

Cognitive Processing of Consumer Credit Offers

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M.Sc. Marc Heise

aus

Hildesheim

Referent: Prof. Dr. Erik Hölzl, Universität zu Köln

Korreferent: Prof. Dr. Detlef Fetchenhauer, Universität zu Köln

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*This work is dedicated to my parents who
ignited and encouraged my curiosity and to
Ariana who constantly supported me and
kicked my ass when needed.*

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Introduction

Consumer credit is an integral part of consumers' everyday lives around the world. The concept is socially accepted as a way to finance personal consumption needs (Merskin, 1998; Watkins, 2000). In many cases, credit use is a consequence of economic necessities and a tool used to deal with financial insecurities (Weller, 2007). However, with increased accessibility, credit is also used to finance purely enjoyable consumption like parties, alcohol and cigarettes (Autio, Wilska, Kaartinen, & Lähteenmaa, 2009). In general, the possibility to acquire needed products now and pay for them later with an interest premium sounds like a good option, when present financial means are low. Nevertheless, it obviously requires a certain level of financial skills and knowledge about the future income situation to make sound decisions. A lack of these can easily lead to overindebtedness (Lusardi & Tufano, 2015) with consequences as severe as decreased psychological well-being (Shen, Sam, & Jones, 2014) or even private bankruptcy (Jappelli, Pagano, & Di Maggio, 2013).

With research on consumer credit covering a multitude of disciplines like economics, psychology, sociology, mathematics and computer science, it becomes clear that credit is a multifaceted phenomenon that touches on many aspects of human life and entails numerous implications on various levels. Despite the complexity of the topic, it can be argued that the individual decision to enter a specific credit contract lies at the core of it. This is where needs, attitudes, hopes, and ideas translate into actual behavior and thus unfold into various tangible consequences.

This thesis contributes to the understanding of this credit decision by regarding the cognitive processes that lead to it from a psychological point of view. To this end, seven lab studies were conducted that can be grouped into three major sections.

The first section focuses on the idea that preferences for specific credit aspects, like low annual percentage rate, short credit duration, or low total costs may change, depending on the level of mental abstraction of the consumer. A person sitting at home in front of the computer, shopping online and being offered to use a credit for the purchase might therefore decide for a different credit than a person analyzing several credit alternatives with his bank advisor, figuring out the individual differences in these offers. Thus, this section aims to answer the question whether mental abstraction influences credit choice.

The second section follows-up on the idea of mental abstraction and transfers it to a relatively new form of credit: 0%-interest credit offers, defined as credits with an annual interest rate of 0%. It is argued that the number 0 is more abstract in nature than positive numbers. The prominent display of 0 in advertisements for 0%-interest credits might induce a higher level of mental abstraction, which in turn could influence which product consumers want to finance with a 0%-interest credit. Furthermore, consumers with a high level of mental abstraction might find 0%-interest credit offers particularly tempting because of a perceived fit with the abstract number. Thus, this section aims to answer the question how mental abstraction and the 0 in 0%-interest credits interact to influence credit evaluation as well as the choice of the product that is to be financed.

The third part continues to examine cognitive processes in the evaluation of 0%-interest credits, but follows a different theoretical conception. Often, such credits are offered directly at the point of sale, where consumers have limited time to make a decision and are distracted by the noisy environment. This could lead to consumers adopting a processing style that is less analytic and rather relies on heuristics. In this context, it is examined whether heuristic processing leads to more positive evaluations of 0%-interest credits, as the central feature of a 0%-interest rate

may divert attention from less advantageous aspects of such credits like for example mandatory residual debt insurance or high dunning fees. Thus, this section aims to answer the question whether consumers are more willing to take up a 0%-interest credit when they process information in a more intuitive and heuristic way.

In the following sections of the introduction, a short overview will be provided, regarding the recent development and current situation of consumer credits in the western world and in Germany in particular. Next, the consequences of increasing credit use will be highlighted, with a special emphasis on psychologically relevant aspects. Afterwards, it will be explained how credit use can be conceptualized as a process of consecutive stages with characteristic decisions and investigated from different psychological perspectives. Previous research will be reviewed with a focus on results regarding the decision to enter a specific credit contract from a cognitive perspective. In this context, the importance of specific credit characteristics for the credit decision like annual percentage rate and credit duration will be presented in detail. After this, the three empirical sections will follow with preceding individual subsections that concentrate on the theoretical concepts used in the respective set of studies. At the end, a discussion will sum up the results and come back to the question how a consideration of cognitive processes can facilitate understanding of how consumers decide for a specific credit offer.

Consumer Credits – Recent Trends and Status Quo

Definition of consumer credit.

According to the Oxford Dictionary (n.d.), consumer credit is defined as “credit advanced to consumers for the purchase of goods or services”. This corresponds to a literal interpretation of the term and illustrates the everyday understanding of consumer credit. Although most people would probably agree to it, they differ in their opinions on what exactly constitutes a credit. In

Germany, 96% of the target population agree that going to the bank and borrowing money there is an act of taking credit. In contrast only 42% agree that overdrafting one's bank account is another form of credit and just 19% agree that buying something on credit card also represents the use of credit (SCHUFA Holding AG, 2010).

In the majority of articles on the topic, the authors do not specify their understanding of the concept. However, with different research objectives, it becomes clear that a further differentiation is often implied. For example, Lea (1999) defines credit as an agreement between borrower and lender about planned postponed payments. For him, credit turns into debt as soon as a borrower is in arrear of payments. Thus, he clearly differentiates between the two terms and uses them in a rather specialized way.

From an economic point of view, credit and debt are synonymous. The present thesis follows this understanding, but uses a more elaborated concept of consumer credit. Specifically, it follows the understanding of the Federal Reserve System (2016). Accordingly, consumer credit is defined as all credit for individual consumers to finance "household, family, and other personal expenditures, excluding loans secured by real estate" (Federal Reserve System (2016)). This definition excludes mortgages for home purchase as well as home equity lines of credit. This seems legitimate, because for most people, acquiring real estate is a one-time situation with much higher stakes and different regulations credit-wise as compared to, for example, buying a new laptop or even a car.

Consumer credit can be broken down to two forms of credit: Non-revolving credit and revolving credit (Federal Reserve System, 2016). Non-revolving credit is characterized by a fixed amount and a prearranged repayment schedule. Only changes in the contract allow for an adaption of these terms. Non-revolving credit includes mainly credits for cars and other vehicles

as well as educational loans, but also 0%-interest credits for consumer electronics. In contrast, revolving credit allows the consumer to borrow money up to an individual limit with repayments not following a specific plan and in most cases stretching over an indefinite period. Nevertheless, consumers often have to make minimum monthly payments, to avoid penalties. Revolving credit includes mainly credit cards and overdraft plans. In most cases, the interest rates for revolving credit are higher than for non-revolving credit.

Recent history of consumer credit.

The general idea of credit dates back a long time. The practice of loaning money and the implementation of interest dates back to Mesopotamia at around 3000 BC (Graeber, 2011). However, the modern understanding of consumer credit is quite new. The reason is that for a long time, there was no significant demand for it. Despite some furniture or sewing machines, average people did not make large acquisitions. Only with the increasing urbanization, industrial production of consumer goods and the growth of the middle class did the need for credit rise, because people started to buy cars as well as large amounts of durable goods and wanted to secure a good education for their children, requiring college tuition (Durkin, Eliehausen, Staten, & Zywicki, 2014).

Recently, consumer credit has greatly increased in the U.S. The outstanding amount of consumer credit balances increased from \$1.54 trillion in January 2000 to \$2.46 trillion in January 2007, before the first signs of the upcoming financial crisis, stalled there until around 2011 and since then increased to \$3.77 trillion in January 2017 (Federal Reserve System, 2017). To put this figure into perspective: It equals the combined GDP of Belgium and Germany in 2015 (World Bank, 2017). Of this sum, one quarter corresponds to revolving credit, with credit cards being the most common example in this category. The increasingly high levels of credit are

not a phenomenon that is restricted to the U.S. Although the figures are much lower for other countries like Great Britain (£0.19 trillion in January 2017; Bank of England, 2017) or France (€0.16 trillion in January 2017; Banque de France, 2017), one has to take into account that these countries have smaller populations, i.e., less people who can take credits, and weaker economic performances. Germany represents a somewhat special case. Contrary to other countries, Germany did not see a rather linear or even exponential increase in outstanding consumer credit balances after the financial crisis: The figures dropped from €8.38 billion in January 2007 to €4.38 billion in December 2012 and then rose again to €8.60 billion in January 2017 (Deutsche Bundesbank, 2017). Besides the fluctuations and the lack of a general trend, the present total credit amount is also much smaller than in the above-named countries. However, this is rather an exception to the more general trend of increasingly high levels of consumer credit.

Economic Consequences of an Increase in Credit Use

Rising amounts of outstanding credit are not necessarily problematic. Rather they are a logical consequence of rising income levels and living expenses. However, too high outstanding balances are often seen as alarming. Economists argue that this debt burden could lead to a decrease in future spending behavior and thus thwart economic growth (Barba & Pivetti, 2009). On the individual level, the worst financial consequence would be private bankruptcy, designed to actually limit the damage that individuals can suffer after being unable to repay their credits. So far, there was no financial crisis that could be traced back to the steep increase in consumer credit in the present definition and the development of private bankruptcies is also quite assuring. For example, in the U.S. 597.97 thousand people filed bankruptcy in 2006. The figure increased to 1,536.80 thousand in 2010, probably as a reaction to the financial crisis, and from then kept decreasing constantly to 770.85 thousand in 2016 (Administrative Office of the U.S. Courts,

2007, 2011, 2017). This equals 0.24% of the population (United States Census Bureau, 2017). In Germany, the trend is exactly the same, with lower numbers: 127.29 thousand people filed bankruptcy in 2006. The figure increased to 136.46 thousand in 2010, and from then kept decreasing constantly to 101.00 thousand in 2016 (German Federal Statistical Office, 2017). This equals 0.12% of the population (German Federal Statistical Office, 2016).

Psychological Consequences of Credit Use

Overall, the economic consequences of high credit levels seem to be less worrisome than expected – at least regarding the extremes. Nevertheless, that does not imply that extensive credit use comes without disadvantages. Psychological consequences go beyond economic figures and can be classified as direct consequences for the consumption of the financed product, consequences for the individual in general and consequences beyond individuals.

In the context of direct consequences, mental accounting (Thaler, 1985, 1999) represents an important theoretical framework. The general idea is that people keep track of mental accounts for specific expenditure categories. Taking up credit leads to more fine-grained mental accounting, i.e., a stricter allocation of budgets for specific expenses (Antonides, de Groot, & van Raaij, 2011). As a consequence, it could be that people cut back consumption in a specific domain after depleting the respective mental account and buying a last product in that domain on credit, despite the fact that they still have money available because of low spending in other mental accounts.

Prelec and Loewenstein (1998) linked pain of paying and pleasure of consumption to refine the theory to the double entry mental accounting theory. It specifies the conditions under which people either integrate or separate the pain that comes with making a payment and the pleasure that comes from consuming a desired product or service. In comparison to paying cash,

paying with a credit card separates these two, because the payment of outstanding balances is temporally disconnected. Furthermore, a single payment for a specific good is not felt that specific, because the outstanding balance is a sum of a number of payments, making it hard to identify single purchases. In the purchase situation, credit card payment is therefore related to rather low pain of paying (Soman, 2003). This has several implications. For example, Thomas, Desai, and Seenivasan (2011) found that vice products like cakes or chocolate trigger impulsive purchase decisions due to the associated desire. Pain of payment steers in the opposite direction and tends to prevent such decisions. However, when participants in their study paid by credit card, this counter-measure was missing, leading to an increase in vice product purchase. Thus, credit use has an impact on what consumers spend their money on.

Furthermore, research suggests that credit use also influences post-payment connection to the product. Specifically, consumers interpret cash payments as an investment in the product, whereas purchases on credit lack this perspective. Thus, immediate feelings of psychological ownership, defined as the extent to which a product is perceived as really belonging to the owner and being part of him (Pierce, Kostova, & Dirks, 2003), are lower for products purchased on credit than for those purchased on cash (Kamleitner & Erki, 2013). In addition, this lack of emotional attachment to the purchased product leads to increased commitment to other alternatives, in case of donations a decreased likelihood to show signs of commitment to the target organization and a decreased likelihood for repeated purchases and transactions (Shah, Eisenkraft, Bettmann, & Chartrand, 2016). These results demonstrate, that credit use not only has an influence on what products or services people buy but also how the choice of payment mode affects how they perceive these products and services immediately after the purchase. Furthermore, credit use has implications for future consumption encounters.

Credit use also comes with consequences for the individual itself. The most intensively investigated topics are probably, consequences for economic hardship, mental health and well-being.

Regarding economic hardship Despard et al. (2016) found from a sample of students with low-to-moderate incomes that holding student debt was associated with a higher chance to be unable to repay installments in full, to skip bills and be unable to afford the food that they desired, as compared to students who did not hold student debt. In part, this represents typical strategies to cope with outstanding credits. Especially, lower income individuals rely strongly on debt juggling, characterized by repaying bills in a rotating manner, taking new credit to make due repayments and paying less than the minimal repayment amount, as well as on a strategy of ignorance, characterized by a rejection of responsibility and ignorance against financial obligations (Tach & Greene, 2014). Controlling for lifestyle and a range of economic factors, Meltzer et al. (2011) showed that credit holders were twice as likely to think of suicide as a solution to their financial situation. When they held multiple debts or fell behind on their repayments, the risk was particularly high. This direct effect even held true after controlling for hopelessness.

In the context of credit use and mental health, recent results demonstrate that student loans are associated with poorer psychological functioning, meaning that students dependent on student loans feel more often nervous, downhearted and depressed and less often calm, peaceful and happy (Walsemann, Gee, & Gentile, 2015). The results are not restricted to the specific subgroup: Especially a long time in debt and a change from moderate to high debt levels leads to an increase in depressive symptoms (Hojman, Miranda, & Ruiz-Tagle, 2016). In contrast, a decrease in credit levels reduces the occurrence of the symptoms, offering a way out for those

who can afford it. In contrast to the results above, Hodson, Dwyer, & Neilson (2014) found that the frequent use of short-term credits does not contribute to heightened levels of stress.

According to them, people with particularly low incomes show weaker signs of emotional suffering from debt. For them, securing the necessary money to afford basic necessities seems to be more pressing than repaying outstanding balances.

Closely linked to health is the construct of well-being. Brown, Taylor, and Price (2005) found a strong relationship between outstanding credit and reported well-being. The negative impact of holding credit outweighed the antagonistic effect of saving behavior by a factor of over two, demonstrating the harmfulness of credit. The perception of the current financial situation plays a major role, compared to the actual amount of outstanding credit, highlighting interindividual differences in the effect on well-being. Interestingly, mortgages do not affect well-being. The effect is limited to consumer credit. Longitudinal analyses show that the effect is stronger for short-run debtors as compared to long-run debtors (Shen et al., 2014), contrasting the afore-mentioned effect on depressive symptoms (Hojman, et al., 2016). This speaks for some form of habituation. Financial assistance from family members can attenuate the negative influence of credit use on well-being. However, assistance from friends or banks rather has the opposite effect, as it resembles a last-resort option that is likely to result in a debt trap (Tsai, Dwyer, & Tsay, 2016).

As can be seen from the examples above, the psychological consequences of credit use for the individual consumer are manifold and touch on different aspects of her life. Despite the complexity, the consequences of credit do not stop here but go beyond individual persons, affecting interpersonal relations and the society as a whole. For example, being indebted and especially being unable to repay outstanding credits is seen as a sign of irresponsibility,

selfishness and the inability to deal with monetary issues. Being confronted with stigmatization, even from close others, debtors feel ashamed and withdraw from situations where their credit use could become apparent (Hayes, 2000). At the same time, creditors have the feeling of following societal rules when they engage in heavy consumption. They interpret their individual credit limit for a value of their person in the eyes of others (Peñaloza & Barnhart, 2011). In this light, visibility of credit use is an important element. As Sotiropoulos and D'Astous (2012) demonstrated, this is particularly true for young adults. They found that in this group, perceptions of close peers' credit card balances affect individual overspending on credit because the young adults feel an expectation towards themselves to consume on similar levels.

As can be seen from these findings, credit use affects how people interact with others and shapes their views of themselves. Furthermore, it influences behavior in social networks and leads to social norms that in return influence people's perception.

Overall, the aspects covered in this section make clear, that credit use is a phenomenon with many more facets than just the economic point of view. Specifically, the psychological consequences constitute a complex body of research that underline the statement that psychology can greatly contribute to the understanding of credit use. More so, the discipline should commit even more strongly to the topic, as the consequences of credit use are broad and substantial. With the individual decision to enter a credit contract at the core of the matter, the relevance for psychological research on how people come to that decision becomes clear.

Psychological Perspectives on the Process of Credit Use

After highlighting the relevance of the topic, the present section aims to provide a scheme that allows a more fine-grained consideration of the manifold psychological aspects of credit use. Empirical findings are presented to provide a broad understanding of the psychology of credit

use. The section also points out where and how the present thesis is embedded in this field of research.

Contrary to everyday understanding, credit use should not be seen as an isolated event. Some of the previously reported consequences of credit use already stressed the point that credit use stretches into the future. At the same time, signing a credit contract does not represent the starting point of the process. For example, the decision to either buy a product on credit or to pay the price immediately can be situated far in advance to the purchase situation. Therefore, Kamleitner and Kirchler (2007) suggested to conceptualize credit use as a process, distinguishing between individual essential steps. Their process model identifies three distinct phases: Processes prior to the decision to use credit, processes related to the actual take-up decision, and processes that are situated after credit take-up. While the order is chronological, the model also takes into account that consumers might skip phases, or revert to preceding ones, in some cases. For example, a person might decide to purchase a product on credit and then start to compare different credit offers. If she cannot find an offer that suits her needs, she could return to the previous step and think about saving money and postponing the purchase into the future. In addition, the model takes into account that external factors can influence the processes in each step (e.g., limited access to credit because of a low credit score).

In addition to this conceptualization of credit use as individual processes grouped into distinct steps, Kamleitner, Hoelzl, and Kirchler (2012) identified four different psychological perspectives on credit use. According to them, credit use can be understood as a reflection of the situation, a reflection of the person, a cognitive process or a social practice. The first perspective concentrates on situational factors that influence credit use, such as sociodemographic factors or access to credit. In contrast, credit use can be conceptualized as a phenomenon situated within

the person. Thus, the perspective of credit use as a reflection of the person concentrates on the influence of personality traits and similar stable causes. Furthermore, credit use can be analyzed from a cognitive perspective. This shifts the focus to cognitive processes and puts special emphasis on decision making. While these cognitive processes are influenced by situational and personal factors, they also highlight the dynamic nature of credit use. The last perspective construes credit use as a social phenomenon. Thus, it places great emphasis on shared values, social norms and interactions between individuals and groups, instead of on the specific characteristics of the individuals involved or the situational factors.

Together, the process model of credit use (Kamleitner & Kirchler, 2007) and the four psychological perspectives on the phenomenon (Kamleitner et al., 2012) can be used to form a matrix, serving as a map for the landscape of psychological credit research. Columns provide the structural fragmentation of the process model, while the rows provide the different viewpoints of the distinct psychological perspectives on the individual steps. The following subsections will present selected empirical findings on the resulting cells of this classification, to give a structured overview of psychological research on credit use.

Processes prior to the decision to use credit.

Autio et al. (2009) investigated the use of instant loans (e.g., applied for via SMS and transferred immediately) among young Finnish consumers. They found that younger people, single parents, people with low income and those in marginal employment are most likely to consider credit use as an option to finance their consumption. Furthermore, such situational factors also influence the prospective purpose of credit take-up. For example, typical purposes of credit use are leisure activities and partying. However, young people with low income rather strongly consider credit use as mean to buy food or repay interest. Investigating the role of

gender in college students' credit behavior, Hancock, Jorgensen, and Swanson (2013) found that women were 2.4 times more likely to own two or more credit cards than men. Assuming similar expenses for male and female students, this can be interpreted as a sign that women have better access to credit or as a preference to spread credit use across several creditors.

In addition to this situational perspective, the phase before credit take-up can also be seen from a personal perspective. More specifically, Wang, Lu, and Malhotra (2011) found that attitudes and personality factors had greater explanatory power in regard to debt behavior than demographic factors. In their survey, participants with higher scores on the affective and behavioral dimensions of credit attitude were more likely to consider revolving credit frequently, while the opposite was true for the cognitive dimension of credit attitude. A possible explanation might be that the cognitive dimension correlates with credit knowledge. Thus, people who score high on the cognitive dimension are more likely to be aware of the relatively high interest rates of revolving credit, therefore trying to avoid this kind of credit. Furthermore, self-control, self-efficacy, deferring gratification and locus of control were associated with the frequency of revolving credit use (Wang et al. 2011). Participants with high scores on these variables were able to manage their financial accounts better and avoid high debts. Investigating the antecedents of credit attitude, Richins (2011) found empirical support for the idea that materialism on the one hand leads to a more positive attitude towards credit use and on the other hand strengthens the belief that purchases lead to positive life transformations. Taken together, for highly materialistic persons this implies a higher likelihood to rely on credit in order to consume more.

From a cognitive perspective, mental accounting (Thaler, 1985, 1999) has important implications for processes prior to the decision to use credit. As already noted in the general introduction, Prelec and Loewenstein (1998) added the linkage of pain of paying and pleasure of

consumption to the theory. In the present context, this means that thoughts about outstanding installment rates can attenuate the pleasure of consumption for credit financed products. Thus, the theory predicts a general aversion of outstanding credit. At the same time, the fact that mental accounts are endowed with specific budgets could render credit use more likely. When an account is empty, because of high spending in the respective time period, mental accounting to some degree prevents people from spending even more, because the preset limit in this account is reached and remaining money is allocated to other accounts. The existence of mental accounts should prevent people from simply spending more money on a given account and therefore reduce the budget in other accounts. Credit represents a possibility to overcome this problem and continue spending in the otherwise depleted account. This represents a possible explanation for the common phenomenon of co-holding, i.e., having outstanding credit and at the same time holding liquid assets, thus being able to pay the credit off in part or completely (Gathergood & Weber, 2014). Besides from this, Helion and Gilovich (2014) demonstrated that people try to align the source of money with the characteristics of the products that they buy. Their results imply that people should be more likely to consider credit use for functional products while other payment forms like gift cards should be considered for rather hedonic products. Thus, the desired product also influences whether credit use is even considered as an appropriate option.

Finally, from a social perspective, it is important to note that many products are not just bought because of their necessity or utilitarian character. They also serve the purpose to communicate one's standard of living (Veblen, 1899). In this context, people feel the need to 'keep up with the Joneses', i.e., not to fall behind in comparison to the consumption of neighbors or one's peer group (Kriete-Dodds & Maringer, 2015). Credit use represents one way to reach this goal, because it allows to increase visible consumption even in case of low financial means.

