, coming to an end when the expected result appeared to be possible. The important role that emotions such as dread, fear, and outrage play in risk perceptions has been recognized by experts.

The emotions are considered to represent an important system monitoring for relations between the individual and his/her surroundings due to the fact that they identify situations that influence and concern us directly pinpointing what is in danger and what we can resort to or make use of in order to make the necessary alterations to the situation emerged. The importance of studying emotions in relation with risk lies in the fact that the choices made in situations of risk are in part the result of the direct influence of the emotive reactions on the cognitive process (Slovic et al. 2004). As Zajonc (1980) put it: "*We do not just see 'a house': we see a handsome house, an ugly house, or a pretentious house*" arguing thus that quite often people do not choose on the basis of purely rational considerations but instead they choose the option they like best. Rational justifications are a subsequent result of actions based on emotions. The notion of "risk as feelings" (Loewenstein et al. 2001) has been discussed by Slovic et al. (2004, 311) as "our fast, instinctive, and intuitive reactions to danger". The direct influence exerted by emotive reactions on the cognitive process result to a significant degree in the choices made in situations of risk. According to Loewenstein and colleagues (2001), in conditions of risk emotive and rational reactions cannot converge due to risk assessment. However, judgment and decision making is determined by emotive reactions rather than rational ones.

Significant emotions prevalent in decision making process under conditions of risk are *anger, sadness, fear and anxiety, joy and happiness*. *Angry* people have been found to

demonstrate optimistic risk assessments and manifest risk seeking behavior (Lerner & Keltner, 2000), an argument based on Lerner & Keltner's theory of assessment according to which *anger* is associated with the perception of greater certainty and control over the outcome of their behavior and decisions. The implications of borrowers' overoptimistic behavior have been analyzed in the previous section.

Fear, which refers to knowable causes, and *anxiety*, which refers to a situation in which threat is presented by uncertainty regarding future outcomes concerning individual well-being, produces a common spur of action: evasion or flight (Smith & Ellsworth, 1985). Both emotions are associated with pessimistic behavior and derive from assessments of uncertainty and lack of control over the situation. Therefore, they display risk aversion and a pessimistic assessment of the situation. While fear would prevent people to run the involved risk (Bovens, 1999), hope seems to lead people to do so (Averill, Catlin, & Chon, 1990). Although borrowers' reported tendency to feel financial losses more greatly than equivalent gains (loss aversion') leads to avoidance of higher levels of borrowing it is also related to fear of regret in not buying a product (as a result of consumerism) increasing therefore borrowing levels (Worton et al., 2018; Knutson, Samanez-Larkin, and Kuhnen, 2011). Fear of losing one's belonging might also lead to exaggerated borrowing levels quite often regardless the cost which in most cases is high. Over indebtedness is a result of decisions made under strong emotional situations in which fear and anxiety are prevalent. Where fear is involved borrowers tend to envisage events not by objective calculations but according to authentic representations of conflict. Fear predominates and as a result any kind of risk entailed in the process of the borrowing decision process is minimized, vanished or distorted. People tend to envisage events not by objective calculations but according to structured memories or even authentic representations of conflict in cases where fear is involved

Joy and happiness on the contrary indicate a sociable and cooperative attitude towards others reducing interpersonal conflicts. Happy people are more prone to adopt risky decisions as happiness induces a sense of security and control in people's perception of their environment. When referred to borrowers, the belief that material possessions provide happiness, known as "materialism" can strongly indicate compulsive buying which in turn can subsequently predict greater borrowing mostly in the form of credit

card. Consumerism is therefore highly related indirectly to borrowing behavior (Brougham et al., 2011).

On the other hand, *sadness* is associated with a sense of resignation and impotence as a sad person lacks physiological excitation and demonstrates scarce propensity to action. As a result, risk aversion is reduced and the consequences of decisions made under this state of emotion are often attributed to the situation rather than to personal factors. The emotion of sadness is expected to have a similar effect on people's behavior as it leads to pessimism; consuming is a means of elevating one's emotional status ignoring the financial consequences over indebting might have. Females have been reported to be more prone to such emotional conditions and relevant behavioral patterns concerning indebtedness. Age has been a significant factor as well as general impulsivity has been measured higher whereas general self-control lower in younger people (Achtziger, 2015; Collard, Finney, and Davies, 2012).

2.4.2 The Social Amplification of Risk

Individuals' risk perceptions are in many circumstances a result of social communication rather than a product of personal experience. This is the main aspect of the social amplification of risk perception framework developed by Kasperson et al., (2003). Sociological risk research is boldly rejecting approaches that are based on any ***single*** theoretical perspective. The framework for the social amplification of risk manages to integrate multidisciplinary approaches to risk, especially how characteristics of a hazard interact with social, cultural and psychological processes that either amplify or lessen risk degree. Within the social amplification of risk framework, risk is conceptualized as a social construct as well as an objective quality of the hazard. The main focus is on the process that interpretations of the risk are acquired rather than on the direct experience of risk. The main idea behind this framework is that social processes – mass media and sources of risk information in general increase public concern and reaction over some hazards and events that are judged as low risk by experts. Borrowers' risk perceptions are affected by the following media factors (Paek & Hove, 2017):

1. extent of media coverage

2. frames used for describing risks
3. valence and boldness of media coverage
4. media source (channels and types in general) and the effect of perceived trustworthiness
5. risk presentation formats

Credit products have been in the eye of the public by means of advertising campaigns, the introduction of several regulations and so on. What is more, this framework researches the secondary effects – resulting decisions or actions – that public interpretations of risky situations have. It becomes particularly intense with risks that cannot be experienced by human senses – not everyone can personally experience and feel the negative consequences and therefore rely on other people's assertions (Rohrmann and Renn, 2000). Borrowers belong to this category of individuals.

In the case of loan product schemes (Chioveanu & Zhou, 2013), borrowers often revert to extrinsic cues such as third-party advice and count on the relationships with their lenders (Nayyar, 1990). Devlin (2002) showed that significant percentages of borrowers based their decision on the basis of non-price variables such as professional advice (16.9%), the availability of finance (9.4%), and on their previous transactions with the bank (15.4%).

It has been found that many borrowers delegate the comparison process to others whom they consider more qualified than themselves to make reasonable decisions (Skelton, 2015). Not always though "others", to whom borrowers revert to, are experts or experienced enough so as to provide adequate advice or information. Therefore, financial decisions made under such circumstances are risk stricken of which borrowers are ignorant of.

2.4.2.1 Loan! Wanted or needed? The case of low-income borrowers

Low income borrowers have been reported as "survival borrowers" as they use credit to supplement insufficient incomes and therefore make ends meet (FCA, 2014). The fact that such borrowers have been reported to make use of high cost credit ignoring subsequent risks (Autio et al., 2009; Cohen, 2016; Lim et al., 2014; Personal Finance

Research Centre, 2013; Pak, T. Y., 2018) has been given significant attention. Among the reasons reported why low income households, not all of them though (FCA, 2014), use high credit costs are: "real or perceived lack of other, better options" indicating thus the importance of the factor of availability heuristic bias (Kahneman, Slovic, & Tversky, 1982) (the 'availability heuristic' relates to what people remember, and not to what actually has taken place) (Kenton, 2019). They therefore decide on options available to them without making comparisons among all the possible available options or without making deductions on the effects of their choices.

People tend to believe that risks that they are more aware of occur more frequently. Under the availability heuristic bias, borrowers tend to heavily weigh their judgments toward more recent information available to them by means of their acquaintances making opinions and decisions biased towards what has been established by common views. Second explanation is that lenders are conceived as "known quantifiers" on the grounds that e.g. familiar people also borrow from them (Worton et al, 2018; Davies et al, 2016). Social amplification of risk becomes apparent in both mentioned circumstances which are correlated. It becomes apparent that borrowers base their decision on information available to them by people and general conditions surrounding them.