Thus, perceived peer pressure can cause an increase in consumption and for that reason intense credit use. Using bank account data, Berlemann and Salland (2016) were able to show that the average income in one's residential area influences the decision to raise debt. More specifically, higher comparison income leads to an increase utilization of overdrafts. Moreover, the authors demonstrated that one reason for this increased utilization is conspicuous consumption. It can be concluded that the social network in which people are embedded affects their decision to use credit. Through this and other pathways, society contributes to the current normalization of credit use (Jiang & Dunn, 2013; Peñaloza & Barnhart, 2011).

Processes related to the actual take-up decision.

Processes related to the actual take-up of credit focus on peoples' beliefs about the take-up procedures and related requirements, their perception of credit alternatives and the individual credit components as well as their behavior in the take-up process (Kamleitner & Kirchler, 2007). Taking a situational perspective, an example for research in this area comes from Pulina (2011). Using data on a group of Italian banking customers she investigated demographic and socio-economic determinants of credit choice. Woman rather use credit cards that have to be paid in full at the end of the month, than revolving credit cards. In comparison, men prefer gold cards with additional benefits, such as transaction insurance and around-the-clock helpline service. Young people acquire revolving credit cards, people in their prime working age prefer credit cards that are to be paid at the end of the month and older people opt for gold cards with additional benefits. On the one hand, these results demonstrate that the specific need for credit influences the choice of credit. Young people are probably not always able to repay the credit at the end of the month, due to liquidity constraints. This represents an explanation via situational preferences. On the other hand, it could be that the situation does not just influence credit

preferences but also constrains the access to credit. The fact that women seem to avoid revolving credit cards could also be owed to the circumstance that their income is lower in comparison to men (Weichselbaumer & Winter-Ebmer, 2005), thus limiting their choices.

The personal perspective can add to the picture by highlighting the impact of individual-specific factors. Back in 2012, Kamleitner et al. noted that research was silent about such factors in the stage of credit acquisition. Recently, this changed, allowing to draw empirically founded conclusions in this area. For example, objective credit knowledge prevents young consumers from using credit for impulse purchases. While the opposite is true for the impact of materialism, Cakarnis and D'Alessandro (2015) also found that materialism is positively related to better search behavior when looking for credit options and more advantageous credit card choices. Prior credit experience – as opposed to factual knowledge – led to impulsive choices of credit cards. Extending the picture to the choice of different forms of credit, Gathergood (2012) found that impulsive spending tendencies increase the likelihood to choose store cards and pay day loans, which represent credits with fast availability. Being financially literate increases the likelihood to choose personal loans and to avoid mail order purchases on credit and the use of credit union loans. According to Gathergood (2012) the relationship between impulse spending and choice of specific credit options partly mediates the relationship between impulse spending and over-indebtedness. This highlights the importance of the personal perspective in this stage of credit use.

As already noted in the beginning of this subsection, processes related to the actual take-up of credit focus on peoples' perception of credit in general as well as credit alternatives and individual credit components (Kamleitner & Kirchler, 2007). The strong emphasis on perception already points out the cognitive perspective in this context. Investigating the impact of mental

abstraction and different modes of information processing on credit evaluation and credit choice, the present thesis mostly relates to the cognitive perspective on processes during credit take-up. Most research in this area concentrates on how people perceive specific aspects of credits like the annual percentage rate or monthly installments. Because these results are especially relevant for the subsequently presented studies in the empirical parts of this thesis, they are presented in more detail after this overview on different stages of the credit process and different psychological perspectives. However, the cognitive perspective also covers further research. For example, Khan, Belk, and Craig-Lees (2015) recently demonstrated that positive emotions related to card based payment modes are stronger for people who own more credit cards and make frequent debit transactions. It is likely that the frequent usage of credit leads to a more favorable perception of credit use but also that a favorable perception in the first place leads to a more frequent use of credit. Thus, consumers form cognitive associations with credit use that affect actual credit behavior. Besides from these associations, the cognitive perspective also considers secondary credit aspects like payment protection insurances (Ranyard & McHugh, 2012). Here, it was found that such insurances are bought in part because of the anticipated worry reduction that they offer. People who perceive a high probability of repayment difficulties anticipate to worry more about the repayment and thus are more likely to purchase an insurance in order to prevent these worries.

Turning to the social perspective on credit take-up, Sotiropoulos and D'Astous (2012) found that perceptions of close peers' credit card balances affect individual overspending on credit because people feel an expectation towards themselves to consume on similar levels. Broadening the view from close friends to larger groups of neighbors, empirical evidence suggests that the education level in a given zip code significantly influences financial literacy of

individual residents, which in turn is related to credit use (Lachance, 2014). Thus, the social surrounding also influences various credit measures. Specifically, via one's zip code education the social surrounding influences various credit measures such as having a credit card, use of high-cost loans, carrying over balances on credit cards and using credit cards for cash advance. However, the specific mechanism remains unclear with social learning and social norms being possible candidates to play a role. Furthermore, the social network can also serve as a source for informal credit. While this might sound good for people who have limited access to formal credit alternatives, results point into another direction: Espvall and Dellgran (2010) analyzed representative survey data on Swedish citizens and found that especially people in economic hardship have problems to receive credit from informal sources. The situation might be less severe for young adults, because they can to some degree rely on family members (Heath & Calvert, 2013). As a consequence of such transfers, the boundaries between gifts and credit is blurred in this group. Thus, social ties in general greatly influence the access to credit as well as specific credit use and as a consequence also shape individuals' perceptions of the concept or credit.

Processes after credit take-up.

Research on processes after credit take-up mainly focuses on how people perceive their credit burden, how they manage the repayment and how the process of dealing with outstanding credit influences consumption and future credit use (Kamleitner & Kirchler, 2007). Carter (2015) found that experience with payday loans increases the likelihood to turn to other rather expensive kinds of credit like pawnshop usage, but only for those debtors with relatively low income. This could lead to even higher debts in the long run. Aside from the economic hardship, this is problematic because indebted people report a higher frequency of suicidal intentions than people

without debt (Meltzer et al., 2011). In this context, debt accumulated by shopping is a more serious concern as compared to debt from housing or expenses for utilities. However, the combination of several sources leads to a higher likelihood to report frequent suicidal intentions. While these results highlight the need to get out of debt, McHugh and Ranyard (2012) investigated whether credit information can help consumers to achieve this goal. They demonstrated that precise information on total cost and credit duration lead to higher credit repayments in a given time period. However, the positive effects of disposable income and education were stronger than the effect of precise information.

Taking the personal perspective, Ganzach and Amar (2017) extended these findings by adding insights on the impact of intelligence and personality factors on repayment. According to their results, more intelligent people more seldom miss to make a due repayment than less intelligent people, when the consequences of doing so are high. In case of low consequences, there was no difference in their repayment data. It was assumed that this is because higher consequences lead to a higher involvement, calling for the mobilization of cognitive resources, whereas less severe consequences do not lead more intelligent people to make use of their advantage. Similarly, personality factors also just affected repayment behavior for credits with severe consequences in case of missed repayments (Ganzach & Amar, 2017). Specifically, people high on conscientiousness and low on neuroticism were more likely to make their repayments on time. Further research on processes after credit take-up, taking a personal perspective, concentrates on the link of credit and well-being. In this regard, Shen et al. (2014) found that outstanding credit balances cause stress, leading to decreased psychological well-being. The authors further found a habituation effect: Being indebted for longer time periods led

to a decrease in stress and an increase in well-being. However, long-term debtors still reported lower levels of well-being than non-debtors.

Under the cognitive perspective, recent literature concentrated on repayment strategies for multiple credits. In case of multiple credit accounts with outstanding balances, people tend to pursue subgoals rather than the superordinate goal of getting out of debt as fast as possible. Regardless of the annual percentage rate, they try to pay off small credits first, in order to reach the goal of closing an account – even if that account has a comparably small annual percentage rate (Amar, Ariely, Ayal, Cryder, & Rick, 2011; Besharat, Carrillat, & Ladik, 2014). This behavior is even more pronounced when the smaller credits are related to hedonic spending in the far gone past because of the mental coupling with the decreasing pleasure of consumption over time (Besharat, Varki, & Craig, 2015). This shows that on a cognitive level, debt repayment is not just an issue of economic rationality. It would be hasty to conclude that this is a disadvantage for consumers in the long run, due to the monetary loss associated with such strategies. Kettle, Trudel, Blanchard, and Häubl (2016) demonstrated that consumers interpret a great proportional balance reduction in any one account as a signal of success in their way to complete debt repayment. This motivating aspect might help them to stick to high repayments throughout longer time periods. Aside from multiple debt account management, research in this area concentrates on perceptions of the repayment processes and associated biases. For example, Soll, Keeney, and Larrick (2013) found peoples' perceptions of how much they had to repay each month in order to repay a given credit in 3 years to be biased, depending on their numeracy. Furthermore, people have problems to estimate the required payments when they still use the credit card that they pay off.

Finally, under the social perspective, the impact of outstanding credit on family life gathered some attention. Being indebted increases the likelihood of financial conflict with the partner, thus lowering marital satisfaction and increasing the likelihood of getting divorced (Dew, 2011). Considering that financial disagreements are one of the strongest predictors of divorce in comparison to other areas of disagreements (Dew, Britt, & Huston, 2012), this is of particular importance.

Cognitive processing of credit offers.

Because of the high relevance for the present thesis, this section focuses on the perception of credit aspects and their influence on the credit decision as a specific case of the cognitive perspective on processes during credit take-up (Kamleitner & Kirchler, 2007).

In general, outstanding balances is something that people prefer to avoid, resulting in a preference for shorter credit durations over longer credit durations (Wonder, Wilhelm, & Fewings, 2008). This even holds when credit is offered free of costs. However, people also prefer credits with duration aligned to the expected life-cycle of the financed product (Hirst, Joyce, & Schadewald, 1994).

Ranyard, Hinkley, Williamson, and McHugh (2006) presented their participants with a minimal description of three credit options, among which they had to choose one after asking as many questions about all offer as they wanted. If the product that was to be financed by the credit was more expensive (a car instead of a washing machine), people generally asked more questions. Nevertheless, the rank order of the credit aspects that they asked about was the same: Around two thirds asked about the annual percentage rate and about half of the participants asked about the monthly repayments. Credit duration and total cost seemed to be less important with only around one third and one fifth of participants asking respective questions. Only 5% of

participants asked for a deposit, framing this aspect the least important one. However, when the deposit is high, rebates also become important for peoples' credit choice (Wonder et al., 2008). Herrmann and Wrickle (1998) even demonstrated that the deposit is more important for the formation of price judgements than the credit duration. In their experiments, monthly repayments was the most important credit aspect. For a comparison with the previously reported results it is important to note that they did not provide information on the annual percentage rate in any of their experiments. In a similar experiment, Ranyard et al. (2006) found that their participants' credit choice was influenced mainly by information on the annual percentage rate. This effect vanished when information on total cost was provided as well. In this experiment, monthly repayments were not an important aspect for credit choice.

The fact that people do not necessarily ask for the same things that they look for when information is provided suggests that people do not always have a predefined idea of what is most important for their credit decision. Furthermore, given the respective information, they use the information on credit aspects in a rather heuristic way (McHugh, Ranyard, & Lewis, 2011). For example, people tend to follow a heuristic that favors the credit offer with the lowest annual percentage rate. Part of this is probably owed to the finding that peoples' understanding of the measure is rather limited (Stango & Zinman, 2009), especially in case of low financial literacy (Disney & Gathergood, 2013). Regardless of other possible reasons, this heuristic processing then leads to underestimations of later costs (Stango & Zinman, 2009). Similarly, calculations of total cost also follow rules of thumb, leading to an overestimation of this credit aspect. When the duration of a credit is not provided, people tend to underestimate the time it takes to repay the outstanding balance completely, with mental accounting (Ranyard & Craig, 1993) and hyperbolic time preferences (Overton & MacFadyen, 1998) offering only partial explanations.

Regarding monthly repayments, people tend to focus on the first digit, especially when education is low (Wonder et al. 2008).

All these results speak against a perfect understanding and rational processing of credit offers. In sum, people have limited understanding of the individual credit aspects and use heuristics instead of clear calculations, when detailed information is not provided. The interrelations of the credit aspects is not always clear and their importance for the credit decision varies to some extent.

Overall, a credit decision presents people with a variety of information in different units of measurement (e.g., percentage, € per month, years, etc.). Next to the perception and cognitive processing of individual credit aspects, the complexity of the overall credit offer may be confusing for many people. High perceived price complexity leads to lower perceived price fairness and product choice (Homburg, Totzek, & Krämer, 2014). This is because people evaluate the respective seller's pricing practices negatively and expect the total price to be relatively high. Köcher and Holz Müller (2014) demonstrated this effect in the credit context and found the relationship between complexity of information and credit evaluation to be particularly strong when trust in the creditor was low.

Part I – Construal Level and Credit Attractiveness

The main purpose of this first part of the thesis is to extend research on credit choice by examining the importance of different credit aspects on the credit decision in low and high construal level. To this end, two laboratory experiments were conducted in which construal level was manipulated using concrete or abstract mindset manipulations.

The following subsections will first outline the core ideas of construal level theory, followed by an in-depth presentation of the dimensions of psychological distance and their

influence on consumer decision making. A final subsection will concentrate on different ways to manipulate construal level, before the actual studies are presented. Hypotheses are derived from the theoretical background and introduced individually with each study.

Construal Level Theory

Direct experience is limited to the self in the here and now: The past has gone by, the future is yet to come and only in the present moment do people experience themselves and their direct surrounding which they perceive through their senses. Yet, this immediate and direct experience is not the sole basis for thoughts, emotions and behaviors. Instead, people have the ability to also process more abstract information: For example, they can imagine their last birthday, the upcoming holiday in a foreign country, alternatives to watching a basketball game and their friends' reactions to a surprise party. According to construal level theory (CLT; Liberman & Trope, 2008; Liberman, Trope, & Stephan, 2007; Trope & Liberman, 2010; Trope, Liberman, & Wakslak, 2007), such memories and predictions or speculations are psychologically distant from the self in the here and now. More precisely, psychological distance increases with the distance of an event, person or object to the self in the here and now in terms of time, space, social distance and hypotheticality. The central idea of construal level theory then is that psychological distance influences mental construals and vice versa (Soderberg, Callahan, Kochersberger, Amit, & Ledgerwood, 2015). For example, the more psychologically distant an event, the more abstract do we construe it mentally and the more concrete our mental construal of an object, the less psychologically distant do we perceive it from our self in the here and now. In contrast to psychological distance, construal level thus specifies how concrete or abstract an event, person or object is represented mentally. In the following paragraphs, the concept of construal levels and the interrelation with psychological distance will be further clarified.

High-level construals are relatively more abstract mental representations focused on central aspects. Contrary, low-level construals are relatively more concrete mental representations focused on specific aspects that are relevant in a given context (Trope & Liberman, 2010). The activity of writing a scientific journal article can be construed as “advancing a career in academia”, thereby highlighting the goal of this activity but neglecting more precise information. At the same time, the activity can be construed as “forming sentences and paragraphs, using a computer”, thereby highlighting the process of this activity but neglecting the bigger picture. The activity is one and the same in both construals but the former is a more abstract representation – a high-level construal, while the latter is a more concrete – a low-level construal. Each of them focuses on the information that is important to the respective level. For the high-level construal, it is not important whether the activity is performed using a computer or using pen and paper, therefore it does not include information on this aspect. In turn, for the low-level construal, it is not important whether the activity is performed to advance a career or to practice a form of scientific communication, therefore it does not include information on this aspect.

It is important to note, that increasing the level of abstraction does not just imply a loss of specific information but also an enrichment with new information on the meaning. Describing high-level construals as simply more vague compared to low-level construals would therefore fall short of the general idea of construal levels. Furthermore, the shift from context specific information towards more core information also implies a hierarchy that argues for an infinite number of construals levels, instead of just a low construal level and a high construal level. To stick with the previous example, the activity of writing a scientific journal article could also be construed as “getting pleasure from achievements in working life”, which is an even higher

construal as compared to “advancing a career in academia”, because it focuses on an even higher goal and thus more central aspect of the activity.

Trope and Liberman (2010) introduced two criteria to distinguish between higher-level aspects and lower-level aspects of an event, person or object: Centrality and subordination. Centrality refers to the fact that the meaning of an event, person or object is more strongly affected by a change in high-level aspects than by a change in low-level aspects. Changing from writing a scientific journal article at home to writing it at the office does not influence the meaning much. However, changing from writing a scientific journal article to advance the personal career to writing it to earn money as a ghostwriter does have a relatively large influence on the meaning. Subordination refers to the fact that the meaning of low construal level aspects depends stronger on high construal level aspects than it is the other way round. When thinking about writing a scientific journal article, the location of writing only becomes relevant if one already decided to pursue the goal of advancing a career in academia. However, the question whether that is the case is relevant regardless of whether one would pursue it at home or in the office.

While centrality and subordination represent the criteria to distinguish between high-level aspects and low-level aspects of an event, person or object, other characteristics have been brought forward to distinguish between high-level construals and low-level construals (Table 1).

As already said, high-level construals are more abstract and goal relevant, while low-level construals are more concrete and goal irrelevant. Because high-level construals focus more on the primary aspects of an event, person or object, they tend to be rather simple and detached from context. In contrast, low-level construals focus more on secondary aspects and tend to be rather complex and embedded in context (Leiser, Azar, & Hadar, 2008). Similarly, construals of

Table 1
Characteristics of High-Level Construals and Low-Level Construals

| High-level construals | Low-level construals |
|-----------------------|--------------------------|
| Abstract | Concrete |
| Simple | Complex |
| Structured, coherent | Unstructured, incoherent |
| Decontextualized | Contextualized |
| Primary, core | Secondary, surface |
| Superordinate | Subordinate |
| Goal relevant | Goal irrelevant |
| Desirability | Feasibility |
| Value | Probability |

Note. Adapted from “Psychological Construal of Economic Behavior,” by D. Leiser, O. H. Azar, and L. Hadar, 2008, *Journal of Economic Psychology*, 29, p. 765. Copyright 2008 by Elsevier.

objects or goals differ such that desirability of attaining an object or end-state is characteristic of high-level construals, whereas feasibility of attaining an object or end-state is characteristic of low-level construals (Liberman & Trope, 1998).

Psychological Distance and its Dimensions

Construal level theory states that events, persons or objects are mentally construed on a higher level, the further away they are from the self in the here and now. Trope and Liberman (2010) argue that this is the case because one perceives objects differently from different distances. For example, a bike as seen from a distance of 500 meters can be distinguished from a car. One can identify the two wheels and the general shape. Thus, it can be construed as a means of transportation that is powered by physical strength. The same bike as seen from a distance of 2 meters looks quite different. Now, the observer can see the broken suspension fork, a flat tire, rust on the spokes, and an engraved name on the frame. Thus, the bike can be construed as Tim’s old mountain bike waiting to be picked-up and scrapped. This connection of construal level and distance is very useful: Given the choice, one might decide from the distance to ride the bike or the car. To make the decision, high-level construals of both objects are well suited, as they make

it clear that the bike is the healthier option. Approaching the bike racks, the low-level construals of the individual bikes are well suited to pick one's own bike instead of Tim's old mountain bike, as they focus on the individual differences and details.

The given example highlights psychological distance in the spatial domain. However, as already noted, psychological distance refers to more than just one dimension. In fact, construal level theory identified four underlying dimensions of psychological distance. Besides from the spatial dimension, events, persons or objects can also be distant in time (e.g., doing something now or in a year), socially distant (the best friend or a stranger from another country) and hypothetically distant (the chance of missing the bus or winning in the lottery; Trope & Liberman, 2010). All four dimensions have in common that the self in the here and now represents a zero distance point and that they stretch out infinitely from this point, thereby increasing the distance to this point. Furthermore, it holds true for each of the dimensions, that increasing the distance requires a higher level of abstraction because only the self in the here and now and its immediate surrounding can be the subject of direct experience (Bar-Anan, Liberman, Trope, & Algom, 2007).

If psychological distance is a common aspect in all four dimensions, it seems appropriate to assume that they are mentally associated with one another (Liberman & Trope, 2008, 2014), such that for example thinking about a faraway place should rather bring to mind the distant future than the near future. In order to test the proposed interrelation of the distance dimensions, Bar-Anan et al. (2007) conducted a set of Stroop tasks. Participants saw a picture of a landscape with an arrow pointing to either a distant or a nearby location (spatial distance). The arrow was labelled with words that either signaled high distance (e.g., year, others, maybe) or low distance (e.g., tomorrow, we, sure) on the dimensions of temporal distance, social distance and

hypotheticality. Participants' task was to indicate whether the labelled arrow pointed to a distant location or a nearby location, regardless of the label or to identify the label, regardless of the position of the arrow. The result that participants reacted faster to distance-congruent trials than to distance-incongruent trials was interpreted as evidence that psychological distance is a shared aspect of the four distance dimensions that is accessed automatically.

Further research building on this assumption also suggests that the distance of a given stimulus on one of the dimensions also affects the perception of its distance on the other dimensions. For example, Stephan, Liberman, and Trope (2010) showed that social distance, manipulated as formal and polite or colloquial and less polite, influenced the perceived spatial and temporal distance towards the communication partner. Complementary, Williams and Bargh (2008) found that high spatial distance, as compared to low spatial distance, induced by an unrelated task, led to less self-perceived strength of participants' bonds to their siblings, parents and hometown – that is to higher social distance. Wakslak (2012) presented similar evidence for the link between hypotheticality and spatial as well as temporal distance. While the dimensions of spatial, temporal and social distance as well as hypotheticality are not essentially the same, these results show that the concept of psychological distance unites them to some extent.

Manipulating Construal Level

Studies utilizing construal level theory usually rely on experimental manipulations to induce low construal level or high construal level. With regard to this goal, two broad categories of studies can be distinguished: A first category of studies manipulates one or more dimensions of psychological distance. This is because the theory links higher psychological distance to more abstract construals. In contrast, studies from a second category take a more direct approach and manipulate mental abstraction directly using experimental mindset manipulations. Both

approaches have been used frequently and consistently proved their effectiveness throughout different contexts (Yan, Hou, & Unger, 2014). The following paragraphs will outline the procedures in more detail.

Studies that focus on manipulating psychological distance usually concentrate on the manipulation of one specific dimension of psychological distance. Within that context, the manipulations are quite similar. For example, with regard to temporal distance, participants in two distance conditions were asked to imagine their lives or to perform an activity either tomorrow or in a year from today (Förster, Friedman, & Liberman, 2004). Regarding spatial distance, participants were asked to imagine helping a friend to move into a new flat. The location of the new home was described to be either close by or several thousand miles away from the location where the study took place (Fujita, Henderson, Eng, Trope, & Liberman, 2006). While it is common in manipulations of psychological distance to ask participants to imagine a situation or action, this is not typical for all manipulations. For a manipulation of social distance, for example, participants either received a certain piece of information from an in-group member (e.g., someone from the same university) or an out-group member (e.g., someone from another university; Zhao & Xie, 2011). Finally, regarding hypothetical distance, Kanten (2011) informed his participants about a task that they would complete later in the study. In the low distance condition that task was said to follow for sure, while in the high distance condition the task was said to follow maybe. An overview on further often-used psychological distance manipulations is printed in Table 2.