2.4.2.2 Perception of others and the social world

Fromm (2005) supported that individuals' risk perception is not restricted to personal experience but in many cases is a result of social communication with sources found in society, e.g. the media, friends and family. However, it is experts that play a crucial role in societal risk management, as from the position they hold their opinions can affect attitudes, beliefs and risk perception of common people particularly. Human senses cannot always perceive risks; individuals do not always personally experience and feel the negative consequences and therefore resort to other people's assertions (Rohrmann & Renn, 2000). In a society though that over indebtedness or simply indebtedness is normality, what other people do matters for borrowing and how we perceive of problem debt and the risks it entails.

The social norm effect of problem debt has been found to lessen the worry and anxiety aroused by the financial difficulty the borrower might be found in neglecting or ignoring therefore the risks (Gathergood, 2012). Greater social interactions and closeness of social bonds (Brown et al., 2016) as well as frequent social network users with strong network ties (Wilcox & Stephen, 2013) are estimated to contribute to greater credit use as a result of the fact that borrowing is encouraged in order to live up to those expectations. Establishing a self-identity through social relations and consumption, expressing status and power through the use of money and generally trying to keep with peers or as they say with the Joneses all result in excessive borrowing. Unaffordable level of borrowing can therefore be attributed to how borrowers understand their peers' values while at the same time neglect the risks involved. In the case of young people, their close associates exert negative influence regarding spending even overspending which makes them susceptible to borrowing regardless of risks involved in order to cope with excessive spending (Sotiropoulos, d'Astous, 2012).

Over indebtedness for such reasons is the result of intentions to: establish a self identity through social relations and consumption; to own possessions which are important to others as well and last but not least to express status and power by means of money use and showing off (Kamleitner, Hoelzl, and Kirchler, 2012). In this context perception of others and the social world in general contributes to minimization of borrowers' perception of risk involved in their indebting behavior something that results in their deterioration of financial and consequently general wellbeing.

Conclusions

By critically analyzing findings from *empirical quantitative and qualitative* studies in the existing literature, this Thesis shows that risk perception is prevalent in borrowers' decision-making process. How and to what extent borrowers can perceive risks entailed in their decision to take out a loan is determined by tangible factors such as age, gender and income to name a few. However, this Thesis also included other factors as well that are related to the subjective judgments that people make about the characteristics and severity of the risks related to loans, by means of risk perception approaches and models already existing in the literature.

The reason why this approach of studying borrowers' behavior by means of risk perception was followed is that decision-making process of taking out a loan and afterwards repaying it is a complex one. Normalization of debt, high default rates and the commonality of financial degradation can be issues addressed by corresponding authorities by means of risk perception approaches in order to regulate sector competitiveness, to protect individuals and eventually strengthen the national economy.

The results matched the expectations: borrowers' decisions are highly affected by factors related to the way they perceive the risks they are involved in. Factors such as interest rate, political, demographical, economic, technical, legal, personality and emotions, cannot be accepted as determinants of borrowers' behavior ***in isolation***. A combination of these factors along with borrowers' subjective risk perception can provide the complete picture of how and why borrowers decide on a loan. Existing risk perception approaches can and should widely be applied to study borrowers' attitude towards risk.

In order to reach this conclusion, ***firstly*** a cross-national literature review of borrowers' behavior determinants was undertaken. According to this review the following findings were evidenced:

- ***Socio demographics*** have been found to exert great influence on borrowing behavior but when studied along with psychological factors findings proved contradictory in different studies
- ***Income*** strongly influences borrowing behavior
- ***Asset holding*** can be related to borrowing behavior
- ***Macro - economic conditions*** play a crucial role in formulation of borrowers' behavior
- ***Financial literacy*** explains poor borrowing behaviors and over indebtedness but only when linked with psychological factors can be a strong determinant.
- ***Marketing practices*** associated with ***product design characteristics*** can take advantage of common behavioral biases and lead to poor and risky borrowing decisions
    - ***Digital Transformation***, based on sparse evidence, can result in excessive borrowing.
- Research on the effect of ***psychological factors*** on borrowing behavior has proved inconclusive and contradictory. While certain studies point out the greater significance of demographics and income as related to psychological factors, other studies assert that when psychological factors are included in the variables that can explain financial behaviors, the significance of demographics and income might either cease or drop.
- ***Personality traits***: Extraversion, agreeableness, openness and neuroticism are positively related to borrowing commitments while conscientiousness is negatively linked. Although personality traits may not be amenable to intervention, their importance in studying borrowers' behavior cannot be diminished.
- ***General impulsivity, spending self control, perception of self and factors such as patience, hope, trust, and bounded rationality*** have proved significant determinants of borrowers' behavior.

Next, a brief literature review on risk perception approaches and the associated models has been presented in order to introduce the reader to the concept of risk perception. The fact that there are several theories and approaches with associated models is explicable of the importance of studying risk perception. In the present Thesis, risk perception is seen from two theoretical positions: the ones focusing on the individual level and the others focusing on the social level, emphasizing the importance of

combining individual factors and social ones as no person exists in isolation but in a society. The presentation of these approaches and models operates as the foundations to Chapter 2.

The conclusions reached by this brief literature review on risk perception advocate the importance of studying risk perception. The majority of approaches, theories and models have initially been developed with intention to explain the subjective judgments that people make about the characteristics and severity of risks related to natural hazards and threats to the environment or health, such as nuclear power. Chapter 2 has analyzed their applicability and validity on explaining borrowers' subjective judgments about the characteristics and severity of risks related to loans. This is achieved by means of discussing existing studies in the literature as well as by the writer's viewpoints and suggestions where evidence lacks.

While studies on borrowers' risk perception in the existing literature focus on separate or single approaches, this Thesis aims to provide an overview of the majority of risk perception approaches that either have already been reported to be related with borrowers or if not they are suggested for further research.

The reader of this Thesis must be left with the following conclusions and arguments in mind:

- ***Behavioral decision theory*** goes beyond explaining borrowing behavior from the economic perspective.

    - Research into the complex and time consuming decision-making process of taking a loan has reached the conclusion that there is a potential for sub-optimal decision making as a result of the ***heuristics (mental shortcuts)*** people revert to: affect heuristics, consent heuristics.
    - Apart from heuristics, borrowers also facilitate their choice with the associated decision-making ***biases*** that stem from shortcuts. Cognitive biases, the systematic errors in the heuristics, are distinguished between behavioral and informational ones:
        - ***Behavioral biases*** are distinguished among the following:

- Risk perception related to borrowing is inhibited by the fact that people think about money as having distinguishing purposes, evidenced in people's tendency to co-hold savings and borrowing with intention to preserve savings, facilitate liquidity, avoid guilt of spending savings and maintain a responsible self-perception.
- People tend to feel financial losses more greatly than equivalent gains – ***loss aversion effect***. Thus, they can avoid higher levels of borrowing but when related to fear or regret they increase borrowing to obtain something they cannot afford.
- ***Optimistic biases*** study is important due to the hampering effect it is presumed to have on precautionary behavior. The stronger the optimistic bias, the less the incentive for avoiding risky behavior. People wonder: why take personal precautions to avoid a risk if it will only happen to others? Illusion of control is highly related to optimistic bias.
- ***Hyperbolic discounting bias*** is responsible for borrowers' tendency to overweight the present and discount the future. Combined with optimistic bias it encourages borrowers to take out risky loan products despite partial knowledge of the decision's consequences.
- What information borrowers focus on and consider when presented with loan disclosure as well as why they choose to cooperate with particular financial institution can be explained via "***availability bias***".
- People in general appear to base their judgments on information that confirms their own hypothesis rather than on information that contradicts it – ***confirmation bias***. To put it simply, they hear only what they want to hear.

o ***Informational biases*** make borrowers more prone to marketing and poor financial decisions as a result of biased and unclear information that lead to false risk perceptions.