The majority of studies that uses manipulations of psychological distance like the described ones concentrates on manipulations targeting temporal distance (Soderberg, et al., 2015). A possible explanation is that Liberman and Trope (1998) developed the present version

Table 2
Example Psychological Distance Manipulations

| Distance type | Manipulation |
|---------------|---|
| Temporal | <ul style="list-style-type: none"> • Participants imagine their life tomorrow vs. a year from now and write about it for 5 minutes • Participants imagine making a choice tomorrow vs. a month from now • Participants make predictions about events that will occur in the near or distant future |
| Spatial | <ul style="list-style-type: none"> • Participants imagine they are going on a trip to a nearby or distant location • Participants are told that the study materials were created at a nearby or distant location • Participants believe they are talking to or making judgments about others who are in a nearby or distant location |
| Social | <ul style="list-style-type: none"> • Participants are asked to make a choice for themselves or for another person • Participants make judgments about a similar (same birthday) or dissimilar (different birthday) individual • Participants made judgments about ingroup or outgroup members |
| Hypothetical | <ul style="list-style-type: none"> • Participants believe there is a high or low likelihood that they will complete a task later in the study • Participants make judgments about an event that has a high or low probability of occurring |

Note. Retrieved from “The Effects of Psychological Distance on Abstraction: Two Meta-Analyses,” by C. D. Soderberg, S. P. Callahan, A. O. Kochersberger, E. Amit, and A. Ledgerwood, 2015, *Psychological Bulletin*, 141, p. 527. Copyright 2014 by American Psychological Association.

of construal level theory coming from the idea of temporal distance. Later on, the concept of psychological distance was extended to encompass spatial distance and afterwards social distance and hypothetical distance as well (Trope & Liberman, 2010). Thus, manipulations of temporal distance have a longer history and are therefore well-established. Nevertheless, empirical evidence points towards an equal treatment of the various manipulations: A recent meta-analysis found that the effectiveness of psychological distance manipulations is not affected by the distance dimension that the manipulation focusses on (Soderberg et al., 2015). On average, a reliable and medium-sized effect of the manipulations on participants’ level of

abstraction was obtained.

In contrast, another set of studies manipulated construal level directly using experimental mindset manipulations focusing on mental abstraction. Two very common manipulations of this sort are the reasons-means task (Freitas, Gollwitzer, & Trope, 2004) and the categories-exemplars task (Fujita, Trope, Liberman, & Levin-Sagi, 2006). In the reasons-means task (Freitas et al., 2004), participants in the high construal level condition are asked to think about why they would pursue a goal, while participants in the low construal level condition are asked to think about how they would pursue a goal. Questions for reasons target the purpose of an activity or event, which is a primary concern. In contrast, questions for means target the process of an activity or the way to an event, which are secondary concerns. Therefore, it is argued that thinking about questions for reasons activates high-level construals by bringing to mind the bigger picture that is rather abstract, while thinking about questions for means activates low-level construals by bringing to mind the procedural details that are rather concrete. In the categories-exemplars task (Fujita, Trope et al., 2006), participants in the low construal level condition are asked to generate subordinate exemplars for a number of stimulus words (e.g., pasta), whereas participants in the high construal level condition are asked to generate superordinate categories for the same words. The idea behind this is that generating superordinate categories is a cognitive process that is linked to high construal level, while generating subordinate exemplars is a process linked to low construal level (Liberman, Sagristano, & Trope, 2002). Thus, engaging in one of these processes leads to an activation of the respective construal level.

According to Gilead, Liberman, and Maril (2014), up to 2012, more than 50 studies used the reasons-means task and around 20 studies used the categories-exemplars task to manipulate construal level. With a continuing employment in the present, these two measures are the most

widely used direct manipulations of construal level but not the only ones. For example, in another manipulation (e.g., Liberman, Trope, McCrea, & Sherman, 2007; McCrea, Liberman, Trope, & Sherman, 2008), participants read about a set of activities (e.g., open a bank account). In the low construal level condition they then had to write two sentences on how they would go about each of the activities. In contrast, in the high construal level condition, they had to write two sentences on what characteristics are implied by each of the activities. This manipulation is centered on the idea that thinking about implied traits is associated with higher construal level as compared to thinking about the way to engage in an activity. Many further direct manipulations of construal level exist in the literature (e.g., Malkoc, Zauberan, & Bettman, 2010; McCrea et al., 2008; Wakslak & Trope, 2009). While they are not as often used as the two predominant manipulations outlined above, they all rely on the same mechanism: Participants are asked to think or write about a certain stimulus in a specific way that either focuses on more concrete or more abstract aspects of the stimulus, in order to activate either a low construal level mindset or a high construal level mindset.

Research on Construal Level Theory in Economic Contexts

While initial utilization of construal level theory focused on intertemporal choice problems (Liberman & Trope, 2003), theoretical improvements that led to the current state of the theory were paralleled by applications in the area of individual economic judgement and decision making (Leiser et al., 2008). An early example comes from Sagristano, Trope and Liberman (2002): They demonstrated that when choosing between two gambles in the distant future, participants mainly based their choice on payoffs. In contrast, participants mostly based their choice on the probabilities of the outcomes, when the two gambles were situated in the near future. Sagristano et al. (2002) argued that this is the case because the payoffs represent an aspect

of desirability and are therefore high construal features that are relevant to construals in the distant future, whereas the probabilities represent an aspect of feasibility and are therefore low construal features that are relevant to construals in the current situation or the near future.

Related to gambling, but taking the perspective of consumer protection, Orazi, Lei, and Bove (2015) more recently investigated the role of construal level in advertisements against excessive gambling. They found that high-level construals of gambling outcomes contained rather social consequences, while low-level construals of gambling outcomes contained rather material consequences. Therefore, advertisements against gambling in the public should concentrate on the social consequences of gambling, because it matches people's construal level when an instance of gambling is rather far away. Contrary, advertisements in arcades and on betting websites should concentrate on the financial consequences of gambling, because it matches people's construal level when an instance of gambling is very close to them.

While construal level theory was broadly applied in the context of risky decisions (Savadori & Mittone, 2015), other areas of individual economic judgement and decision making embraced the theory as well. The following sections will highlight some findings with regard to consumer preferences and buying decisions, retirement provision as well as charitable giving, to convey the large variety of contexts in which the theory has been used to offer explanations and foster understanding.

Regarding the judgement of alternatives, Henderson (2013) found that high-level construals decrease the attraction of large choice sets. This is because the alternatives are more likely to be seen as similar and therefore redundant, as compared to perceptions of the same choice set in low-level construals. Similarly, Goodman and Malkoc (2012) showed that consumers' preference for large assortment sizes (e.g., Broniarczyk, Hoyer, & McAlister, 1998)

only holds true for choices close to the here and now, but not for choices in the distant future. Facing a large variety and asking for a recommendation is also affected by construal level, as the social distance to the recommending person is related to the probability of preference shifts (Zhao & Xie, 2011): If the recommendation is from a more distant person, it is more likely to lead to a preference for a certain product in the distant future, whereas if the recommendation is from a close person, it is more likely to lead to a preference for a certain product in the near future. When facing a set of products on a shelf, their individual vertical positioning is also an important aspect through the lens of construal level theory (Aggarwal & Zhao, 2015). Kerckhove, Geuens, and Vermeir (2015) found that looking upward evoked high construal processing, while looking downward evoked low construal processing. This is because when people look downward, they usually see and process nearby stimuli, whereas when they look upward, the stimuli are further away from them. Participants in the experiment preferred to buy a printer with good print quality as an aspect of desirability over one with high reliability as an aspect of feasibility, when looking upwards and vice versa when looking downwards. Thus, products that are dominant on desirability characteristics should be placed at the top shelf, while products that are dominant on feasibility aspects should be placed at the bottom shelf, to increase sales. Furthermore, it is important how the alternatives are presented to potential customers: Attribute-based information leads them to consider consumption rather in the distant future and thus to make a choice based on high construal attributes, whereas alternative-based information leads them to consider consumption rather in the near future and thus make a choice based on low construal attributes of the products (Pizzi, Scarpi, & Marzocchi, 2014). The authors argue that attribute-based information activates high construal processing because attributes can be abstracted from the specific products and represent general features. In comparison, alternative-

based information is clearly restricted to the alternatives at hand and thus less abstract, activating low construal processing.

In the domain of saving behavior, Ülkümen and Cheema (2011) investigated the interplay of saving goal specificity and construal level on anticipated and realized saving success. They found that for people in a high construal level, specific goals work better. This is because these people focus on the question of why they pursue the goal. In this context, specific goals are seen as more important and are thus prioritized over unspecific goals. In contrast, for people in a low construal level, unspecific goals work better. In contrast to their high-construal peers, they focus on the question of how to pursue a goal. In this context, specific goals are seen as harder to reach, resulting in diminished goal achievement. Although the authors do not use the terms, the explanation is close to the idea of emphasizing aspects of desirability in high-level construals and aspects of feasibility in low-level construals. This is in line with other findings on the effect of time frames on saving behavior (Tam & Dholakia, 2011): Thoughts about saving in a specific future month instead of the next year led to a focus on means to attain the saving goal.

Furthermore, it is important to consider the period of life in which people find themselves. Thoughts on retirement rather evoke desirability goals for younger people, because the event is rather far away from them, and feasibility goals for older people, because the event is closer to them (van Schie, Dellaert, & Donkers, 2015).

Research on charitable giving and gift giving has as well benefited from construal level theory. With respect to giving intentions, Choi, Park, and Oh (2012) found that social desirability is a motivational aspect that is rather activated when thinking about donating blood in the distant future than in the near future. Thus, donation intentions are stronger influenced by idealistic aspects when the potential donation date is rather far ahead. Donation centers could make use of

this by highlighting the good cause in advertisements some months in advance and highlighting the simplicity and painlessness of the donation process in advertisements a few days before the donation appointment. Similarly, Aknin, Van Boven, and Johnson-Graham (2014) showed that people adopting high-level construals predict their donation to be more emotionally rewarding as compared to people adopting low-level construals. Regarding two other frequently considered resources in the domain of charitable giving, Macdonnell and White (2015) showed that appeals for money should be framed concretely, whereas appeals for time should be framed abstractly. In the context of giving, the former is considered a rather concrete resource, whereas the latter is considered a more abstract resource. The authors demonstrated that a fit between the cause of the donation and the requested resource led to an increase in donation intentions and the respective behavior. This fit effect is further supported by the finding that donors who perceive themselves as temporally or socially distant from the cause of the donation are more willing to donate to charitable organizations than to identifiable victims because the former is seen as more abstract, whereas the latter is construed more concretely (Ein-Gar & Levontin, 2013). This finding further highlights the multidimensionality of psychological distance in the form of temporal and social distance in the charity context. Finally, in the domain of gift giving, construal level theory might explain why people often don't get the things they really need (Baskin, Wakslak, Trope, & Novemsky, 2014). For the gift-giver, the perceived distance to the gift is relatively high as, while the gift-receiver perceives her distance relatively low. As a consequence, gift-givers tend to form high-level construals of the gift, empathizing desirability attributes. In contrast, gift-receivers tend to form low-level construals of the gift, empathizing feasibility attributes. As a consequence, it is unlikely that both parties are equally happy with the gift, because they value different aspects of it.

Applications of construal level theory are not limited to the areas of research outlined above. For example, environmental psychology (e.g., Ramirez, Jiménez, & Gau, 2015; Sacchi, Riva, & Aceto, 2016), moral psychology (e.g., Mentovich, Yudkin, Tyler, & Trope, 2016; Xiao et al., 2015) and social psychology (e.g., Rizvi & Bobocel, 2016; Stephan et al., 2010) also greatly benefited from the theory. Thus, the theory has proven to be valid in its general assertions regarding interrelated dimensions of psychological distance and the interaction with the degree of abstractness of mental construals (Trope & Liberman, 2010). Furthermore, the broad applicability demonstrates both, the flexibility of the theory as well as the robustness of its outcomes.

Construal Level Theory in the Consumer Credit Context

In contrast to other areas of research, construal level theory has seldom been applied to the context of consumer credits. The few studies that touch both of them rather do so in an ancillary way. For example, talking about the alignment of benefits of consumption with payment streams, Auh, Shih, and Yoon (2008) point out that future research should focus on potential links between abstract and concrete benefits of credit financed goods and periodic payments. Although not directly linked to credit, Hansen, Kutzner, and Wänke (2013) demonstrated that being reminded of the concept of money triggers abstract mental construals. As a consequence, participants paid greater attention to central (as opposed to peripheral) aspects of products in a product judgement task, when reminded of money. Extending the finding by taking a more detailed look at specific forms of money, Chatterjee and Rose (2012) found that consumers primed with credit card payment focus on the benefits of a product, while consumers primed with cash payment focus on costs of the product. In an attempt to align their results with an established theoretical framework, the authors identified construal level theory as a potential

candidate. Specifically, they argued that credit payment could be construed on a more abstract level as compared to cash payment, because the use of credit shifts the payment situation to the future, whereas payments with cash are immediate. Besides from the temporal distance, credit payments are part of a monthly set of payments for different goods and services, while cash payment is more specifically tied to a single identifiable purchase. In line with these ideas, Chen, Xu, and Shen (2016) presented further evidence for a link of construal level and consumer credit. In one of their studies, participants primed with the concept of credit card payment showed a stronger preference for a job with a big-picture orientation, while participants primed with the concept of cash payment showed a stronger preference for a job with a detail orientation.

Construal Level and Consumer Credit Offers

As can be seen, there is not a large body of research on construal level in relation to consumer credits yet. Nevertheless, the existing results unanimously point to a link between the two concepts. Most studies touching both concepts focus on the implications of different payment forms on construal level. The other way around, none investigated the impact of construal level on credit decisions. As the present studies want to contribute to closing this gap, this section will focus on how construal level might be related to specific aspects of consumer credit offers.

Credits differ from each other on a set of credit aspects like annual percentage rate or total cost. The main idea here is that some of the aspects are more prone to be part of high-level credit construals, while others are more prone to be part of low-level credit construals. In Germany, creditors advertising their products have to state the annual percentage rate, the credit duration, the monthly installments, and the total cost of any credit offer. The monthly installment can be further subdivided into monthly redemption payment and monthly interest fee.

According to construal level theory, high-level construals focus on central and goal relevant aspects of a product (Leiser et al., 2008). From an economic point of view, the main goal in every decision between several credit offers should be to maximize the personal benefit and to minimize the cost. As the benefit is the same in all offers – being able to purchase a good now instead of later – the cost is the key element in reaching the goal. Furthermore, the total cost of a credit is a figure that emerges as a product of several other credit aspects, being simple and superordinate in comparison to these aspects. These characteristics are also typical for high-level construals. Lastly, the aspect of total cost refers to what a debtor has to pay over the entire credit duration. Therefore, it spans a timeframe with an end that is quite far away from the debtor in the situation of deciding between several credit offers. It follows that total cost should be related to rather high temporal distance. Taken together, these points show that the total cost can be seen as a central high construal level aspect, i.e., one that is central to abstract construals of credits.

Next to total cost, the annual percentage rate can also be considered to represent a high construal aspect. Defined as the average interest rate for a one-year period, it is in its essence a quite abstract figure. Considering the idea of an annual percentage rate for a credit with a duration of only 9 months does not seem intuitive. Its advantage is that it discloses the cost of borrowing in a standardized form. That means that annual percentage rate is well suited to compare different credit offers. Thus it is decontextualized in the sense that a simple comparison is possible even when one credit has a duration of 4 months and the other credit a duration of 17 months. Decontextualization is a feature that is typical for high-level construals. As already stated in relation to total cost, the same is true for simplicity. While it would seem odd to refer to the calculation of the annual percentage rate as simple, its application is in fact very simple: A lower annual percentage rate signals a lower cost of borrowing. Furthermore, the annual

percentage rate is a percentage rate. Bonner and Newell (2008) argue that within the realm of numerical information, percentages and probabilities are more abstract than frequencies and absolute numbers. Just like in the case of total cost, the annual percentage rate also refers to a rather long timeframe of one year and thus should be related to rather high temporal distance. In light of these arguments, the annual percentage rate can be seen as a high construal level aspect, i.e., one that is central to abstract construals of credits.

In contrast to total cost and annual percentage rate, monthly redemption payments and monthly interest fee can be conceptualized as low construal level aspects. For one thing, they are subordinate to total cost. Furthermore, they are context specific: They describe the cost of borrowing in a given month. Without the credit duration, that is, the information how often these monthly costs are due, monthly redemption payments and monthly interest fee do not provide much information on the overall financial burden. The two figures are more important for answering the question how a potential debtor would have to adapt her monthly budget in order to repay the credit. According to Leiser et al. (2008), such questions for means are typically related to low construal level. Also, monthly redemption payments and monthly interest fee become relevant when thinking about the near future which is the coming month, regardless of how far one already advanced in the credit duration. Therefore they should be related to rather low temporal distance. Taken together, this speaks for monthly redemption payments and monthly interest fee to be seen as low construal level aspects, i.e., those that are central to concrete construals of credits.

In contrast to the previously listed credit aspects, credit duration is harder to reconcile with either low or high construal level. As outlined in the beginning of this section, a credit decision should be guided by the main goal to minimize the total cost of credit. For this goal,

credit duration is irrelevant. However, previous research on mental accounting showed that people have a preference to match continuing payments with the operating life of products (e.g., Auh et al., 2008; Hirst, et al., 1994; Prelec & Loewenstein, 1998). Taking this preference into account, selecting a credit with an appropriate duration may become a primary goal. In such a situation, credit duration would be the most central aspect of the credit. Maybe it is not so much the aspects of credit duration itself, which can be aligned with either low or high construal level, but the specific value that it takes. A shorter credit duration might be perceived as closer to the self in the current situation, while a longer credit duration might be perceived further away from the self. This link to psychological distance would speak for short credit periods to be construed on a more concrete level and long credit periods to be construed on a more abstract level.

Study 1 – Construal Level and Credit Choice

Study 1 examines how different construal levels influence the importance of different credit aspects for evaluations of credit attractiveness and credit choice. Drawing on the previously presented literature on construal level theory and consumer credit offers, the hypotheses read as follows:

H1: Credits with a low annual percentage rate and low total costs are evaluated more positively in high construal level than in low construal level, while credits with low monthly redemption payments and low monthly interest fees are evaluated more positively in low construal level than in high construal level.

H2: Credits with a low annual percentage rate and low total costs are chosen more often in high construal level than in low construal level, while credits with low monthly redemption payments and low monthly interest fees are chosen more often in low construal level than in high construal level.

The hypotheses were tested using a laboratory experiment on a hypothetical purchase situation.

Method.

Participants.

Data collection took place from January 20th to 21st, 2013¹. Participants were approached on the campus of a large German university. All participants were asked to take part in a study on “ways of funding and social networks”. They were informed that they would get some candy as a token of appreciation. Furthermore, they could take part in a lottery where five winners would receive € 20.00 each.

From the original sample of 82 students who agreed to participate in this study, data from five participants was excluded for the following reasons: One participant quit the study, two participants stated that their data should not be used in the analyses, and two participants came very close to the hypotheses, when asked for the aim of the study. The final sample included 77 participants. It consisted of 26 (33.8%) men and 51 women (66.2%) with an age between 19 and 33 years ($M = 23.35$, $Mdn_{Age} = 23$, $SD = 3.14$). Nineteen (24.7%) participants held a credit of €500 or higher or had held a credit of that amount in the past, while 58 (75.3%) did not. The median duration to complete the study was $Mdn_{Dur} = 13:14$ minutes.

Procedure.

A two-group between-subjects design was used in this study. The independent variable was construal level (high construal level or low construal level). The dependent variables were credit attractiveness and credit choice.

When entering the lab, participants were seated individually at a computerized workplace

¹ I would like to thank Theresa Stangl, Penghua Sun, Christian Brünger, and Michael Blens for their help in the survey promotion and data collection.

and asked to start working on the study. All information was provided on screen. The allocation of participants to the two conditions in this study was random.

At the start, participants read the instructions for the study. In the following construal level manipulation, they worked on a task that activates either a concrete or an abstract mindset by asking participants to think about maintaining and extending their social network.

In the main part of the study, participants were asked to imagine that they were about to go on vacation and planned to take a credit for that reason. This scenario served as a situational frame for the consecutive presentation of six credit offers. Participants were asked to state their perceived credit attractiveness for each offer. Subsequently, they were asked to indicate which of the six offers they would choose.

Thereafter participants worked on a task that measured how abstractly or concretely they represent given actions, serving as a manipulation check for construal level. In the last part of the study, participants' propensity to plan their financial matters was measured and they were asked for demographic information (gender, age, area of studies), disposable income and personal credit experience. Last, they were asked about the presumed aim of the study and whether their data could be used in the analyses.

Finally, the experimenter thanked the participants and offered some candy to them. Participants could write their email address on a piece of paper and throw it in an opaque box to participate in a lottery and win one of five € 20.00 prizes. The winners of this lottery were contacted via the provided address after completion of the study.

Material.

Manipulation of construal level.

Construal level was manipulated using a mindset manipulation developed by Freitas et al.

(2004). The general idea is that thinking about an activity's purpose activates an abstract mindset, i.e., high construal level, whereas thinking about an activity's process activates a concrete mindset. i.e., low construal level. Participants in the high construal level condition were asked to think about why they maintain and expand their social relationships. Participants in the low construal level condition were asked how they maintain and expand their social relationships. All participants were asked to answer the respective question in a diagram that was supposed to reflect the thought structure in this task (Figure 1).

In the high construal condition, participants saw five vertically aligned boxes with upward-facing arrows in-between that were labeled "*Why?*". The undermost box contained the written statement "*maintain and expand social relationships*". Participants were instructed to type an answer on why they maintained and expanded their social relationships into the second lowest box. After this step, they were asked to type a second answer on why they engaged in what they just responded in the next highest box and so on until they filled every box with an answer.

In the low construal condition, participants saw five vertically aligned boxes with downward-facing arrows in-between that were labeled "*How?*". The upmost box contained the written statement "*maintain and expand social relationships*". Participants were instructed to type an answer on how they maintained and expanded their social relationships into the second highest box. After this step, they were asked to type a second answer on how they engaged in what they just responded in the next lowest box and so on until they filled every box with an answer.