- Although ***Risk Homeostasis Theory*** has not been applied in interpreting borrowers' risk perception, it is suggested in this Thesis for further research for the following reasons:
    - The mechanisms involved in risk homeostasis can be regarded universal
    - It suggests that people tolerate risk instead of ignoring it as they typically adjust their behavior according to a perceived level of risk. According to this perceived level of risk cumulative indebtedness, recycle borrowing as well as borrowers' attitude towards savings can be explored.
- According to ***Prospect Theory***, borrowers set a reference point determined by their subjective feelings and act accordingly: when choosing among options that appear to be gains relative to the reference point they tend to be risk averse whereas when choosing between options that appear to be losses they make more risk-seeking choices. Prospect Theory can provide more insights to help in the credit assessment of borrowers and can be made good use of authorities to regulate marketing practices and loan products characteristics.
    - ***Framing effect***, where people decide on options according to the way they have been presented: as a loss or as a gain, occurs in accordance with Prospect Theory that supports that loss is more significant than the equivalent gain.
    - ***Mental accounting framing*** is another extension to Prospect Theory used to predict that consumers prefer to finance purchases of good with loans whose terms correspond with the life of the good. Underlying the theory is the concept of fungibility of money: regardless of its origins or intended use, all money is the same. If money is treated as fungible and mental accounting is avoided then rational decisions can be made.

- Studies based on ***Value Expectancy Models*** Approach have found that although different people perceive a given situation as equally risky, the benefits can be seen either as worthwhile by those willing to engage in this behavior or less appealing to

those who are merely risk averse. The basic idea is that subsequent behavior is affected by expectations as well as values and beliefs.

- The Fishbein's Intentions Models constitutes a predictor and explanation of borrowers' behavior, an appealing tool in marketing policies. It correlates behavior to underlying causes, an attitudinal and normative component, through a mediator, intentions.

- By means of ***The Psychometric Approach***, multidimensional scaling, clustering and factor analysis can be used to establish borrowers underlying psychological dimensions.
  - The Psychometric Paradigm is the most commonly used methodology for risk analysis. Scientific research can expand on studying borrowers' risk perception by means of the Psychometric Paradigm.

- ***Mental models*** are cognitive tools used to reason and put in order what otherwise would be disordered and incomprehensible. The importance of making good use of this approach lies in the fact that it can be used to identify "critical knowledge gaps" in lay understanding of risk as related to experts and therefore adjust risk communication techniques in order to target at these gaps and help vulnerable borrowers. Other issues addressed are borrowers' perceived fairness of lending practices, better interaction between lenders and borrowers, as well as regulated financial inclusion.

- Sociological perspective has significantly contributed to risk studies and consequently to borrowers' risk perception field. ***Cultural Theory*** provides a way of justifying the effect of group and culture level variables on borrowers' behavior. Several variables that determine borrowers' attitude towards risk perception, such as trust in institutions indicatively, demonstrate differences in different cultures. Cultural biases can be added to behavioral and informational biases already mentioned in order to formulate a holistic viewpoint of borrowers' risk perception. Because different cultures encourage some emotions but suppress others, studying emotions related to risks cross culturally can provide experts with more insights for the development of financial markets in general.

- Last but not least, the ***Social Amplification of Risk*** framework manages to integrate multidisciplinary approaches to risk as risk is conceptualized as a social construct as well as an objective quality of the hazard. It has been evidenced that borrowers base their decision on the basis of non-price variables such as professional advice, the availability of finance, on their previous transactions with the bank, mass media campaigns, and on perception of others and the social world in general.