The original manipulation (Freitas et al., 2004) included two further steps in the procedure that were positioned before the part of the manipulation that is presented above:

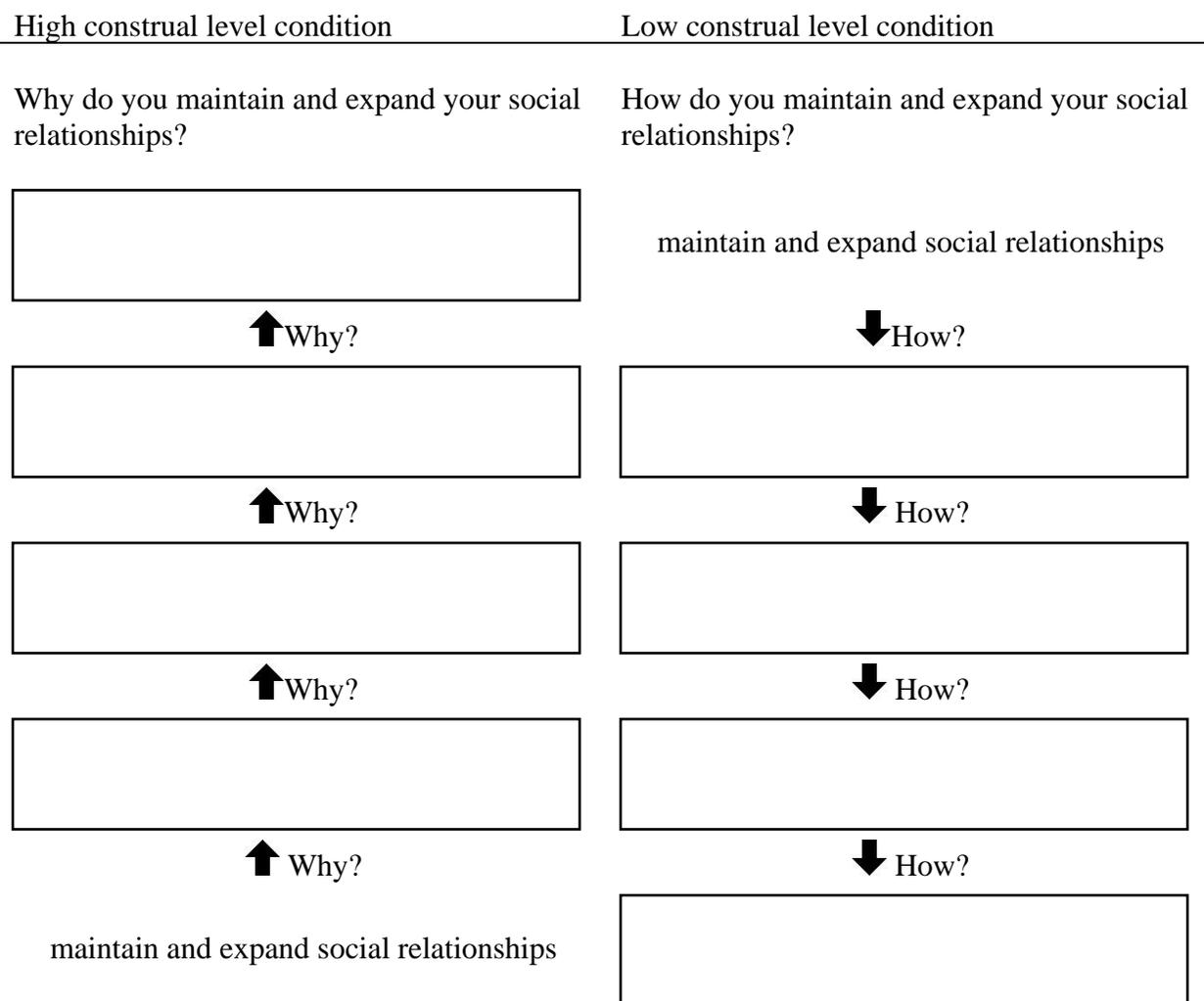


Figure 1. Construal level manipulation. Adapted from “The Influence of Abstract and Concrete Mindsets on Anticipating and Guiding Others' Self-Regulatory Efforts,” by A. L. Freitas, P. Gollwitzer, and Y. Trope, 2004, *Journal of Experimental Social Psychology*, 40, p. 742. Copyright 2004 by Elsevier.

Participants were asked to also name reasons (abstract condition) or means (concrete condition) to achieve a specific goal and rate them. However, further studies showed that these steps are not necessary to manipulate construal level. More specifically, the shortened manipulation displayed above was successfully used in related contexts, such as spending intentions (Peetz & Buehler, 2012) and goal-setting in future saving behavior (Ülkümen & Cheema, 2011).

Furthermore, the original manipulation by Freitas et al. (2004) used a somewhat different

activity, namely “*improve and maintain health*”. However, it was thought that the students in the sample for this study might not all engage in this activity. In contrast, maintaining and expanding social relationships represents an activity of which it can be assumed that a large majority of students engages in it during this phase in their lives. This slight deviation from the original manipulation should not weaken the main strength of holding the domain (social relationships) constant in both conditions while only varying the level of abstraction.

Situational frame.

Participants read a text on a fictitious situation that they were asked to imagine. This scenario served as a situational frame for the consecutive presentation of credit offers. The text informed participants that they were in the last semester of their studies. It specified that they already signed an employment contract with six months’ time in-between submitting their thesis and starting the new job. Participants were asked to imagine that they planned an extended journey in this timespan that would cost € 7,500. Their savings amounted to € 2,500, so that there was a financial gap of € 5,000. To fill the gap, they would be presented six credit offers that they would have to evaluate. For all offers, the repayment period was said to start only when participants would start working. They were told that from that moment on, they would have € 750 available at their monthly disposal after paying all fixed costs.

Credit presentation and evaluation.

On each of the following pages, one of a total of six credit offers was presented. The order of these offers was random. Each credit was described as follows:

You get a credit of € 5,000 with an annual percentage rate of xx.xx%. With a credit duration of xx months, the monthly redemption payments amount to € xxx.xx and the monthly interest fee amounts to € xx.xx. The total cost of this credit amounts to €

x.xxx,xx.

While the credit amount was € 5,000 in every offer, the other credit aspects varied in every offer. The individual offers are printed in Table 3. The credits were designed such that different offers seemed attractive with regard to different aspects: Option 1 offers the lowest annual percentage rate (8.10%) and monthly interest fee (€ 16.26) among all offers. Option 2 offers the lowest monthly redemption payments (€ 83.33). Option 4 offers the shortest credit duration (12 months) and total cost (€ 5,335.42). Option 5 offers a comparably low annual interest rate (10.74%), short credit duration (24 months) and low monthly redemption payments (€ 104.17). Finally, options 3 and 6 were structured to represent relatively balanced credit offers regarding all credit aspects. All credit offers were structured mathematically correct. As a consequence, no individual credit offer is advantageous on only one aspect and disadvantageous on all other aspects. For example, option 1 is very attractive regarding the annual percentage rate, which is hypothesized to be particularly important for credit evaluations and decisions in high construal level, as well as the monthly interest fee, which is hypothesized to be particularly important for credit evaluations and decisions in low construal level. However, participants paying relatively more attention to monthly costs (low construal level) should focus rather on option 2, which offers the lowest monthly costs, combined of monthly redemption payments and monthly interest fee. Thus, a test of the hypotheses is possible even though the offers cannot always be classified as desirable from either the point of annual percentage rate and total cost or the point of monthly costs.

Below each credit offer, participants were asked to evaluate the respective offer by answering three questions. The questions read “How attractive do you find this credit offer?” (1 = not at all attractive; 7 = very attractive), “To which extent does this credit offer meet your

Table 3
Credit Offers

| Option | Annual percentage rate (%) | Credit duration (months) | Monthly redemption payments (€) | Monthly interest fee (€) | Total cost (€) |
|--------|----------------------------|--------------------------|---------------------------------|--------------------------|----------------|
| 1 | 8.10 | 36 | 138.89 | 16.26 | 5,585.42 |
| 2 | 14.90 | 60 | 83.33 | 28.75 | 6,725.00 |
| 3 | 12.89 | 24 | 208.33 | 25.69 | 5,616.67 |
| 4 | 13.53 | 12 | 416.67 | 27.95 | 5,335.42 |
| 5 | 10.74 | 48 | 104.17 | 21.18 | 6,016.67 |
| 6 | 17.58 | 24 | 208.33 | 34.38 | 5,825.00 |

Note.

expectations?” (1 = not at all; 7 = completely), and “How advantageous is this credit offer?” (1 = not at all advantageous; 7 = very advantageous). Credit attractiveness was computed as the mean value of the three questions. Cronbach’s alpha ranged between $\alpha = .83$ and $\alpha = .92$ for the 6 credit offers.

After participants got to know and evaluated every credit offer individually, they saw a table that contained all credit offers in detail (Table 3). They were asked to take another look at the offers and pick one of them. The respective question read “Please indicate for which of the depicted credit offers you would decide.”

Manipulation check.

The Behavior Identification Form (Vallacher & Wegner, 1989) was used as a manipulation check for construal level. This instrument comprises 25 different activities. Each activity comes with two alternatives that describe the behavior either as a low-level construal, focusing on how the activity is carried out, or a high-level construal, focusing on why the activity is carried out. For example, tooth brushing (activity) can be described as moving a brush around in one’s mouth (low-level construal) or as preventing tooth decay (high-level construal). For each activity, participants were asked to select the alternative that best described the activity. The 25 activities were presented in random order. For half of the activities the low-level construal

was listed first, followed by the high-level construal and for the other half the scheme was reversed. A participant's score results as the number of high-level construals selected ($\alpha=.80$), such that a low score on the Behavior Identification Score indicates a low construal level and a high score indicates a high construal level.

Originally, the Behavior Identification Form was designed to assess stable individual differences in action identification (Vallacher & Wegner, 1989). However, recent research extensively showed that this instrument is well-suited for measuring context-induced construal level (Fujita, Trope et al. 2006; Irmak, Wakslak, & Trope, 2013; Liviatan, Trope, & Liberman, 2009; Wakslak, Trope, Liberman, & Alony, 2006), making it an appropriate manipulation check for construal level (Krüger, Fiedler, Koch, & Alves, 2014).

Because there was no established translation of the Behavior Identification Form into German language at the time of this study, the author translated the instrument himself.

Control variables.

Participants' propensity to plan for money was measured using a scale adapted from Lynch, Netemeyer, Spiller, and Zammit (2010). It consists of six items (e.g., "I like to look to my budget for the next 1-2 years in order to get a better view of my spending in the future.") that are assessed on a 6-point scale (1 = strongly disagree to 6 = strongly agree). Propensity to plan was computed as the mean value of the six questions ($\alpha = .89$) with higher values indicating a stronger propensity to plan.

In addition, participants were asked to state the amount of money that they had available at their monthly disposal after paying all fixed costs (free input). Furthermore, they were asked to state whether they currently had outstanding credits with a total amount of at least € 500 or whether this was the case at some point in the past. Answers to both questions were voluntary.

In the last part of the study, participants stated their beliefs about the purpose of the study. Furthermore, they read the following question from Meade and Craig (2012) and answered with either “*Yes*” or “*No*”: “Lastly, it is vital to our study that we only include responses from people who devoted their full attention to this study. Otherwise a lot of effort (the researchers’ and other participants’) could be wasted. In your opinion, can we use your data in our analyses?”

Results.

Preliminary analysis.

Manipulation check.

To begin with, the success of the manipulation of construal level was analyzed.

In a first step, a judge unaware of condition coded each participant’s level of construal based on the abstractness of their responses to the reasons versus means manipulation (see Fujita, Trope et al., 2006). If a response was a subordinate means to the original statement “maintain and expand social relationships”, it was coded with a score of -1 . If a response was a superordinate end served by maintaining and expanding social relationships, it was coded with a score of $+1$. If a response fit neither criterion, it was coded as 0 . For each participant, the individual values were then summed to create an index of construal level ranging from -4 to $+4$, where higher scores indicate higher levels of construal. As expected, an independent-samples t-test indicated that participants exposed to questions for reasons ($M = 2.65$) generated responses that reflected higher construal levels compared with those exposed to questions for means ($M = -3.05$), $t(74) = 16.87, p < .001$, one tailed.

In a second step, answers on the Behavior Identification Form were analyzed. Another independent-samples t-test indicated that participants in the high construal level condition

($M = 15.47$, $SD = 4.99$) did not show a higher score on the Behavior Identification Form than participants in the low load condition ($M = 15.26$, $SD = 4.39$), $t(75) = .20$, $p = .420$, one tailed).

Taken together, these results seem contradictory: While the first supports the claim of a successful manipulation of construal level, the latter contradicts this conclusion. One possible explanation might stem from the location of the Behavior Identification Form in the study. As this measure was located close to the end of the study, quite some time elapsed between participants entered their thoughts on their social network and classified the activities in the Behavior Identification Form (the median duration was $Mdn_{Dur} = 4:25$ minutes). It could be the case that the manipulation of construal level worked, as indicated by the judgements of participants' answers, but that the effect did not last long enough, to affect the answers in the Behavior Identification Form. This would also cast doubt on whether the manipulation of construal level was effective throughout the whole measurement of the dependent variables, situated directly before the Behavior Identification Form.

Descriptives.

Means, standard deviations, correlation coefficients and reliabilities for the variables in this study are shown in Table 4.

On average, credit attractiveness was rated between $M_{Offer 2} = 2.05$ ($SD_{Offer 2} = 1.08$) and $M_{Offer 1} = 3.89$ ($SD_{Offer 1} = 1.48$). The average score on the Behavior Identification Form was $M = 15.36$ ($SD = 4.67$). Participants' propensity to plan was $M = 3.58$ ($SD = 1.17$). For most credit offers, ratings of attractiveness were significantly correlated with each other ($r = .37$ to $r = .81$ to, $N = 88$, $p < .001$) No significant correlations were observed between the Behavior Identification Form score and the attractiveness rating of any credit offer.

Construal level theory states that people think differently about events taking place in the

Table 4
Means, Standard Deviations, Correlation Coefficients and Reliabilities for the Variables in the Analyses

| Measure | <i>M</i> | <i>SD</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--|----------|-----------|------|------|------|------|------|------|-----|-----|
| 1. Attractiveness offer #1 ^a | 3.89 | 1.48 | .96 | | | | | | | |
| 2. Attractiveness offer #2 ^a | 2.05 | 1.08 | .45* | .85 | | | | | | |
| 3. Attractiveness offer #3 ^a | 3.14 | 1.34 | .72* | .45* | .94 | | | | | |
| 4. Attractiveness offer #4 ^a | 3.03 | 1.47 | .42* | .16 | .47* | .93 | | | | |
| 5. Attractiveness offer #5 ^a | 2.75 | 1.31 | .54* | .56* | .49* | .17 | .92 | | | |
| 6. Attractiveness offer #6 ^a | 2.75 | 1.39 | .67* | .55* | .81* | .37* | .55* | .94 | | |
| 7. Behavior Identification Form Score ^b | 15.36 | 4.67 | -.08 | -.01 | -.03 | -.19 | .01 | .01 | .80 | |
| 8. Propensity to plan ^c | 3.58 | 1.17 | -.22 | -.12 | -.12 | -.16 | .04 | -.04 | .16 | .89 |

Note. $N = 77$. The diagonal displays Cronbach's α for the respective scale.

^aScale range: 1 to 7. ^bScale range: 0 to 25. ^cScale range: 0 to 6.

* $p < .001$.

immediate future than in the distant future, because of the difference in psychological distance.

Related to this, there are also differences among people in their short-term planning and their long-term planning (Lynch et al., 2010). However, the results show that propensity to plan did not correlate with the attractiveness rating of any credit offer.

Main analysis.

The means and standard deviations of credit attractiveness, split up for the two conditions of the construal level manipulation, are shown in Table 5.

A mixed analysis of variance (ANOVA) was conducted to test the hypothesis that credits with a low annual percentage rate and low total costs are evaluated more positively in high construal level than in low construal level, while credits with low monthly redemption payments and low monthly interest fees are evaluated more positively in low construal level than in high construal level. The dependent variable was credit attractiveness. The independent variables were construal level (between subjects) and credit offer (within subjects). Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(14) = 60.82, p < .001$), therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = 0.76$).

Table 5
Sample Sizes, Means and Standard Deviations of Credit Attractiveness

| Measure | Low construal level ($n = 39$) | | High construal level ($n = 38$) | |
|----------|----------------------------------|-----------|-----------------------------------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Offer #1 | 3.94 | 1.49 | 3.84 | 1.49 |
| Offer #2 | 2.00 | 0.96 | 2.11 | 1.19 |
| Offer #3 | 3.25 | 1.48 | 3.03 | 1.19 |
| Offer #4 | 3.07 | 1.32 | 2.99 | 1.62 |
| Offer #5 | 2.69 | 1.24 | 2.80 | 1.39 |
| Offer #6 | 2.75 | 1.52 | 2.75 | 1.26 |

Note. $N = 77$.

There was no main effect of construal level, $F(1, 75) = 0.17, p = .897$. However, there was a significant main effect of credit offer on credit attractiveness, $F(3.80, 285.25) = 29.61, p < .001$.

The interaction between the two factors was not significant $F(3.80, 285.25) = .33, p = .847$.

Regarding the descriptive results, participants in the low construal level condition ($M = 2.95, SD = 0.17$) rated credit attractiveness higher than participants in the high construal level condition ($M = 2.92, SD = 0.17$). Regarding the main effect of credit offer, pairwise comparisons (Bonferroni corrected) revealed that credit offer 1 ($M_1 = 3.89, SD_1 = 1.48$) was evaluated to be significantly more attractive than any other offer ($M_2 = 2.05, SD_2 = 1.08$ to $M_3 = 3.14, SD_3 = 1.34$, all $p < .001$), credit offer 2 ($M_2 = 2.05, SD_2 = 1.08$) was evaluated to be significantly less attractive than any other offer ($M_5 = 2.75, SD_5 = 1.31$ to $M_1 = 3.89, SD_1 = 1.48$, all $p < .001$) and credit offer 3 ($M_3 = 3.14, SD_3 = 1.34$) was evaluated to be significantly more attractive than credit offer 6 ($M_6 = 2.75, SD_3 = 1.39, p = .002$). The results suggest that construal level had no effect on credit attractiveness. Moreover, there was no interaction of construal level and credit offers. Regarding the offers, participants saw offer 1 as particularly attractive. This offer was characterized with the lowest annual percentage rate and the lowest monthly interest fee among the six offers. Also, participants saw offer 2 as the least attractive one. This offer was characterized with the highest credit duration and the highest total cost among the six offers. Last

but not least, participants saw offer 3 as more attractive compared to offer 6. The two offers are identical with respect to credit duration and monthly redemption payments. However, regarding annual percentage rate, monthly interest fee and total cost, offer 3 has financial advantages over offer 6. Taken together, this suggests that participants focused most on the annual percentage rate, the monthly interest fee and the total cost, when judging credit attractiveness. Credit duration and monthly redemption payments seem to have played a minor role.

Next, credit choice was analyzed. Credit choice, split up for the two conditions of the construal level manipulation, is shown in Table 6. As can be seen, offer 1 was most often chosen in both, the low construal condition ($n = 19$) and in the high construal level condition ($n = 23$). As already said, this offer was characterized by the lowest annual percentage rate and the lowest monthly interest fee among the six offers. Offer 4 ranked second-highest in participants' choice, both in the low construal level condition ($n = 9$) and in the high construal level condition ($n = 11$). This offer was characterized by the shortest credit duration and the lowest total cost. So far, this supports the idea that annual percentage rate, monthly interest fee and total cost are not just relevant for judgements of credit attractiveness but also for credit choice. Furthermore, a minority of participants decided for offer 3, with more participants in the low construal level condition ($n = 7$) opting for this alternative than in the high construal level condition ($n = 2$). This offer was characterized to balance the individual credit aspects. Neither is any of the credit aspects particularly advantageous, nor is any of them particularly disadvantageous. Participants rarely decided for the offers 5 (combined $n = 4$) and 6 (combined $n = 2$) and never for offer 2.

Pearsons' chi-square test was conducted to test the hypothesis that credits with a low annual percentage rate and low total costs are chosen more often in high construal level than in low construal level, while credits with low monthly redemption payments and low monthly

Table 6
Sample Sizes and Offer Specific Credit Choice

| Measure | Low construal level ($n = 39$) | | High construal level ($n = 38$) | |
|----------|----------------------------------|------|-----------------------------------|------|
| | n | % | n | % |
| Offer #1 | 19 | 48.7 | 23 | 60.5 |
| Offer #2 | 0 | 0.0 | 0 | 0.0 |
| Offer #3 | 7 | 17.9 | 2 | 5.3 |
| Offer #4 | 9 | 23.1 | 11 | 28.9 |
| Offer #5 | 2 | 5.1 | 2 | 5.3 |
| Offer #6 | 2 | 5.1 | 0 | 0.0 |

Note. $N = 77$.

interest fees are chosen more often in low construal level than in high construal level. The dependent variable is credit choice. The independent variable is construal level. Participants who decided for credit offers 2, 5 and 6 were excluded from the analysis because the expected frequencies for the respective cells were too low to meet the assumptions of the chi-square test (Field, 2009)². There was no significant association between construal level and the credit offers chosen by participants $\chi^2(2, N = 71) = 3.35, p = .199$.

Discussion.

The purpose of the present study was to extend research on credit choice by examining credit attractiveness and credit choice under different construal levels. To this end, a laboratory experiment was conducted in which construal level was manipulated to be either low or high. Credit attractiveness was measured for six credit offers that varied in advantageousness depending on which credit aspect (annual percentage rate, credit duration, monthly redemption repayments, monthly interest fee and total cost) one focuses on. Participants then decided for one of the six offers. No significant difference in credit attractiveness was found between the low

² A total of nine participants decided for offer 3. Split up into low and high construal level conditions, this yields expected frequencies slightly below the critical threshold of five. However, slight deviations are acceptable in contingency tables with more than four cells (Field, 2009), leading to the decision to include participants who decided for offer 3 in the test. Another test with only participants who decided for either offer 1 or offer 4 did not yield different results.

construal level condition and the high construal level condition. This finding rejects the hypothesis that credits with a low annual percentage rate and low total costs are evaluated more positively in high construal level than in low construal level, while credits with low monthly redemption payments and low monthly interest fees are evaluated more positively in low construal level than in high construal level. Instead, participants in both conditions seemed to base their credit attractiveness judgements mostly on the annual percentage rate, the monthly interest fee and the total cost. Especially focusing on the latter can be seen as rational in the sense of traditional economic theory. But looking at the annual percentage rate is similarly smart, because the figure makes even differently structured credits easily comparable and in many cases a lower annual percentage rate also comes with reduced total costs.

Regarding credit choice, the results are similar. Participants in the low construal level condition and participants in the high construal level condition did not choose different credits. This finding rejects the hypothesis that credits with a low annual percentage rate and low total costs are chosen more often in high construal level than in low construal level, while credits with low monthly redemption payments and low monthly interest fees are chosen more often in low construal level than in high construal level. Regardless of their experimental condition, participants mostly relied on the same criteria that guided their credit attractiveness judgements: They mostly chose offers that had a low annual percentage rate, low monthly interest fees, and low total costs. However, only about one quarter of participants decided in a rational way in the sense of traditional economic theory, by picking the credit with the lowest total cost. While this credit aspect seems to be of particular interest to them, they also take other aspects into account and often decide for a balanced credit offer.

These findings are in line with prior results on how people compare different credit

offers. Ranyard, et al. (2006) found that people focus on the annual percentage rate and total costs when comparing several offers. When people asked questions about the credit aspects, most of them also targeted the annual percentage rate. However, the concept of annual percentage rate is somewhat more complex than for example credit duration. Therefore, a larger number of questions on the annual percentage rate does not necessarily hint at the highlighted relevance of this aspect for the credit decision but could also be driven by low understanding of the term (Lee & Hogarth, 1999) and the need to clarify its meaning. Ranyard et al. (2006) further found, that in their decision process, people often use simple heuristics based on the annual percentage rate. Nevertheless, as in the present study, participants in their study did not completely neglect other credit aspects. Instead, they frequently decided for credit options that balanced monthly repayment amounts, total costs and credit duration. The importance of credit duration is also highlighted by Wonder et al. (2008) who found the aspect to be a key determinant of credit choice, next to annual percentage rate and in contrast to rebates and down payments. This contrasts the finding that credit duration seems to have played a minor role for participants' credit decision in the present study. This could be explained by the fact that Wonder et al. (2008) used different credit aspects than the present study. For example, they did not include information on the total cost but informed participants on various rebates. Thus, the different setup of credits might account for the contrary results regarding the importance of credit duration for participants' credit choice.

Problems with the manipulation.

One possible explanation for the shortcoming of the present study to find the hypothesized effects might be that the manipulation used was not strong enough to show the hypothesized effect. While some results indicate a successful manipulation of construal level, the

overall pattern is not very convincing. On the one hand, participants' responses to the reasons versus means manipulation were analyzed. In line with the argument for a successful manipulation, participants in the high construal level condition – who were exposed to questions for reasons – generated responses that reflected higher construal levels compared with those participants in the low construal level condition – who were exposed to questions for means. On the other hand, participants' responses to the Behavior Identification Form were analyzed. Contrary to the result for a successful manipulation, participants in the high construal level condition did not differ in their score on the measure from participants in the low construal level condition.

Taken together, the two results indicate, that the manipulation did indeed lead to either a high or a low construal level. Nevertheless, the effect did not last long enough to show up in the Behavior Identification Form, which was situated rather at the end of the study. Because the measurement of the dependent variables was situated between the manipulation of construal level and the Behavior Identification Form, it remains unclear, to which extent the differences in construal level persisted throughout the measurement. In the present study, participants were presented with a scenario, had to evaluate six different credit offers and form judgements on each of them, before they made a decision for one of the six offers, requiring them to also compare the offers against each other. This is a rather lengthy procedure as compared to many studies that relied on the same manipulation of construal level that was used in the present study. For example, Wan and Agrawal (2011) manipulated construal level, using the reasons-means task and immediately asked participants to choose one of two exhibitions that they would want to visit, with this choice being the dependent variable. Similarly, Tsai and McGill (2011) asked participants directly after the manipulation of construal level to make a decision between two

alternative products and rate their confidence in their choice, which was the dependent variable. Such designs with only little time needed to measure the dependent variable(s) directly after the manipulation make the majority of research using the reasons-means task. Therefore, it is tempting to argue, that the shortcoming of finding no difference in the credit aspects that participants focus on under low construal levels and high construal levels and consequently no effect of construal level on credit choice can be attributed to the rather long time it took participants to complete the credit evaluation and credit choice task. The manipulated differences in construal level simply grew weaker and vanished somewhere during the task, resulting in the null-results.

Although this explanation cannot be ruled out, it could nevertheless also be a premature false conclusion. As already stated, the manipulation of construal level used in the present study is very widespread and successful in research. Among the bulk of studies making use of the manipulation, there are also some rather rare instances where the manipulation lasted over an extended period of time. For example, Sanna, Chang, Parks, and Kennedy (2009) had their participants play a social dilemma game after the manipulation of construal level. Their participants had to read the instructions for a rather complex game, in comparison to the scenario information in the present study, and play five rounds of it, in comparison to the six credit evaluations and the following credit choice in the present study. It can be assumed, that the procedure used in the Sanna et al. (2009) study was quite time consuming and in particular took probably more time than the credit evaluation and credit choice task in the present study. Nevertheless, they were able to find an effect from the manipulation of construal level. Similarly, Chiou, Wu, and Chang (2013) reported an effect of the reasons-means construal level manipulation on smoking behavior over a 40 minutes period. Thus, it can be assumed that the

manipulation used in the present study is capable of evoking differences in construal level that last over extended time periods. Therefore, it remains an open question why at least the Behavior Identification Form did not indicate a difference in construal level.

Problems with the scenario.

Another aspect that might have attenuated the induced difference in construal level between the two conditions might have been the scenario description that was presented prior to the credit evaluation and credit choice. While the reason to take a credit was described in a rather general way (an extended journey), the figures provided were rather detailed. Participants were informed about the exact costs of the journey, the amount of their current savings and the resulting gap as well as the amount of money available each month after paying all fixed costs, once they would have started working. Previous research identified detail as a low construal level feature (Lee, Deng, Unnava, & Fujita, 2014). In some cases, detail and concreteness were even used as synonyms (Wolfin, Corneille, Yzerbyt, & Förster, 2011). Thus, the detailed financial background described in the scenario might have counteracted the high construal level priming in the high construal level condition, reducing the difference in construal level between the two experimental conditions. In this situation, the scenario that was intended to provide context for the credit evaluation and credit decision and eventually increase the likelihood of realistic results might have led to the exact opposite: No differences in the dependent variables due to neutralization of the induced differences in construal level in the manipulation.

An objection against this critique comes from the aforementioned social dilemma game study (Sanna et al., 2009). Participants in that study did not just read about four specific figures. Instead they were introduced to a complex payout-scheme that involved also the relations between these elements, to ensure that they understood the mechanics of the game. These

instructions covered equations and mathematical examples that were much more detailed than the financial information used in the present study. Nevertheless, Sanna et al. (2009), using the same manipulation as the present study, were able to find an effect of construal level on participants behavior in the social dilemma game. This speaks against the assumption that the financial information provided in the scenario neutralized any difference in construal level, by eliminating high-level construals in the respective condition, because of a high degree of detail.

Problems with the credit presentation.

Another possible explanation for the shortcoming of the present study to find the hypothesized effects relates to the way the credit alternatives were presented. It could be that construal level affects rather the search behavior of individuals such that low construal levels lead to a search for information on the monthly redemption payments, while high construal levels lead to a search for information on total costs. Looking only for specific aspects of a credit and making a decision on this basis could then lead to different credit decisions for different construal levels. In the present study however, participants were presented with information on every single aspect of the credits. That is, they had the same information base in both conditions. It could be that the presentation of comprehensive information led to a reevaluation of which aspects of a credit are most important to form a judgement on the respective credit and make a decision among several credit alternatives. Such a reevaluation could have attenuated differences in participants' focus between the two conditions. A reevaluation with the same result regarding the most important aspect/s for a decision would also explain why two of the alternatives were so dominant (chosen by more than two thirds of participants).

Unfortunately, no studies could be found that investigate a potential relationship between construal level and information search behavior in buying decisions. Apart from this specific

setting, research indicates that low construal levels lead to more intense post-choice information search as compared to high construal levels (Shani, Igou, & Zeelenberg, 2009). Given this finding and the fact that people value aspects of a product differently under high and low construal levels (Grant & Tybout, 2008), it seems legitimate to assume that construal level would also influence which credit aspects people see as important in the first place and thus on which aspects they would search information.

Regarding the construal level dependent influence of product aspects on product choice, the picture is clearer. For example, Fukukura, Ferguson, and Fujita (2013) asked their participants to choose a phone among several alternatives, after introducing them to the reasons-means construal level manipulation. With full information on a range of product aspects such as compactness, camera quality and memory for every alternative, participants in the low construal level condition focused on different product aspects than participants in the high construal level condition and subsequently chose different products. Similarly, Trope and Liberman (2000) asked their participants to choose one of two radio sets that they wanted to buy. Participants in the low construal level condition did not show a difference in their preferences for a radio set with good sound but a useless clock and one with bad sound but a useful clock. In contrast, participants in the high construal level condition showed a clear preference for the radio set with the better sound and the useless clock. The results were interpreted as an indication for a preference for primary aspects (sound) over secondary aspects (clock) in high construal level that is not present in low construal level. Together these results support the idea that construal level influences which product aspects people focus on when deciding among product alternatives with full information on their aspects.

Regarding the present study, these results cannot finally clarify whether the presentation

of comprehensive information on all credit aspects led to a reevaluation of which aspects of a credit are most important to form a judgement on the respective credit and make a decision among the credit alternatives. However, the above findings on the influence of construal level on information search behavior and product choice reveal another noteworthy point: The large majority of studies in this area focuses on product attributes that are on the same level instead of being superior or inferior to one another. For example, a compact phone is not necessarily better than a phone with a good camera or one with a lot of memory. The importance of a single attribute exclusively depends on the desires of the customer. Therefore, there is no superior product among the alternatives presented in these studies. In case of the credits in the present study, the situation is different: From an economically rational point of view, the credit with the lowest total cost is clearly the best alternative. Therefore, the total cost aspect is superior to all other credit aspects. If people realize the superiority of total costs over other credit aspects, when presented with information on all aspects, they are more likely to base their credit judgement strongly on this aspect even if they would have focused on other aspects if no information was provided in the first place. Consequently, research on the influence of construal level on credit attractiveness should focus on what aspects people pay attention to when they search for information on credit alternatives. This would also strengthen external validity, because it can be assumed that people looking for a credit rather find themselves in the situation of having to decide on the importance of several credit aspects and search for information on these aspects instead of being presented with several credit options and full information on every aspect in an easily comparable fashion.

Study 2 – Construal Level and Relative Importance of Credit Aspects

Study 2 examines how different construal levels influence the importance of different

credit aspects. Drawing on the previously presented literature on construal level theory and consumer credit offers, as well as the discussion of study 1, the present study investigates whether differences in construal level lead to different priorities of which aspects are most important when selecting a credit alternative. In contrast to study 1, the focus of the present study lies on the relative importance of credit aspects in general rather than on specific credit alternatives that are advantageous with respect to one or the other aspect. The respective hypothesis reads as follows:

H1: In a high construal level, people prefer credits that are advantageous with respect to high construal features (e.g. having a bill that states the amount of the monthly installment very clear), while in a low construal level, people prefer credits that are advantageous with respect to low construal features (e.g., having a bill that breaks down the composition of the monthly installment in a very detailed way).

Furthermore, study 2 explores how different construal levels influence the preference for specific sequences of installments. Although research on sequences in general is well established (e.g., Langer, Sarin, & Weber, 2005; Loewenstein & Prelec, 1991, 1993; Ross & Simonson, 1991), consumer's preferences for specific repayment profiles represent a relatively new issue in credit research (Hassenzahl, 2005; Hoelzl, Kamleitner, & Kirchler, 2011) and might be subject to differences in construal level. In particular, Malkoc et al. (2010) found that a high construal level leads to reduced temporal discounting (Frederick, Loewenstein, & O'Donoghue, 2002). That is, when products were framed more abstract, consumers were more willing to wait for them, to save a delivery fee. Similarly, Rogers and Bazerman (2008) demonstrated that high construal level is related to decisions that are advantageous in the distant future, while low construal level is related to decisions that are advantageous in the near future. Thus, it is assumed that people in

a high construal level focus more on the more distant installments in a longer sequence, whereas people in a low construal level focus more on the less distant installments in a longer sequence. Together with a general preference of low installments over high installments, the respective hypothesis reads as follows:

H2: In a high construal level, people prefer credits with falling installments over time, while in a low construal level, people prefer credits with rising installments over time.

The hypotheses were tested using a laboratory experiment on hypothetical purchase situations.

Method.

Participants.

Data collection took place from April 22nd to 24th, 2014³. Participants were approached on the campus of a large German university. All participants were asked to take part in a study on “verbal associations and credit evaluations”. They were informed that they would get some candy as a token of appreciation. Furthermore, they could take part in a lottery where five winners would receive € 20.00 each.

From the original sample of 90 students who agreed to participate in this study, data from three participants was excluded for the following reasons: One participant stated that her data should not be used in the analyses and two participants did not follow the instructions for the manipulation⁴. During the manipulation, two computers crashed. The affected participants restarted the study in their condition. The final sample included 87 participants. It consisted of 35

³ I would like to thank Theresa Stangl, Penghua Sun, Christian Brünger, and Michael Blens for their help in the survey promotion and data collection.

⁴ As described in the respective section of the text, participants were asked to write down either categories or exemplars for a list of given words. Instead of doing so, the two participants generated synonyms for every single word on the list.

(40.2%) men and 52 women (59.8%) with an age between 18 and 40 years ($M = 23.02$, $Mdn_{Age} = 22$, $SD = 3.79$). Twenty-two (25.3%) participants held a credit of €500 or higher or had held a credit of that amount in the past, while 60 (69.0%) did not and five (5.7%) refused to answer. On average, their monthly disposable income after rental costs amounted to €290.76 ($Mdn = €250.00$). The median duration to complete the study was $Mdn_{Dur} = 16:18$ minutes.

Procedure.

A two-group between-subjects design was used in this study. The independent variable was construal level (high construal level or low construal level). The dependent variable was relative importance of credit aspects.

When entering the lab, participants were seated individually at a computerized workplace and asked to start working on the study. All information was provided on screen. The allocation of participants to the two conditions in this study was random.

At the start, participants read the instructions for the study. In the following construal level manipulation, they worked on a task that activates either a concrete or an abstract mindset by asking participants to generate subordinate or superordinate examples for a number of given terms.

In the main part of the study, participants were asked to imagine that they were about to make a larger acquisition and planned to take a credit for that reason. This scenario served as a situational frame for the consecutive task to rate the personal importance of various aspects of a credit.

Next, participants were presented with another scenario focusing on acquiring an apartment and taking a credit for that reason. They were then presented with three credits that varied in their repayment profile: One with rising installments, one with falling installments, and

one with constant installments over time. Participants had to indicate credit attractiveness and likelihood to decide for the credit for each of the three offers.

In the last part of the study, participants' propensity to plan their financial matters was measured and they were asked for demographic information (gender, age, area of studies), disposable income and personal credit experience. Last, they were asked about the presumed aim of the study and whether their data could be used in the analyses.

Finally, the experimenter thanked the participants and offered some candy to them. Participants could write their email address on a piece of paper and throw it in an opaque box to participate in a lottery and win one of five € 20.00 prizes. The winners of this lottery were contacted via the provided address after completion of the study.

Material.

Manipulation of construal level.

Construal level was manipulated using the Categories-Exemplars Task by Fujita, Trope et al. (2006). Participants were presented with a list of 40 terms (e.g., *city*, *beer* or *planet*). In the low construal level condition, they were asked to generate a subordinate exemplar for every term by completing the sentence "____ is an example for TERM" (e.g., "Earth is an example for a planet."). In the high construal level condition, they were asked to generate a superordinate category for every term by completing the sentence, "TERM is an example of ____?" (e.g., "A planet is an example for celestial bodies."). Focusing on the category to which an item belongs leads to a somewhat higher level of abstraction and thus primes an abstract mindset; likewise, focusing on a specific exemplar of an item leads to a somewhat lower level of abstraction and thus primes a concrete mindset.

The Categories-Exemplars Task was successfully used to manipulate construal level in at

least 20 different studies (Gilead et al., 2014), dealing with various topics including consumer behavior (Pham, Hung, & Gorn, 2011).

Situational frame.

Participants were asked to imagine that they were about to make a larger, not further specified acquisition and planned to take a credit for that reason. Before they were starting to look for competing credit offers, they thought about which aspects of a credit were especially important to them and which aspects of a credit were less important to them. This scenario served as a situational frame for the consecutive rating of the importance of credit aspects.

Importance of credit aspects.

On each of the following eight pages that were presented in random order, participants were introduced to two specific forms of a credit aspect (Table 7). For each of these pairs, they were asked which form was more important to them personally (e.g., “What is more important to you: Knowing all the exact terms and conditions of your credit or having a good overview on the key figures?”). One form always corresponds to a rather low construal level, while the other corresponds to a rather high construal level. All specialized terms came with an explanation to support participants’ understanding (e.g., “Total cost refers to the sum of all costs related to the credit. This includes the specified amount of credit, interest charges, commission fees, and any other fees related to the credit such as for example account management fees.”).

All questions were answered on a 7-point scale where 1 corresponds to a clear preference

Table 7
Relative Importance of Credit Characteristics

| Item | What is more important to you: | |
|------|--|---|
| | Low construal level form | High construal level form |
| 1. | Knowing the exact amount of the monthly installment | <i>or</i> knowing the exact total cost of the credit? |
| 2. | Not needing to excessively cut down spending in a given month | <i>or</i> not needing to excessively cut down spending over the whole repayment period? |
| 3. | Being able to adapt the credit conditions to your latest needs on short notice | <i>or</i> being able to plan in the long run with fixed conditions? |
| 4. | Keeping the monthly installments as low as possible | <i>or</i> keeping the duration of the credit as short as possible? |
| 5. | Being able to discuss your credit request in a personal consultation | <i>or</i> being able to sign a suitable credit offer online? |
| 6. | Paying higher installments in the beginning of the repayment period to pay less afterwards | <i>or</i> paying higher installments in the end of the repayment period to pay less before? |
| 7. | Knowing all the exact terms and conditions of your credit | <i>or</i> having a good overview on the key figures? |
| 8. | Having a bill that states the amount of the monthly installment very clear | <i>or</i> having a bill that breaks down the composition of the monthly installment in a very detailed way? |

for the low construal form of the respective credit aspect (e.g., "It is more important to me to know all the exact terms and conditions of my credit.") and 7 corresponds to a clear preference for the high construal form of the respective credit aspect (e.g., "It is more important to me to have a good overview on the key figures.").

Situational frame for the evaluation of credit repayment plans.

The scenario used was adapted from Hoelzl et al. (2011). Participants were asked to imagine that they were planning to buy an apartment. They had a safe job, working for a large company and earned € 1.440 after taxes. To buy the apartment, they needed € 30.000 in addition to their savings. Their bank advisor offered them a credit with a credit amount of € 30.000, a credit duration of 10 years, a varying interest rate and total costs of € 39.600 for which there were three repayment plans available. All figures were taken from Hoelzl et al. (2011) except for

the income information, which was replaced to mirror the monthly disposable income in Germany. This scenario served as a situational frame for the consecutive rating of the credit repayment plans.

Evaluation of credit repayment plans.

On each of the following three pages that were presented in random order, participants were introduced to one credit repayment plan. In the upper area of the page, the credit details from the scenario were printed once again, as a reminder. Below, in the left part of the page, a table displayed the amount of monthly and yearly repayments for each of the 10 years of the credit duration. In the right part of the page, a graph depicted the development of the monthly repayments throughout the 10 years, to visualize the difference between the three credit repayment plans. The bottom half of the page contained four questions to evaluate the respective credit repayment plan. The questions read “How attractive do you find the credit offer with the depicted credit repayment plan?” (1 = not at all attractive; 7 = very attractive), “To which extent does the credit offer with the depicted credit repayment plan meet your expectations?” (1 = not at all; 7 = completely), “How advantageous is the credit offer with the depicted credit repayment plan?” (1 = not at all advantageous; 7 = very advantageous), and “How likely is it that you take the credit offer with the depicted credit repayment plan?” (1 = not at all likely; 7 = very likely). Credit attractiveness was computed as the mean value of the four questions. Cronbach’s alpha ranged between $\alpha = .92$ and $\alpha = .96$ for the three credit repayment plans.

After participants evaluated each credit repayment plan separately, they were asked how easy they found it to immerse into the given scenario (1 = not at all easy; 7 = very easy).

Control variables.

Participants’ propensity to plan for money was measured as described in study 1 (Lynch

et al., 2010). Higher values on the scale ($\alpha=.90$) indicate a stronger propensity to plan.

As in study 1, participants were asked to state the amount of money that they had available at their monthly disposal after paying all fixed costs (free input). Furthermore, they were asked to state whether they currently had outstanding credits with a total amount of at least € 500 or whether this was the case at some point in the past. Answers on both questions were voluntary.

In the last part of the study, participants stated their beliefs about the purpose of the study. Furthermore, the question for data usability from Meade and Craig (2012) that was described in study 1 was used again to exclude participants who preferred their data not to be analyzed.

Results.

Preliminary analysis.

Manipulation check.

To begin with, the success of the manipulation of construal level was analyzed.

A judge unaware of condition measured each participant's level of construal based on the abstractness of their responses to the Categories-Exemplars Task (see Fujita, Trope et al., 2006). If a response was an example that fell into the category of the presented original term, it was coded with a score of -1. If a response was a category, that included the presented original term, it was coded with a score of +1. If a response fit neither criterion, it was coded as 0. For each participant, the individual values were then summed to create an index of construal level ranging from -40 to +40, where higher scores indicate higher levels of construal.

As expected, an independent-samples t-test indicated that participants in the categories-condition ($M = 38.85$) generated responses that reflected higher construal levels compared with

participants in the exemplars-condition ($M = -36.55$), $t(55.33) = -86.44$, $p < .001$, one tailed.

Thus, it can be assumed that the manipulation of construal level was successful.

Main analysis.

In order to check for the hypothesized effect of construal level on the importance of respective credit aspects a MANOVA was conducted with participants' ratings of the relative importance of the several credit aspects serving as dependent variables. Construal level served as the independent factor. Using Pillai's trace, there was no significant effect of construal level on participants' ratings of the relative importance of the several credit aspects, $V = 0.10$, $F(8, 78) = 1.15$, $p = .344$. Similarly, in the individual follow-up ANOVAs participants in the low construal level condition and the high construal level condition did not differ in their ratings of the relative importance of the several credit aspects for any given pair of aspects.

Next, the model was extended to a MANCOVA by adding propensity to plan as a covariate. As in the MANOVA, there was no significant effect of construal level on participants' ratings of the relative importance of the several credit aspects, $F(8, 77) = 1.48$, $p = .177$.

However, participants' propensity to plan was significantly related to credit attractiveness ($F(8, 77) = 2.52$, $p = .017$).

The overall and offer specific means and standard deviations of credit attractiveness, split up for the two conditions of the construal level manipulation, are shown in Table 8.

A mixed analysis of variance (ANOVA) was conducted to test the hypothesis that there would be a mean difference in the evaluation of the three different credit repayment plans between construal levels (low and high). The dependent variable is credit attractiveness. The independent variables are construal level (between subjects) and credit repayment plan (within subjects). Mauchly's test indicated that the assumption of sphericity had been violated

Table 8
Sample Sizes, Overall and Repayment Plan Specific Means and Standard Deviations of Credit Attractiveness

| Measure | Low construal level (<i>n</i> = 40) | | High construal level (<i>n</i> = 47) | |
|--------------------------------------|--------------------------------------|-----------|---------------------------------------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Overall credit attractiveness | 3.63 | 0.73 | 3.48 | 0.69 |
| Attractiveness rising installments | 2.19 | 1.01 | 2.00 | 1.10 |
| Attractiveness constant installments | 4.59 | 1.28 | 4.44 | 1.24 |
| Attractiveness falling installments | 4.11 | 1.34 | 3.98 | 1.65 |

Note. *N* = 87.