Considering the implications of my findings for theory and practice, the general conclusion is that risk perception approaches and models often overlap and complement each other but do not contradict when applied to study borrowers' behavior.

Future studies might confirm, build on or enrich my conclusions. Findings of this Thesis have revealed the importance of studying risk perception as related to borrowers' behavior. It can be used as a ***springboard*** for further, thorough qualitative or quantitative research to investigate the validity of the relation of every single risk perception approach and model to borrowers' behavior as my findings analyse existing assumptions but urge for further research.

Further study can prove significant for individuals in order to adopt behavior patterns that will simplify decision-making models applied as well as coordinate the way they perceive risk with other determinants so as to diminish degree of uncertainty. Better understanding of the way borrowers perceive risk can enhance the prospect of developing new partnerships between governments, markets, financial institutions and individuals so as on the one hand to ensure consumers against unsustainable debt that can lead to default and even homelessness. On the other hand, actors in financial markets can more successfully meet the needs of ordinary households and avoid reputational or bankruptcy risk. Well informed policy makers can regulate the market protecting both lenders and borrowers. Properly regulated, wisely-used financial markets can effectively protect large institutions from risk.

To sum up, while risk perception research has widely addressed issues related to health, road safety and environment, borrowers' behavior ought to receive equal attention by academics so that individuals in the first place and the entire economy thereby can benefit from this field of research.

INDEX OF INFLUENCING FACTORS	
FACTOR	COMMENT
CONTEXTUAL FACTORS	
Gender	Relatively little but strong evidence that gender ***is*** related to borrowing risk engagement levels.
Age	Scarce findings, suggested for further research, evidencing that borrowing risk taking patterns vary over life-cycle.
Financial literacy	Strong findings that financial literacy leads to more rational risk taking. Lack of financial literacy leads to high risk borrowing behaviors.
Income	Income is evidenced to be a strong determinant of risk taking levels.
Asset holding	It is well evidenced that asset holding determines the level and quality of borrowing risk taking behavior.
Liquid savings	Scarce evidence about the effect of liquid savings indicates that lack of savings leads to increasing vulnerability to debt problems.
Marketing practices	Robust evidence that lenders' marketing practices are related to high levels of risk engagement.
PERSONALITY – PSYCHOLOGICAL FACTORS	
Personality traits	Research on personality and psychological factors recognizes their importance on studying financial behavior, however it is inconclusive and contradictory when related to other contextual factors and therefore further research is suggested.
General impulsivity and self-control	
Spending self-control and spending orientation	
Self perception	
Perception of others and the social world	
Patience	Scarce but robust evidence that patience is negatively related to debt accumulation and therefore risk taking.
Hope	Evidence, worthwhile for further research, that levels of hope are positively related to propensity for risky

	indebtedness.
RISK PERCEPTION FACTORS	
Heuristic principles **Cognitive strategies**	Evidence, worthwhile for further exploration, that there is potential for suboptimal loan decision-making due to presence of heuristics and cognitive biases.
Target risk / **Risk reference point**	Evidence, worthwhile for further exploration, that borrowers expose propensity to risk taking adjustment in order to bring risk back into their equilibrium. RHT and Prospect Theory can be applied for further research.
Expectations, intentions, values or beliefs	Value expectancy models can provide evidence that borrowing behavior is the product of cost benefit analysis.
Intentions	Strong evidence that borrowers' behavior can be predicted and explained by applying Fishbein's Intentions Model.
Emotions	Strong evidence on the effect of emotions on borrowers' attitude towards risk can be provided by means of the Psychometric Paradigm
Group and culture level variables	Strong evidence, worthwhile for further research, that social aspects and cultural adherence are strong determinants of the risks borrowers undertake
Media, professional/third-party advice	Strong evidence, by means of Social Amplification of Risk, that borrowers revert to media and/or third-party advice to reach decisions when they realize that they are unable to recognize risks.

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