($\chi^2(2) = 10.80, p = .005$), therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = 0.89$). There was no main effect of construal level, $F(1, 85) = 1.00, p = .321$. However, there was a significant main effect of credit repayment plan on credit attractiveness, $F(1.79, 151.70) = 81.38, p < .001$. The interaction between the two factors was not significant $F(1.79, 151.70) = .01, p = .980$. Regarding the descriptive results, participants in the low construal level condition ($M = 3.63, SD = 1.05$) rated credit attractiveness higher than participants in the high construal level condition ($M = 3.48, SD = 0.96$). Regarding the main effect of credit repayment plan, pairwise comparisons (Bonferroni corrected) revealed that the credit repayment plan with rising installments over time ($M = 2.09, SD = 1.06$) was evaluated to be significantly less attractive than both, the credit repayment plan with falling installments over time ($M = 4.04, SD = 1.51, p < .001$) and the credit repayment plan with constant installments over time ($M = 4.51, SD = 1.25, p < .001$). There was no significant difference between the credit repayment plan with falling installments over time and the credit repayment plan with constant installments over time ($p = .116$).

Discussion.

The purpose of the present study was to extend research on credit choice by examining the influence of construal level on relative importance of credit aspects and on credit repayment plans. To this end, a laboratory experiment was conducted in which construal level was manipulated to be either low or high. The relative importance of credit aspects was measured for eight pairs of credit aspects. Preference for credit repayment plans was measured for three plans with either rising, constant or falling installment rates over time. No significant difference in relative importance of credit aspects was found between the low construal level condition and the high construal level condition. This finding rejects the hypothesis that in a high construal level, people prefer credits that are advantageous with respect to high construal features (e.g. having a bill that states the amount of the monthly installment very clear), while in a low construal level, people prefer credits that are advantageous with respect to low construal features (e.g., having a bill that breaks down the composition of the monthly installment in a very detailed way).

Furthermore, no significant difference in credit attractiveness for the three credit repayment plans was found between the low construal level condition and the high construal level condition. This finding rejects the hypothesis that in a high construal level, people prefer credits with falling installments over time, while in a low construal level, people prefer credits with rising installments over time. Instead, regardless of construal level, participants showed a significant preference for credit repayment plans with constant or falling installments over time compared to the credit repayment plan with rising installments over time.

The latter finding is in line with prior results on how people compare different credit repayment plans (Hoelzl et al., 2011). Even when the total cost of credit is identical, people relatively dislike repayment plans with rising installments over time. From a purely economic

point of view, this is puzzling because people do not seem to take opportunity costs into account: Money that is not spent on credit repayment can be invested with compound interest leading to earlier investments being superior to later investments. Contrary to this argument, it might be that people are in fact very rational in their decision from another angle. It could be the case that they are aware that the more distant future comes with larger uncertainties as compared to the nearer future. That implies that it is much harder to say whether one will be able to pay a certain amount in the distant future than it is to say whether one will be able to pay it in the nearer future. Being aware of this, it makes sense to reject a repayment plan that is characterized with larger repayments in the distant future, where one is relatively uncertain to be able to pay the installments. Unfortunately, the data does not allow to test whether participants were unaware of opportunity costs or whether their choice on the repayment plans was motivated by a decreasing degree of certainty about their future financial situation.

Similarly, it remains an open question why there is no difference in participants' preferences for repayment plans characterized by constant and falling installments over time. If they were aware of the decreasing degree of certainty about their future financial situation, the repayment plan with falling installments should be preferred over the one with constant installments, which is not the case. The preference for a repayment plan with falling installments over time over a repayment plan with rising installments is in line with previous research on preferences in sequences of events. Loewenstein and Prelec (1993) found a general preference for improvement when a number of events is framed as a sequence. Hassenzahl (2005) further confirmed this preference for improvement in a credit repayment context. Both studies compared sequences with improving and worsening events but neglected stable sequences like the repayment plan with constant installments over time that was used in the present study.

According to the preference for improvement, participants should have preferred the falling installments over the constant installments, which was not the case. Read and Powell (2002) asked participants to choose among several sequences and to explain their choice. They found that, when it comes to money management, people often make choices according to convenience. For the current study, this means that participants may have liked the simplicity of the repayment plan with constant installments over time. Not having to change the monthly repayment amount and in turn the monthly consumption seems quite convenient in comparison with the rising and falling installments. Taken together, the preference for improvement and the preference for convenience in sequences of events may have been responsible for the pattern of results in the current study.

As in study 1, no effect of construal level was found. This holds true for the importance of credit aspects as well as for the preference of repayment plans. The following sections will discuss potential reasons for this outcome.

Problems with the manipulation.

Unfortunately, it cannot be said with certainty that the manipulation of construal level was strong enough to show a potential effect of construal level on importance of credit aspects and preference for repayment plans. As already noted, participants in the categories-condition generated responses that reflected higher construal levels compared with participants in the exemplars-condition. Although this comparison is often used as a manipulation check (e.g., Fujita, Trope et al., 2006), it rather resembles the nature of an attention check in the sense of testing whether participants read the instructions carefully and followed them (Oppenheimer, Meyvis, & Davidenko, 2009). Thus, it cannot be said with certainty that the manipulation of construal level was successful or how long the effect lasted. However, some inferences can be

drawn from previous research, as more than 20 studies successfully used this manipulation (Gilead et al., 2014). Among them, Rim, Uleman, and Trope (2009) used this manipulation to show an effect of construal level on the formation of spontaneous trait inferences from other peoples' behavior. The measurement of the dependent variable was comparable to the present study but extended over a much longer time period. The fact that an effect of construal level was found then speaks against the assumption that the difference in construal level that was induced by the manipulation does not last over a longer time period. Supporting this view and in closer relation to the context of the present study, Pham et al. (2011) found an effect of construal level, as manipulated in the present study, on monetary valuation of objects, using a rather complex experimental design with a time lag between the manipulation and the measurement of the dependent variable.

Taken together, it can be assumed that the manipulation used in the present study is capable of evoking differences in construal level that last over extended time periods. However, it is unclear whether this difference lasted long enough to influence participants' answers on the dependent variables in this particular case. Therefore, it remains an open question whether the null-effect of construal level on the importance of the respective credit aspects can be attributed to problems with the manipulation.

Problems with the scenario.

As already noted in the discussion on study 1, the scenario descriptions that were presented prior to the measurement of the dependent variables might have attenuated the induced difference in construal levels between the two conditions. For the scenario described before participants rated the relative importance of the credit aspects, this seems rather unlikely. The text consisted of only two sentences that can be considered unrelated to construal level.

However, the scenario described before participants rated the credit repayment plans included some more information. This was considered necessary, in order to provide meaning to the subsequent task and thus increase the chance for realistic answers. Unfortunately, as in study 1, the scenario required some detailed information. Because detail is a low construal level feature (Lee et al., 2014) or even understood synonymously with concreteness (Wolfin et al., 2011), the scenario might have counteracted the high construal level priming in the high construal level condition, reducing the difference in construal level between the two experimental conditions.

As stated in study 1, there are empirical objections against this explanation (e.g., Sanna et al., 2009). More importantly, this explanation might illustrate why there was no effect of construal level on credit repayment plan ratings. However, it would not explain why there was no effect of construal level on the relative importance of credit aspects. Overall, it is only speculative whether the scenario descriptions could have addressed construal level and it seems unlikely that they did so to a degree that neutralized the previously induced difference in construal levels.

General Discussion on Part I

To recapitulate, both studies aimed to extend research on construal level in the consumer credit context. Study 1 examined how different construal levels influence the importance of different credit aspects for evaluations of credit attractiveness and credit choice. It was hypothesized that credits with a low annual percentage rate and low total costs are evaluated more positively and chosen more often in high construal level than in low construal level, while credits with low monthly redemption payments and low monthly interest fees are evaluated more positively and chosen more often in low construal level than in high construal level. Study 2 extended this line of research to the relative importance of credit aspects in general. More

precisely, the study investigated whether differences in construal level lead to different priorities regarding the aspects that are most important when deciding for a credit alternative. It was hypothesized that high construal level leads people to prefer credits that are advantageous with respect to high construal features (e.g. having a bill that states the amount of the monthly installment very clearly), while low construal level leads people to prefer credits that are advantageous with respect to low construal features (e.g., having a bill that breaks down the composition of the monthly installment in a very detailed way). In addition, further analyses explored the influence of construal level on preferences for specific sequences of installments, assuming that a high construal level leads to preferences for credits with falling installments over time, while a low construal level leads to preferences for credits with rising installments over time.

Based on the empirical results, all hypotheses had to be rejected. The results in study 1 were in line with previous findings on the importance of annual percentage rate and total cost for credit decisions (Ranyard et al., 2006). However, there was no indication of an effect of construal level on participants' preferences. The same was true for study 2. Surprisingly, there was no unambiguous evidence for the proper induction of different construal levels via the manipulations in the two studies, even though both manipulations were well-established measures (Gilead et al., 2014). As described in detail in the respective discussion sections of the two studies, both manipulations were also successfully applied in contexts comparable to those in the present studies. Thus, it remains unclear whether the absence of significant differences between the experimental conditions must be attributed to construal level not being related to the credit evaluations and decisions in the two studies or whether this is due to the manipulations not being successful.

Part II – Construal Level and 0%-Credits

The main purpose of this second part of the thesis is to extend research on construal level theory in the consumer credit context by focusing on a more recently introduced form of credit offers: 0%-interest credits. To this end, two laboratory experiments investigated the relationship between the number 0 and construal level with regard to implications for consumer credit decisions.

0%-Interest Credits

As a reaction to the global financial crisis that started in 2007, many central banks tried to recapitalize the world's banking system by offering loans with very low interest rates. Some, like the Federal Reserve System, the European Central Bank and the Bank of Japan even adopted a 0% interest rate policy – essentially an elimination of interest payments – to increase gross expenditure and thus kick-start growth. As a consequence of being able to borrow without having to pay interest, some banks soon after started to offer similar credits to their customers. Thus, over the last couple of years, consumers have witnessed the rise of a new form of credit. 0%-interest credits are regular consumer credit offers with the distinctive feature of an annual percentage rate of 0%, turning an otherwise costly financial product into a free one (regarding the annual percentage rate). While such offers are especially prominent for car purchases, in some countries (e.g., Germany) 0%-interest credits are available without being bound to a specific purchase (Smava, 2015). Furthermore, this new form of credit is not limited to installment credits. For example, several banks in the US offer credit cards with an initial period of 15 to 21 months during which the annual percentage rate is set to 0% (McGuire, 2017). The fact that the interest rate after this period rises to 11.5% to 24% gives a first impression that these seemingly free offers are not necessarily as advantageous as they seem. While these examples

demonstrate the widespread availability of 0%-interest credits, a representative study for German households up to the age of 75 years (GfK Finanzmarktforschung, 2014) shows the popularity. In this study, 19% of participants who were extremely satisfied with their credit stated that the annual percentage rate of 0% was a primary reason for their satisfaction. This result is particularly surprising because it requires a large share of 0%-interest credits among all credits held in the sample. At least for Germany, two further findings imply an increase in 0%-interest credit offers. First, relatively small credits (up to € 3,000) made up 39.8% of all new credit contracts in 2015 (SCHUFA Holding AG, 2016). Because 0%-interest credits are usually found in this area, the figure demonstrates the large potential of such offers. Second, contracts signed at the point of sale became more and more important over the last years. In 2015, they made up 59% of the financial volume of all new contracts (Bankenfachverband, 2015). Thus, consumers increasingly decide for credit take-up directly when they are buying a new car or shopping for furniture, consumer electronics or household appliances. This is important, because many 0%-interest credits are advertised as means to finance the purchase at the point of sale. Therefore, the preference for smaller credits and the trend to make credit decisions directly at the point of sale highlight the high potential for a further increase of 0%-interest credit offers.

Overall, this sounds like a great deal for consumers: A broad availability of seemingly free credits with low complexity and a highly convenient way to purchase long desired products. However, this is not necessarily the case. Often, these credit offers come with high dunning fees for late payments and default costs, that seem disproportionately high compared to the amount of credit. In other cases the credit is offered with a mandatory residual debt insurance that is also expensive in relation to the credit sum. Some offers also include a credit card for the consumer. While the annual percentage rate for the credit is 0%, the rate for payments with the related card

is much higher than the usual market rates. Consumer advisors point out, that this is often not clear to customers, as it is only mentioned in the fine print (Verbraucherzentrale, 2016).

Furthermore, some 0%-interest credit offers come with a repayment plan with rather small installments and one large installment at the end of the credit period. This increases the probability that consumers either default on the scheduled payment and face the high dunning costs or that they must take another credit to repay the first one in time.

Beyond these financial aspects of 0%-interest credit offers, there is also a psychological danger related to such offers that can overshadow the seemingly advantageous financing possibility: Not having to pay interest could lead to careless consumption. Overoptimistic views of the personal financial future might lead consumers to acquire more products than they can afford to pay for (Yang, Markoczy, & Qi, 2007). The strong focus on the number 0 in 0%-interest credit advertisement could mislead consumers to the interpretation that they can in fact afford an expensive product (Verbraucherzentrale Niedersachsen, 2014). Furthermore, the rather small credit amounts could lead consumers to sign multiple 0%-interest credit offers. This could result in reduced financial overview and ultimately non-optimal repayment decisions and therefore additional costs (Amar et al., 2011).

Taken together, the low hurdles and the mentioned drawbacks render 0%-interest credit a potentially dangerous product that consumer protection offices already started to warn about. Moreover, because these financial products are relatively new, they represent a blind spot in research on consumer credit. In an attempt to close this gap, the following section describes an approach to utilize construal level theory to explain why 0%-interest credit offers are so popular, despite the many disadvantages related to such offers.

The Abstract Nature of 0

NEW 2015 FORD F-350
CREW CAB 4X4
DIESEL KING RANCH

0% APR

NEW 2015 FORD F-150
SUPERCREW
LARIAT 4X4

FINANCING FOR 72 MONTHS

1. 0% APR financing for 72 months at \$13.89 per month per \$1,000 financed regardless of down payment. On approved credit through Ford Credit financing. Not all buyers will qualify.

MSRP – STK#T26700 \$71,515
Dealer Discounts - \$10,000
Factory Rebates - \$2,500

SAVINGS FOR EVERYONE

OR \$12,500 OFF MSRP
Ford Credit Bonus Cash* - \$1,500

IF YOU QUALIFY, SAVE

OR \$14,000 OFF MSRP

TRUCK UP IN A NEW FORD!

233

IN STOCK!

MSRP – STK#T27228 \$57,895
Dealer Discounts - \$9,250
Factory Rebates - \$2,000

SAVINGS FOR EVERYONE

OR \$11,250 OFF MSRP
Ford Credit Bonus Cash* - \$750

IF YOU QUALIFY, SAVE

OR \$12,000 OFF MSRP

*Must finance through Ford Credit.

Figure 3. A typical example of an advertisement for a 0%-interest credit bound to a car purchase. Adapted from Town East Ford

Figure 3 displays a typical example of an advertisement for a 0%-interest credit bound to a car purchase. As can be seen, the annual percentage rate of 0% is the most outstanding element in the composition. In a large font size it is prominently placed in the center top. Potential customers can read it from afar and most likely form their first impression about the offer based on the 0% rate. Without doubt, it is the central feature of the credit. Thus, the question arises how people process the number 0. In contrast to positive numbers like 1, 2, or 872, 0 is not an intuitive number and cannot be used in counting, because it implies that there is nothing to count. The special case of 0 is not limited to things existing in the real world, but extends to mental concepts: It is easy to imagine a positive amount of any kind of objects (e.g., apples). However, it is not possible to imagine 0 apples. Either one does not imagine apples but

something else (e.g., bananas) or one does imagine at least one apple. The concept of 0 cannot be aligned with the mental conception of things. Thus, 0 is rather abstract in nature, compared to positive numbers. This allows the conclusion that the perception and cognitive processing of the number 0 is different from that of positive numbers.

Shampanier, Mazar, and Ariely (2007) asked their participants to make a hypothetical choice between buying a piece of high quality chocolate for a relatively high price or a piece of low quality chocolate for a relatively low price or for free. Over three conditions, the price-scheme was set to 27¢ and 2¢, 26¢ and 1¢ as well as 25¢ and 0¢. A reduction by 1¢ from 27¢ to 26¢ and from 2¢ to 1¢ did not change participants' preferences. However, when the prices decreased such that the low quality chocolate was free (0¢), 90% of participants chose the low quality chocolate over the high quality chocolate, up from 40% in the 26¢ / 1¢ condition. The result was further replicated in an experiment with real purchases. Shampanier et al. (2007) termed the overly strong increase for a certain product when it is offered for free the zero-price effect and explained their findings with an added benefit of free products. According to them, getting something without having to pay a price for it, triggers positive emotions that enter the cost-benefit analysis underlying the decision. Several recent studies have replicated the zero-price effect for individual and bundled purchases as well as hedonic and utilitarian products and identified several boundary conditions, turning it into an established phenomenon (e.g., Baumbach, 2016; Hossain & Saini, 2015; Murata, 2017; Nicolau, 2012). It shows that 0 – in the context of prices or cost – is indeed different from positive numbers. However, the affective explanation is not the only attempt to understand this phenomenon. Another explanation is offered by Palmeira (2011). He demonstrated that consumers do not evaluate attributes of products in absolute terms, when comparing two products. Instead, they evaluate them in relation

to each other. Participants in his experiment preferred yoghurt with 1% fat over yoghurt with 5% fat. The author argues that this is because fat is an unwanted aspect for most customers and yoghurt with 5% fat is five times as bad on this aspect as the other one. However, such comparisons do no longer work when one of the products takes the value 0 on the compared aspect. Mathematically, yoghurt with 5% fat contains infinitely more fat than yoghurt with 0% fat. The number is too abstract to serve in a comparison with a positive number. The results of Palmeira (2011) support this explanation, as in the case with 0% and 5% more consumers chose the 5% yoghurt as in the case with 1% and 5%. Surprisingly, the demand for the seemingly worse offer increased, instead of the demand for yoghurt with 0% fat going up steeply. It could be that this was just due to the specific product used in the study. It can be assumed that most people are aware of the fact that fat serves as a flavor carrier. Yoghurt with 0% fat could have triggered the idea of either tasteless yoghurt or one with a high share of sugar, which is often used as a substitute for fat (Nines, 1999) and represents another unwanted characteristic related to the yoghurt with 0% fat. However, Palmeira (2011) also demonstrated in another experiment, that a credit card with an annual percentage rate of 1% is evaluated more positively than a credit card with an annual percentage rate of 0%, when both are compared to a credit card with an annual percentage rate of 20%. While the author explained the difference again with participants' inability to compare 0% and 20%, he does not attempt to deliver any potential reasons for the surprising direction of the effect, i.e. the finding that the 0%-card is evaluated less positively than the 20%-card. In contrast to this, other authors replicated the so-called zero-comparison effect (Graham & Mohr, 2014) in a way that 0 is evaluated overly positive in comparison with positive numbers. For the present studies, it is argued that the number 0 is perceived and processed more abstractly, because it cannot be conceptualized on equal terms with positive numbers, due to the

lacking possibility of a relative comparison. Study 3 investigates whether being exposed to the number 0, as it is the case in ads for 0%-interest credits (Figure 3) induces a higher construal level, while being exposed to a positive number induces a lower construal level, leading to different product preferences, when making a credit-financed purchase. Research on construal level consistently found aspects of desirability to be related to high construal level and aspects of feasibility to be related to low construal level. Thus, aspects of desirability and feasibility were used in study 3, to investigate the role of construal level in differences in product preferences for 0%-interest credits and non-0%-interest credits. The following section describes the relationship of construal level and desirability / feasibility.

Construal Level and Aspects of Desirability / Feasibility

As already mentioned in the theory section of part I, desirability is a characteristic of high-level construals and feasibility is a characteristic of low-level construals (Table 1). This is because desirability refers to the goal of attaining an object or end-state, while feasibility refers to the process of attaining an object or end-state (Liberman & Trope, 1998). With the idea of psychological distance defining construal level, construal level theory predicts that as psychological distance increases, consumers focus shift from aspects of feasibility to aspects of desirability (Trope et al., 2007). This explains for example why product preferences are strongly influenced by what a product is capable of before buying it and by how usable it is after buying and using it (Thompson, Hamilton, & Rust, 2005): Forecasts of the usage situation are temporally and therefore psychologically distant, thus highlighting what the product can be used for (Hamilton & Thompson, 2007). Regarding purchase decisions, Lu, Xie, and Xu (2013) showed that consumers under high construal level prefer products that are advertised with high desirability (operationalized as quality), whereas consumers under low construal level prefer

products that are advertised with high feasibility (operationalized as convenience). Furthermore, not only the choice was more strongly influenced by either desirability aspects or feasibility aspects. The authors also demonstrated that consumers under high construal level are more likely to search for information on aspects of desirability, while consumers under low construal level are more likely to search for information on aspects of feasibility, before the decision stage. What constitutes an aspect of desirability or feasibility depends strongly on the product at hand. However, Pizzi et al. (2014) identified design as an aspect of desirability that most likely holds true for all products. Similarly, Pfannenstiel and Chaparro (2015) identified ease of usage as a general aspect of feasibility.

Construal Level and the Fit Effect

From another perspective, one could argue that the previously explained preference for desirability in high construal level and for feasibility in low construal level is just one specific form of the more general idea that people favor a fit between the level of abstraction of their own mental construals and the level of abstraction of new information presented to them.

Various experiments in the domain of judgement and decision making have shown that people favor information that matches their construal level over information that does not match (e.g., Kim & John, 2008; Nussbaum, Trope, & Liberman, 2003; Trope & Liberman, 2000). This goes so far that people are more willing to believe and trust information that matches their construal level. For example, Hansen and Wänke (2010) assumed that when people read information that is written in either abstract or concrete language, matching their abstract or concrete mental construals, they have a good feeling about the harmony of processing these statements and, as a consequence, would judge them as more likely to be true as compared to a situation in which there is a mismatch between the level of abstraction of the language and their

mental construals. While the results supported the effect of the construal level fit on truth ratings, the authors unfortunately missed to test their explanation that a match leads to an increase in ease of processing of the information thereby influencing truth ratings. Although in slightly different contexts, other studies already demonstrated that an alignment of cognitive processing style and perceived cues does indeed lead to a metacognitive flow that then affects the outcome of the cognitive processing (e.g., Förster & Higgins, 2005; Higgins, Idson, Freitas, Spiegel, & Molden, 2003).

Lee, Keller, and Sternthal (2010) extended the findings of Hansen and Wänke (2010) to the realm of hypothetical buying decisions and product attitudes. They found that participants' attitude towards a cross-trainer increased, when their construal level matched the description of the sporting equipment, written either with a focus on high construal level aspects or low construal level aspects of the product. In another experiment, Lee et al. (2010) found support for a different explanation of this fit effect: According to the results, the match between participants' construal level and the abstract or concrete description of the target product increased engagement, resulting in a more positive attitude towards the product.

Regarding the present work, these findings have an interesting implication. If 0 is indeed more abstract than positive numbers, for the reasons explained in the section on the nature of the number 0, people in a high construal level should experience a fit of their construal level and the number 0. Parallel to the previously presented findings, this should lead to an increase in perceived attractiveness of 0%- interest credits as compared to people in a low construal level, who do not experience this fit effect. Together with a replication of the more general zero-price effect in the domain of 0%-interest credits, study 4 aims to test this assumption.

Study 3 – 0%-Credit and Product Choice

Advertisements for 0%-interest credits often include the prominent display of the number 0. Study 3 investigates whether focusing on 0 induces a higher construal level than focusing on positive numbers and whether the resulting difference in construal level leads to different product preferences when making a credit financed purchase. Building on the described literature on the relatively more abstract nature of 0, the first hypothesis in this study reads as follows:

H1: Concentrating on an advertisement with the prominent display of the number 0 leads to a relatively higher construal level as compared to concentrating on an advertisement with the prominent display of a positive number.

Furthermore, building on the described literature on construal level and aspects of desirability and feasibility, it is assumed that the induced difference in construal level is strong enough to influence participants' product preferences in a hypothetical buying decision such that participants in the high construal level condition, being offered a 0%-interest credit with an interest fee of € 0, decide for a laptop which is favorable in terms of desirability, whereas participants in the low construal level condition, being offered a 1%-interest credit with an interest fee of € 5, decide for a laptop which is favorable in terms of feasibility. The respective hypothesis reads as follows:

H2: Participants in a high construal level prefer to buy products on credit that are favorable in terms of desirability, while participants in a low construal level prefer to buy products on credit that are favorable in terms of feasibility.

The hypotheses were tested using a laboratory experiment on a hypothetical purchase situation.

Method.

Participants.

Data collection took place from June 23rd to 24th, 2014⁵. Participants were approached on the campus of a large German university. All participants were asked to take part in a study on “buying decisions and financing”. They were informed that they would get some candy as a token of appreciation. Furthermore, they could take part in a lottery where 10 winners would receive € 20.00 each.

From the original sample of 91 students who agreed to participate in this study, data from three participants was excluded for the following reasons: One participant quit the study, one participant stated that her data should not be used in the analyses and one was excluded because her data on the measurement of the dependent variables was corrupted due to a glitch in the software that was used to conduct the study. The final sample included 88 participants. It consisted of 24 (27.3%) men and 64 women (72.7%) with an age between 16 and 37 years ($M = 22.41$, $Mdn_{Age} = 22$, $SD = 3.66$). The median duration to complete the study was $Mdn_{Dur} = 8:14$ minutes.

Procedure.

A two-group between-subjects design was used in this study. The independent variable was construal level (high construal level or low construal level). The dependent variable was product choice.

When entering the lab, participants were seated individually at a computerized workplace and asked to start working on the study. All information was provided on screen. The allocation of participants to the two conditions in this study was random.

⁵ I would like to thank Julia Herzog, Omid Kamali Novin, Jan Guldner, Clemens Lotz, and Timo Buss for their help in the survey promotion and data collection.

At the start, participants read the instructions for the study. In the following construal level manipulation, they worked on a task that activates either a concrete or an abstract mindset by asking participants to focus either on a concrete number (5) or on an abstract number (0). The effectiveness of this manipulation was checked using the Behavior Identification Form (Vallacher & Wegner, 1989).

In the main part of the study, participants were asked to imagine that they were about to buy a new laptop and planned to take a credit for that reason. This scenario served as a situational frame for the consecutive task to choose a specific laptop among several alternatives that differed in terms of desirability and feasibility.

Next, participants answered some questions on their satisfaction with their choice and the importance of the product characteristics for their choice.

In the last part of the study, participants were asked for demographic information (gender, age, area of studies, duration of studies). Last, they were asked about the presumed aim of the study and whether their data could be used in the analyses.

Finally, the experimenter thanked the participants and offered some candy to them. Participants could write their email address on a piece of paper and put it in an opaque box to participate in a lottery and win one of 10 € 20.00 prizes. The winners of this lottery were contacted via the provided address after completion of the study.

Material.

Manipulation of construal level.

Construal level was manipulated via the presentation of a picture, prominently displaying the number 0 or the number 5. All participants were presented with the picture of an opened laptop. In the high construal level condition, a large 0 was displayed on its screen, while in the low

construal level condition, a large 5 was displayed on the screen. No further information on the nature of the digit or its relation to other tasks in the study was provided. Participants were instructed to concentrate on the picture for 20 seconds. Only after that time, they were able to proceed with the study.

Manipulation check.

As a manipulation check, the behavior manipulation form (BIF; Vallacher & Wegner, 1989) was used. The order in which participants were presented with the questions in this form was identical with the order in the original presentation of the measure. As in study 1, the answers to the questions in the form – with concrete ones coded as 0 and abstract ones coded as 1 – were summed up to form an index ($\alpha = .79$), with higher values indicating a higher construal level.

Situational frame.

Participants read a scenario concerning a specific buying decision situation and were asked to imagine themselves in the described situation. Specifically, they were told that their laptop was no longer working and they intended to buy a new one, because they were dependent upon such a device. They were told that they had to choose one laptop from a range of six different ones. Furthermore, participants were informed that all laptops would cost € 500 and that they differed only among the four dimensions that participants were about to see in the product presentation. In the high construal level condition, participants were told that a 0%-interest credit was available for the purchase and that this meant annual interest costs of € 0. In the low construal level condition, participants were told that a 1%-interest credit was available for the purchase and that this meant annual interest costs of € 5. The combined information served as a situational frame for the consecutive presentation of the six products and the choice among these

alternatives.

Product presentation and product choice.

The page on which participants compared the product alternatives and made a decision was split up into four vertically aligned sections. The two topmost sections served as a reminder of the manipulation of construal level. The third section in the middle of the screen contained the product alternatives in a format suited to compare them. Finally, the bottom section asked participants to choose one of the product alternatives.

In the top section of the page, the following sentence was written: "Finance your desired product comfortably and inexpensively with our installment financing with an interest rate of $X\%$!". In the high construal level condition, X was 0 and in the low construal level condition X was 1. Underneath, in the second section of the screen, participants saw the same picture as in the construal level manipulation. Only this time, the display of the laptop read "For a price of € 500, your annual interest cost amounts to € Y ." In the high construal level condition, Y was 0 and in the low construal level condition Y was 5. As in the manipulation, the digit was the most prominent element on the display to reinforce the manipulation of construal level.

In the third section of the screen, six different laptops, labeled alternative 1 to alternative 6, were presented (see Figure 4). For each alternative, information on battery life, user-friendliness, design and warranty period was provided. Battery life and user-friendliness represent feasibility attributes that are connected to thoughts on a specific usage situation of a laptop. A long battery life is needed when one wants to work outside or on the way to the office. Similarly, user-friendliness is important when one wants to get to work quickly without losing much time (e.g., via preinstalled programs and short boot-up times). Contrary, design and warranty period represent desirability attributes that are connected to thoughts on a laptop in

general without a specific usage situation. An appealing design and a long warranty period should be important when one thinks about the product as such without contextual aspects.

For each of the four attributes, a rating was provided for every alternative, using a scale of five stars. The more stars were filled, the better was the alternative on the respective dimension. Such a rating format is widely used in online shops. For the present study, it further offers the advantage of making the rating of different attributes intuitively comparable. Otherwise, participants would have faced the complex task to evaluate first whether for example an increase from 6 to 8 hours of battery life is comparable to an increase from 2 to 3 years of warranty. To further simplify the comparison, every alternative was rated on each attribute with either two or with four out of the five possible stars. For every alternative, two attributes signaled a negative rating (two stars) and two attributes signaled a positive rating (four stars). This was done in such a way that alternative 2 stood out on feasibility (both, battery life and user-friendliness rated positive) and alternative 3 stood out on desirability (both, design and warranty period rated positive). The other four alternatives were mixed forms with both, one feasibility and one desirability attribute positive as well as one feasibility and one desirability attribute negative.

Finally, in the fourth section of the screen, participants were asked to make a decision for one of the alternatives. The respective question read “For which of the six alternatives do you decide?”

Choice satisfaction and rating of product attributes.

Next, participants’ satisfaction with their choice was measured as well as the relative importance of the four product attributes for their choice.

Choice satisfaction was understood as a general concept consisting of choice satisfaction,

choice difficulty and choice uncertainty, covering aspects of the process as well as the outcome (Goedertier, Geskens, Geuens, & Weijters, 2012). The respective three questions read “How satisfied are you with your choice?” (1 = not satisfied at all; 7 = very satisfied), “How difficult was it for you to make a choice?” (1 = not difficult at all; 7 = very difficult), and “How certain are you that you made the right choice?” (1 = not certain at all; 7 = very certain). Choice satisfaction was computed as the mean value of the three questions. Cronbach’s alpha was $\alpha = .72$.

Each of the four product attributes was rated with regard to attractiveness, general importance and relevance for the buying decision. The respective three questions read “How attractive do you find the following product attributes?” (1 = not at all attractive; 7 = very attractive), “How important are the following product attributes to you?” (1 = not at all important; 7 = very important), and “How relevant are the following product attributes for your buying decision?” (1 = not at all relevant; 7 = very relevant). For each product attribute, an index of impact on the buying decision was computed as the mean value of the three questions. Cronbach’s alpha ranged between $\alpha = .83$ and $\alpha = .88$ for the four product attributes.

Control variables.

In the final section, participants were asked how well they could imagine themselves in the described scenario that served as a situational frame in this study. Also, they were asked to remember the annual percentage rate of the credit offer for the laptop (don’t remember; 0%; 1%) to check whether participants paid attention to this crucial aspect of the manipulation. In addition, they stated their beliefs about the purpose of the study. Furthermore, the question for data usability from Meade and Craig (2012) that was described in study 1 was used again to identify participants who preferred their data not to be analyzed.

Results.

Preliminary analysis.

Manipulation check.

In a first step, participants' score on the Behavior Identification Form (Vallacher & Wegner, 1989) was analyzed to see whether the manipulation of construal level was successful. An independent-samples t-test indicated that participants in the high construal level condition ($M = 14.48, SD = 4.66$) did not score significantly higher on the Behavior Identification Form than participants in the low construal level condition ($M = 13.24, SD = 4.58$), $t(86) = 1.26$, $p = .107$ (one-tailed). Therefore, it must be assumed that the manipulation of construal level was not successful. To check whether participants followed the instructions in the manipulation and focused on the respective digit on the screen of the laptop, answers on the recall-question for that digit were analyzed. Eighty-five (96.6%) participants remembered the presented digit correctly and three (3.4%) participants stated that they did not remember the digit. Thus, the large majority of participants did follow the instruction in the manipulation but it did not lead to a difference in construal level between the two conditions, according to the Behavior Identification Form. This finding rejects the hypothesis that concentrating on 0 leads to a relatively higher construal level as compared to concentrating on a positive number.

Descriptives.

Means, standard deviations, correlation coefficients and reliabilities for the variables in this study are shown in Table 9.

On average, participants were rather satisfied with their individual choice among the laptops ($M = 4.69, SD = 1.22$). Battery life ($M = 6.17, SD = 1.02$) was rated as the most important product attribute for the decision. The second most important product attribute was

Table 9
Means, Standard Deviations, Correlation Coefficients and Reliabilities for the Variables in the Analyses

| Measure | <i>M</i> | <i>SD</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--|----------|-----------|------|-------|------|------|------|------|---|
| 1. Behavior Identification Form score ^a | 13.83 | 4.63 | .79 | | | | | | |
| 2. Choice satisfaction ^b | 4.69 | 1.22 | .12 | - | | | | | |
| 3. Importance of battery life ^b | 6.17 | 1.02 | -.03 | .26* | .85 | | | | |
| 4. Importance of user-friendliness ^b | 5.73 | 1.05 | .09 | .05 | .24* | .83 | | | |
| 5. Importance of design ^b | 4.03 | 1.46 | -.20 | -.12 | -.16 | .06 | .86 | | |
| 6. Importance of warranty period ^b | 5.02 | 1.44 | -.07 | -.07 | .04 | -.07 | -.06 | .88 | |
| 7. Ease of imagination ^b | 5.42 | 1.56 | .16 | .43** | .06 | -.03 | .12 | -.05 | - |

Note. $N = 88$. The diagonal displays Cronbach's α for the respective scale.

^aScale range: 0 to 25. ^bScale range: 1 to 7.

* $p < .05$. ** $p < .001$.

user-friendliness ($M = 5.73$, $SD = 1.05$). Despite somewhat lower levels of importance, warranty period ($M = 5.02$, $SD = 1.44$) and design ($M = 4.03$, $SD = 1.46$) also represent product attributes that were important for participants' product choice.

The positive correlation of the importance of battery life and user-friendliness ($r = .24$, $N = 88$, $p = .024$) can be interpreted in favor of the underlying aspect of feasibility. In contrast, the correlation between the importance of design and warranty period was not significant ($r = -.06$, $N = 88$, $p = .607$), speaking against an underlying aspect of desirability. Out of the four dimensions, only importance of battery life was significantly correlated with choice satisfaction ($r = .26$, $N = 88$, $p = .015$).

Furthermore, the results show that on average, participants did not seem to have problems imagining themselves in the scenario that was described in the study ($M = 5.42$, $SD = 1.56$). The easier it was for them, the more satisfied were they with their product choice ($r = .43$, $N = 88$, $p <$

.001).

Main analysis.

Participants' product choices, split up for the two conditions of the construal level manipulation, are shown in Table 10.

To account for the small cell size for some alternatives, Fisher's exact test was used to analyze the differences in participants' choices between the two construal levels. As the test showed, there was no difference in product choice between the two conditions, $N = 88$, $p = .919$, two-tailed. Next, the test was used for the direct comparison of the choice of alternatives 2 and 3. Alternative 2 was particularly favorable when considering aspects of feasibility, while alternative 3 was particularly favorable when considering aspects of desirability. Again, there was no significant difference in participants' product choice between the high construal level condition and the low construal level condition, $N = 43$, $p = .488$, two-tailed. Therefore, the hypothesis that participants in a low construal level prefer to buy products on credit that are favorable in terms of feasibility, while participants in a high construal level prefer to buy products on credit that are favorable in terms of desirability, was rejected.

In the next step, the importance of the product attributes for the product choice was analyzed. Participants' ratings of the importance of the four product attributes, split up for the

Table 10
Sample Sizes, Absolute and Relative Share of Participants Choosing the Product Alternatives

| Product | Low construal level ($n = 46$) | | High construal level ($n = 42$) | |
|---------|----------------------------------|------|-----------------------------------|------|
| | <i>n</i> | % | <i>n</i> | % |
| #1 | 1 | 2.2 | 1 | 2.4 |
| #2 | 20 | 43.5 | 21 | 50.0 |
| #3 | 2 | 4.3 | 0 | 0.0 |
| #4 | 5 | 10.9 | 4 | 9.5 |
| #5 | 7 | 15.2 | 6 | 14.3 |
| #6 | 11 | 23.9 | 10 | 23.8 |

Note. $N = 88$.

Table 11
Importance of the Product Attributes for the Product Choice

| Product attribute | Low construal level ($n = 46$) | | High construal level ($n = 42$) | |
|-------------------|----------------------------------|-----------|-----------------------------------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Battery life | 6.03 | 1.24 | 6.33 | 0.68 |
| User-friendliness | 5.70 | 1.04 | 5.75 | 1.08 |
| Design | 3.95 | 1.68 | 4.12 | 1.18 |
| Warranty period | 5.09 | 1.41 | 4.93 | 1.48 |

Note. $N = 88$.

two conditions of the construal level manipulation, are shown in Table 11.

In order to check for the hypothesized effect of construal level on the importance of the product attributes a MANOVA was conducted with participants' ratings of the importance of the four product attributes for the product choice serving as dependent variables. Construal level served as the independent factor. Using Pillai's trace, there was no significant effect of construal level on participants' ratings of the importance of the four product attributes, $V = 0.03$, $F(4, 83) = 0.69$, $p = .599$. Similarly, in the individual follow-up ANOVAs participants in the low construal level condition and the high construal level condition did not differ in their ratings of the relative importance of the individual product attributes.

Next, the model was extended to a MANCOVA by adding choice satisfaction as a covariate. As in the MANOVA, there was no significant effect of construal level on participants' ratings of the importance of the product attributes, $V = 0.03$, $F(4, 82) = 0.57$, $p = .684$. Neither was participants' choice satisfaction significantly related to the importance of the four product attributes, $V = 0.08$, $F(4, 82) = 1.66$, $p = .168$. Therefore, the hypothesis that participants in a low construal level see product attributes that refer to feasibility as more important for their product choice than product attributes that refer to desirability, while participants in a high construal level put more importance on product attributes that refer to desirability than to feasibility, was rejected.

Exploratory analyses.

Potential problems with the manipulation.

As already noted, there was no significant difference in the score on the Behavior Identification Form between the low construal level condition and the high construal level condition. In contrast to study 1, participants in the present study completed the Behavior Identification Form directly after the manipulation. Therefore, the possibility that the manipulation of construal level was successful but did only last for a very limited time, can be discarded. Because the Behavior Identification Form was frequently used as a manipulation check for construal level (e.g., Krüger et al., 2014), as it is able to show significant differences, it must be assumed that the manipulation of construal level was not successful. This might explain why the analyses in the previous section did not show any significant effects of construal level on the dependent variables. However, in order to explore the hypotheses in a different way, the analyses were run again with a focus on differences between participants who scored either high or low on the Behavior Identification Form. To this end, participants were allocated to two groups via a median split on the score on the Behavior Identification Form. In the low score group, participants score averaged $M = 10.25$ ($SD = 2.98$) compared to $M = 17.41$ ($SD = 2.88$) in the high score group.

As in the main analysis, Fisher's exact test was used to analyze the differences in participants' choices between the two groups. As the test showed, there was no difference in product choice between the two groups, $N = 88$, $p = .919$, two-tailed. The same was true for the direct comparison of the choice of alternatives 2 (particularly favorable when considering aspects of feasibility) and 3 (particularly favorable when considering aspects of desirability), $N = 88$, $p = .233$, two-tailed. In line with the results from the main analysis, these two findings reject the

hypothesis that participants in a low construal level prefer to buy products on credit that are favorable in terms of feasibility, while participants in a high construal level prefer to buy products on credit that are favorable in terms of desirability.

Furthermore, as in the main analysis, a MANCOVA was calculated to analyze the differences in the importance of product attributes for participants' product choice between the two groups created from the Behavior Identification Form score. As in the main analysis, no significant effect of construal level group on the importance of product attributes was obtained, $V = 0.32$, $F(4, 82) = 0.68$, $p = .607$. Neither was participants' choice satisfaction significantly related to the importance of the four product attributes, $V = 0.08$, $F(4, 82) = 1.80$, $p = .137$. In line with the results from the main analysis, this finding rejects the hypothesis that participants in a low construal level see product attributes that refer to feasibility as more important for their product choice than product attributes that refer to desirability, while participants in a high construal level put more importance on product attributes that refer to desirability than to feasibility.

Discussion.

The purpose of the present study was to extend research on consumer credit decisions in a 0%-interest credit context choice by examining whether the prominent display of the number 0, as it is frequently the case in ads for 0%-interest credits, induces a higher construal level than positive numbers and whether the resulting difference in construal level leads to different product preferences, when making a credit financed purchase. To this end, a laboratory experiment was conducted in which participants had to concentrate on either the number 0 or the number 5, to induce different construal levels. Participants' construal level was then measured and they were asked to make a hypothetical purchase decision by selecting one out of six product

alternatives to be financed either by 0%-interest credit with € 0 interest costs or a 1%-interest credit with € 5 interest cost. The product alternatives varied with regard to two attributes mirroring desirability and two attributes mirroring of feasibility. Furthermore, the importance of each product attribute for the purchase decision was measured.

No significant difference in construal level was found between the participants primed with the number 0 and those primed with the number 5. This finding rejects the hypothesis that concentrating on the number 0 leads to a relatively higher construal level as compared to concentrating on a positive number. This speaks against the idea that 0 represents a special number (Graham & Mohr, 2014; Palmeira, 2011; Shampanier et al., 2007) to the extent that it activates a higher construal level than positive numbers. A criticism of the manipulation could be that the mere presentation of a number on a screen is a rather weak approach to change an aspect of participants' cognition. However, previous research used similar techniques to successfully induce low and high construal levels (Lieberman & Förster, 2009). Also, participants had to concentrate on the presented number for a rather long period of 20 seconds. With the study only continuing after this interval and no other distractions in the individual cubicles in the lab, it can be assumed that participants did indeed spend a major amount of time focusing on the numbers. Thus, minimal exposure can be excluded as an explanation why the manipulation did not lead to different construal levels. Participants completed the Behavior Identification Form directly after the manipulation. Therefore, it can also be ruled out that a potential effect of the manipulation did not last long enough to be detected. In sum, it remains an open question why the number 0 despite of its abstract nature does not lead to a higher construal level than positive numbers.

Furthermore, participants' product decision did not differ between neither the two groups created by the manipulation nor between two groups created via a median split on the score of

the Behavior Identification Form as a substitute for construal level. These findings reject the hypothesis that participants in a high construal level prefer to buy products on credit that are favorable in terms of desirability, while participants in a low construal level prefer to buy products on credit that are favorable in terms of feasibility. Instead, participants showed a strong preference for a product that was rated high on both attributes of feasibility and low on both attributes of desirability regardless of construal level. The following section discusses this issue in detail.

Problems with the attributes.

Previous research consistently demonstrated that before an actual purchase or usage situation, product preferences are more strongly influenced by aspects of desirability than by aspects of feasibility (Hamilton & Thompson, 2007; Lee & Koubek, 2010, 2012; Thompson, et al., 2005). In the present study, the pattern was reversed: 46.6% of participants indicated to prefer buying a laptop with both attributes of feasibility (battery life and user-friendliness) being rated with four stars and both attributes of desirability (design and warranty period) being rated with two stars. This leaves two possible conclusions. First, it is possible that the product attributes used in the present study do not reflect desirability and feasibility in the way that it was assumed. Second, it might be that one or two of the attributes were very dominant for the purchase decision and thus stood out, regardless of construal level.

Regarding the first point, it cannot be said with certainty, that design and warranty period appeal to desirability whereas battery life and user-friendliness appeal to feasibility. As mentioned in the section on construal level and aspects of desirability as well as feasibility, Pizzi et al. (2014) identified design as an aspect of desirability while Pfannenstiel and Chaparro (2015) identified ease of usage as an aspect of feasibility. User-friendliness comes close to the idea of

ease of usage and at least in cordless operation, a long battery life of a laptop should also add to the concept of feasibility, as it targets the mean used to reach an end state, i.e., being able to work for long hours, in order to finish a large piece of work. In contrast, it is not that easy to clearly identify the warranty period with desirability. For people high on anxiousness, this might be true but for the average person, the warranty period could also be an aspect of feasibility. After all, it targets the mean to reach an end goal, i.e., being able to comfortably get a replacement device to continue working without having to bother with buying a replacement oneself. Results from Lessard-Bonaventure and Chebat (2015) speak against this argument. Researching the willingness to pay for an extended warranty, they found that consumers are willing to pay more for a warranty if they do not touch the product. According to construal level theory, touching a product decreases psychological distance from the self to a minimum. Thus, construals of products should be on a relatively low level for touched products and on a relatively higher level for products not touched. Taking willingness to pay as an indicator for the personal importance of a warranty, these results can be interpreted such that higher construal level leads to a stronger preference for warranties, which is in line with the assumptions in the present study. However, this argumentation is speculative. Without a measure of perceived desirability and feasibility of the four product attributes, it is hard to draw firm conclusions. The lack of such a measure is a limitation of the present study.

Regarding the second point, the results suggest that battery life and user-friendliness were indeed very dominant over design and warranty period. With together 38.6% of participants indicating to prefer buying either product alternative 5 or 6, warranty period also seems to be a product attribute that is of importance to some participants, as this attribute was rated with four stars in both these product alternatives. At the same time, the two product alternatives also had

either battery life or user-friendliness rated with four stars. Taken together, it seems that battery life and user-friendliness were very dominant attributes. Maybe these two attributes are so important when purchasing a laptop, that even in high construal levels, they clearly outweigh warranty period and especially design. This is in line with the pattern emerging from participants' answers on the question how important each of the product attributes was for their decision. However, from the mean values of importance (Table 11) the large difference in impact on the purchase decision between the attributes does not become clear. The fact that the attributes used in the present study were not equally important represents another limitation of the study that might have contributed to the failure to obtain an effect of construal level on product choice, depending on desirability and feasibility concerns.

Problems with the product presentation.

There is a further possible explanation for the surprising result that participants in the two groups in this study didn't show a difference in product choice and also deviated from established choice patterns in the literature (Pfannenstiel & Chaparro, 2015). It could be that an aspect of the study unintentionally induced low-level construals in all participants. Such a factor must have been situated after the Behavior Identification Form, measuring differences in construal level, and before the measurement product choice. A possible candidate might be the way the product alternatives were presented. Pizzi et al. (2014) found that when choosing among several alternatives, the provision of attribute-based information leads to choices driven by desirability, while the provision of alternative-based information leads to choices driven by feasibility. This is because information on attributes is perceived to be rather abstract, leading people to envision consumption in the distant future, whereas information on alternatives is perceived to be rather concrete, leading people to envision consumption in the near future. For

the presentation of the product alternatives and the ratings of their attributes in the present study, it could be argued, that the design used resembled rather a comparison of alternatives than of attributes. Each individual product alternative was presented in a separate box, containing information on the product-specific rating of all four product attributes. In contrast, a presentation form focusing on a comparison of information on attributes would for example consist of a separate box for each product attribute, containing information on the rating of the respective attribute for all product alternatives. Thus, the format of the presentation of the product alternatives and the ratings of the product attributes could have induced a low construal level in all participants. Furthermore, Lamberton and Diehl (2013) found empirical support for their hypothesis that attribute-based assortments lead to lower construal levels as compared to benefit-based assortments. Similar to the previously reported findings of Pizzi et al. (2014), the argument behind this is that benefits refer to questions for reasons associated with high-level construals, while attributes refer to questions for means associated with low-level construals. Because the present study exclusively relied on ratings of product attributes as differences between the product alternatives, this also speaks for an activation of low construal levels in all participants due to the format of the product presentation. Future studies could avoid this problem by choosing another presentation format. For example, a grid with product alternatives in rows, attributes in columns (or vice versa) and the individual ratings in the resulting cells would avoid comparisons that focus on either product alternatives or product attributes. Furthermore, desirability attributes could be formulated as benefits, e.g., being able to start working immediately after booting and carry on for long hours in cordless operation instead of user-friendliness and battery life. In the present study, these shortcomings could have contributed to the failure to obtain an effect of construal level on product choice, depending on desirability

and feasibility concerns.

Study 4 – Construal Level and 0%-Credit Attractiveness

Study 4 investigates the influence of construal level on participants' preferences for credit offers with interest rates 0%, 1% and 2%. Building on the described literature on the zero-price effect (Shampanier et al., 2007), in a first step, the study aims to demonstrate an overly strong positive reaction towards 0% interest credits. The respective hypothesis reads as follows:

H1: The positive increase in credit evaluation between a 1%-interest credit and a 0%-interest credit is larger than the increase in credit evaluation between a 2%-interest credit and a 1%-interest credit.

Drawing on the described literature on the fit effect, people in a high construal level should experience a fit of their construal level and the number 0 in the 0%-interest credit offer. This should intensify their positive evaluation of the offer and thus lead to an increase in perceived attractiveness of 0%-interest credits as compared to people in a low construal level, who do not experience this fit effect. Thus, the respective hypothesis reads as follows:

H2: Participants in the high construal level condition evaluate a 0%-interest credit offer more positively than participants in the low construal condition.

The hypotheses were tested using a laboratory experiment on a hypothetical purchase situation.

Method.

Participants.

Data collection took place from June 23rd to 24th, 2014⁶. Participants were approached on the campus of a large German university. All participants were asked to take part in a study on

⁶ I would like to thank Julia Herzog, Omid Kamali Novin, Jan Guldner, Clemens Lotz, and Timo Buss for their help in the survey promotion and data collection.

“buying decisions and financing”. They were informed that they would get some candy as a token of appreciation. Furthermore, they could take part in a lottery where 10 winners would receive € 20.00 each.

From the original sample of 91 students who agreed to participate in this study, data from three participants was excluded for the following reasons: Two participants quit the study and one participant stated that her data should not be used in the analyses. The final sample included 88 participants. It consisted of 32 (36.4%) men and 56 women (63.6%) with an age between 18 and 36 years ($M = 23.19$, $Mdn_{Age} = 22$, $SD = 3.96$). Twenty-four (27.3%) participants stated that they already took a credit in the past. The median duration to complete the study was $Mdn_{Dur} = 11:25$ minutes.

Procedure.

A two-group between-subjects design was used in this study. The independent variable was construal level (high construal level or low construal level). The dependent variable was credit attractiveness.

When entering the lab, participants were seated individually at a computerized workplace and asked to start working on the study. All information was provided on screen. The allocation of participants to the two conditions in this study was random.

At the start, participants read the instructions for the study. The following construal level manipulation was an extended version of the manipulation used in study 1: Participants thought and wrote about why or how they would perform a given activity.

After the manipulation, participants were asked to imagine that they were about to buy a new laptop and planned to take a credit for that reason. This scenario served as a situational frame for the consecutive task in which they were asked to rate the attractiveness of three credit

offers that differed only with regard to their annual percentage rate.

Next, participants answered some questions on their financial knowledge as well as credit experience and stated whether and how many hours they worked during the week, before they completed the Behavior Identification Form (Vallacher & Wegner, 1989) as a manipulation check for construal level.

In the last part of the study, participants were asked for demographic information (gender, age, area of studies, duration of studies). Further, they were asked about the presumed aim of the study and whether their data could be used in the analyses.

Finally, the experimenter thanked the participants and offered some candy to them. Participants could write their email address on a piece of paper and put it in an opaque box to participate in a lottery and win one of 10 € 20.00 prizes. The winners of this lottery were contacted via the provided address after completion of the study.

Material.

Manipulation of construal level.

Construal level was manipulated building on the same mindset manipulation (Freitas et al., 2004) that was already used in study 1. As already noted in the respective method section, study 1 just used one of three parts of the original manipulation, because previous studies in related contexts (Petz & Buehler, 2012; Ülkümen & Cheema, 2011) demonstrated the success of this more efficient version of the manipulation. However, the shortened version did show mixed results of a successful manipulation of construal level in study 1. To make up for this shortcoming, the original manipulation by Freitas et al. (2004) was used in the present study. As such, the manipulation was threefold: In a first part, participants read a text on why or how a person might pursue a goal and what research found on the process. In the second part,

participants named three different ways how to reach a goal or three reasons why reaching this goal is important. In the last part, which was equivalent to the manipulation used in study 1, participants again named means or reasons, this time increasing or decreasing in the level of abstraction.

Regarding the first part, slight adaptations to the original text were made. In the original manipulation, satisfying course requirements was suggested as a reason to participate in a psychology experiment in the high construal level condition, and participating in an experiment was suggested as a mean to satisfy course requirements in the low construal level condition. Because the participants in the present study did not receive course credit for participation, the two chains of reasons and means were modified to fit participants' circumstances. In the high construal level condition, studying at the University of Cologne was used as a reason to ultimately find happiness in life, whereas in the low construal level condition, giving a presentation or passing an exam was used as a mean to ultimately find happiness in life. The modified texts that participants read are shown in Table 12. In the study, a German translation was presented. After participants read the text, they were referred to the next page of the study, containing the second part of the manipulation.

In this part, participants in the high construal level condition were asked to write down three goals in their life that were of personal relevance. Below each goal, they were asked to rate how much maintaining and improving their physical health would help them to reach this goal (1 = a little; 5 = a lot). In contrast, participants in the low construal level condition were asked to write down three means how they could maintain and improve their physical health. Below each mean, they were asked to rate how much their response would help them to maintain and improve their physical health (1 = a little; 5 = a lot).

Table 12
Information on Information Processing Mindsets

| High construal level condition | Low construal level condition |
|--|---|
| <p>For everything we do, there always is a reason why we do it. Moreover, we often can trace the causes of our behavior back to broad life-goals that we have. For example, you currently studying at the University of Cologne. Why are you doing this? Perhaps to learn something in an area that you want to know better. Why do you want to know more on this area? Perhaps you want to work in this area after graduating from the university. Why do you want to work in this area? Perhaps because you think that working in this area will be fun. Why is it important to you to have a job that is fun to do? Maybe because you are better at tasks if they are fun to do. And perhaps you wish to educate yourself and find a good job because you feel that doing so can bring you happiness in life.</p> <p>Research suggests that engaging in thought exercises like that above, in which one thinks about how one's actions relate to one's ultimate life goals, can improve people's life satisfaction. In this experiment, we are testing such a technique. This thought exercise is intended to focus your attention on why you do the things you do. For this thought exercise, please consider the following activity: 'improving and maintaining one's physical health.'</p> | <p>For everything we do, there always is a process of how we do it. Moreover, we often can follow our broad life-goals down to our very specific behaviors. For example, like most people, you probably hope to find happiness in life. How can you do this? Perhaps finding a good job, or being educated, can help. How can you do these things? Perhaps by earning a college degree. How do you earn a college degree? By satisfying course requirements. How do you satisfy course requirements? In some cases, you have to give a presentation or pass an exam.</p> <p>Research suggests that engaging in thought exercise like that above, in which one thinks about how one's ultimate life goals can be expressed through specific actions, can improve people's life satisfaction. In this experiment, we are testing such a technique. This thought exercise is intended to focus your attention on how you do the things you do. For this thought exercise, please consider the following activity: 'improving and maintaining one's physical health.'</p> |

Note. Text adapted from "The Influence of Abstract and Concrete Mindsets on Anticipating and Guiding Others' Self-Regulatory Efforts" by A. L. Freitas, P. Gollwitzer & Y. Trope, 2004, *Journal of Experimental Social Psychology*, 40, p. 743.

Making participants think about abstract goals (high construal level condition) or concrete means (low construal level condition) was also the idea behind the third part of the manipulation. As in study 1, participants in both conditions completed a diagram similar to the one shown in Figure 1. However, the present study used 'maintaining and improving one's physical health' as a starting point for the diagram. The data from study 1 showed that many

participants did not follow the instructions to enter their answers in the boxes in the prescribed order in the high construal level condition (bottom to top). Furthermore, many participants gave answers that were not related to the preceding answer (i.e. not being more abstract or concrete but suggesting alternatives to the previous answer instead). In order to ensure that participants understood the instructions on how to complete the diagram properly, the present study used an example of an already complete diagram next to the one that the participants had to complete.

Situational frame.

Participants read a scenario concerning a specific buying decision situation and were asked to imagine themselves in the described situation. Specifically, they were told that their laptop was no longer working and they intended to buy a new one. They were told that they went to an electronics market to replace the broken laptop. To finance the new laptop, they could take up a credit with a duration of 24 months. This information served as a situational frame for the consecutive three credit offers for the new laptop.

Credit presentation and credit attractiveness.

On each of the following pages, one of a total of three credit offers was presented. To control for potential order effects, half of the participants saw the offers in ascending order with regard to the annual interest rate and half of the participants saw the products in descending order. At the top of each page, the scenario was presented again. Directly below, each credit was described as follows: “The annual percentage rate for this credit offer is x% per year. For every 100€ of credit, x€ of interest payment would accrue per year.” The credit offers varied with respect to the annual interest rate and the yearly interest payments respectively, taking the numbers 2, 1 and 0.

Below each credit offer, participants were asked to evaluate the respective offer by

answering three questions. The questions read “How attractive do you find this credit offer?” (1 = not at all attractive; 7 = very attractive), “How likely is it that you take this credit offer?” (1 = not at all likely; 7 = very likely), and “How would it feel to take this credit offer?” (1 = not at all good; 7 = very good). Credit attractiveness was computed as the mean value of the three questions. Cronbach’s alpha ranged between $\alpha = .79$ and $\alpha = .83$ for the three credit offers.

Financial situation and working hours.

Next, participants rated the level of their financial education (1 = very low; 7 = very high), stated whether they already took a credit in the past and if / how many hours they worked per week next to their studies.

Manipulation check.

As a manipulation check the behavior manipulation form (Vallacher & Wegner, 1989) was used. The order in which participants were presented with the questions in this form was identical with the order in the original presentation of the measure. As in studies 1 and 3, the answers to the questions in the form – with concrete ones coded as 0 and abstract ones coded as 1 – were summed up to form an index ($\alpha = .77$), with higher values indicating a higher construal level.

Control variables.

In the final section, participants were asked how easy they found it to immerse into the given scenario (1 = not at all easy; 7 = very easy) that served as a situational frame in this study. Also, they were asked to remember the annual percentage rates of the credit offers to check whether participants paid attention to this crucial aspect of the study. Furthermore, the question for data usability from Meade and Craig (2012) that was described in study 1 was used again to identify participants who preferred their data not to be analyzed. Lastly, they were asked about

the presumed aim of the study.

Results.

Preliminary analysis.

Manipulation check.

In a first step, participants' score on the Behavior Identification Form (Vallacher & Wegner, 1989) was analyzed to see whether the manipulation of construal level was successful. An independent-samples t-test indicated that participants in the high construal level condition ($M = 15.96$, $SD = 4.23$) did not score significantly higher on the Behavior Identification Form than participants in the low construal level condition ($M = 17.14$, $SD = 4.30$), $t(86) = 1.30$, $p = .197$. Therefore, it must be assumed that the manipulation of construal level was not successful.

Descriptives.

Means, standard deviations, correlation coefficients and reliabilities for the variables in this study are shown in Table 13.

Table 13
Means, Standard Deviations, Correlation Coefficients and Reliabilities for the Variables in the Analyses

| Measure | <i>M</i> | <i>SD</i> | 1 | 2 | 3 | 4 | 5 | 6 |
|--|----------|-----------|-------|-------|------|------|------|---|
| 1. Attractiveness 2%-credit offer ^a | 3.43 | 1.51 | .82 | | | | | |
| 2. Attractiveness 1%-credit offer ^a | 4.06 | 1.51 | .91** | .79 | | | | |
| 3. Attractiveness 0%-credit offer ^a | 4.92 | 1.71 | .73** | .82** | .83 | | | |
| 4. Behavior Identification Form score ^b | 16.55 | 4.18 | -.07 | -.09 | .01 | .77 | | |
| 5. Financial education ^a | 4.19 | 1.28 | -.10 | -.09 | -.07 | .09 | - | |
| 6. Ease of imagination ^a | 5.18 | 1.47 | .05 | .01 | .08 | -.06 | .23* | - |

Note. $N = 88$. The diagonal displays Cronbach's α for the respective scale.

^aScale range: 1 to 7. ^bScale range: 0 to 25.

* $p < .05$. ** $p < .001$.

On average, participants rated the 0%-interest credit ($M = 4.92$, $SD = 1.71$) most attractive and the 2%-interest credit least attractive out of the three offers ($M = 3.43$, $SD = 1.51$), showing a preference for lower interest rates. All credit offers' ratings were strongly correlated ($r = .73$, $N = 88$, $p < .001$ to $r = .91$, $N = 88$, $p < .001$). Participants rated their financial education on average with $M = 4.19$ ($SD = 1.28$) and did not seem to have problems imagining themselves in the scenario that was described in the study ($M = 5.18$, $SD = 1.47$). These two variables were correlated, such that participants with higher financial education could imagine themselves in the situation more easily, $r = .23$, $N = 88$, $p = .034$.

Main analysis.

Participants' ratings of credit attractiveness, split up for the two conditions of the construal level manipulation are shown in Table 14.

A mixed analysis of variance (ANOVA) was conducted to test the hypotheses that the positive increase in credit evaluation between the 1%-interest credit and the 0%-interest credit is larger than the increase in credit evaluation between the 2%-interest credit and the 1%-interest credit as well as that participants in the high construal level condition would rate credit attractiveness for the 0%-interest credit higher as compared to participants in the low construal level condition. The dependent variable was credit attractiveness. The independent variables were construal level (between subjects) and credit offer (within subjects). Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(2) = 43.21$, $p < .001$), therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = 0.72$). There was no main effect of construal level, $F(1, 86) = 1.60$, $p = .210$. However, there was a significant main effect of credit offer on credit attractiveness, $V = 0.63$, $F(1.43, 122.99) = 106.23$, $p < .001$. The interaction between the two factors was not significant, $F(1.43,$

Table 14
Sample Sizes and Offer Specific Means and Standard Deviations of Credit Attractiveness

| Product | Low construal level ($n = 44$) | | High construal level ($n = 44$) | |
|--------------------------|----------------------------------|-----------|-----------------------------------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| 2%-interest credit offer | 3.11 | 1.23 | 3.75 | 3.43 |
| 1%-interest credit offer | 3.86 | 1.36 | 4.26 | 4.06 |
| 0%-interest credit offer | 4.85 | 1.61 | 4.99 | 4.92 |

Note. $N = 88$.

122.99) = 2.96, $p = .073$. Regarding the descriptive results, participants in the high construal level condition ($M = 4.33$, $SD = 1.64$) rated credit attractiveness similar to participants in the low construal level condition ($M = 3.94$, $SD = 1.28$). Regarding the main effect of credit offer, within-subjects contrasts revealed a linear trend, $F(1, 86) = 138.36$, $p < .001$. The quadratic term was not significant, $F(1, 86) = 3.65$, $p = .060$. Thus, both hypotheses have to be rejected.

Exploratory analyses.

Potential problems with the manipulation.

As already noted, there was no significant difference in the score on the Behavior Identification Form between the low construal level condition and the high construal level condition. In contrast to study 3, participants in the present study completed the Behavior Identification Form after the measurement of the dependent variables. Therefore, it is possible that the manipulation of construal level was successful but did only last for a limited time. However, given the effect duration of the manipulation in previous research (e.g., Chiou et al., 2013; Sanna et al., 2009) it seems unlikely, that there was an effect of the manipulation but that it did not last long enough to influence answers on the Behavior Identification Form. Therefore, it must be assumed that the manipulation of construal level was not successful. This might explain why the analyses in the previous section did not show any significant effects of construal level

on the dependent variables. However, in order to explore the hypotheses in a different way, the analyses were run again with a focus on differences between participants who scored either high or low on the Behavior Identification Form. As in study 3, participants were allocated into two groups via a median split on the score on the Behavior Identification Form. In the low score group, participants score averaged $M = 12.95$ ($SD = 2.73$) compared to $M = 19.98$ ($SD = 2.12$) in the high score group.

As in the main analysis, a mixed ANOVA was conducted to test the hypotheses. The only change to the above described model consisted in the newly generated condition variable that was generated from the score on the Behavior Identification Form, which served as the between subjects factor. Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(2) = 44.42, p < .001$), therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = 0.71$). There was no main effect of this new indicator of construal level, $F(1, 86) = 0.14, p = .706$. As in the main analysis, there was a significant main effect of credit offer on credit attractiveness, $F(1.42, 122.25) = 102.74, p < .001$. The interaction between the two factors was not significant, $F(1.42, 122.25) = 0.25, p = .700$. Regarding the descriptive results, participants in the high construal level condition ($M = 4.08, SD = 1.32$) rated credit attractiveness similar to participants in the low construal level condition ($M = 4.20, SD = 1.59$). Regarding the main effect of credit offer, within-subjects contrasts revealed a linear trend, $F(1, 86) = 132.44, p < .001$. The quadratic term was not significant, $F(1, 86) = 3.61, p = .061$.

In line with the results from the main analysis, these findings reject the hypotheses that the positive increase in credit evaluation between the 1%-interest credit and the 0%-interest credit is larger than the increase in credit evaluation between the 2%-interest credit and the 1%-interest credit as well as that participants in the high construal level condition would rate credit

attractiveness for the 0%-interest credit higher as compared to participants in the low construal level condition.

Discussion.

The purpose of the present study was to extend research on consumer credit decisions by replicating the zero-price effect (Shampanier et al., 2007) in the domain of 0%-interest credits. Furthermore, it focused on the question whether this effect is even stronger in a high construal level, when there is a fit between the abstract nature of 0 and consumers' abstract mental processing style. To this end, a laboratory experiment was conducted in which participants' construal level was manipulated to be either high or low. They then had to evaluate credit offers with 2%, 1%, and 0% interest for a hypothetical purchase decision.

In contrast to the respective hypothesis, the positive increase in credit evaluation between the 1%-interest credit and the 0%-interest credit was similar to the increase in credit evaluation between the 2%-interest credit and the 1%-interest credit. Thus, the zero-price effect could not be replicated in the domain of 0%-interest credits. Furthermore, the hypothesis that participants in the high construal level condition evaluate the 0%-interest credit offer more positively than participants in the low construal condition had to be rejected as well, based on the empirical results.

Regarding the results of the manipulation check, the manipulation of construal level used in the present study was not successful. This is surprising because previous studies in related contexts (Peetz & Buehler, 2012; Ülkümen & Cheema, 2011) demonstrated the success even of a leaner version of the manipulation. Thus, the present use of the original version (Freitas et al., 2004) should have ensured the presence of a significant difference in construal levels between the two conditions. The fact that this did not show in the manipulation check can be explained in

two ways. First, it is possible that the manipulation of construal level didn't induce significantly different construal levels. As stated above, this is rather unlikely, as it is a commonly used manipulation with many studies confirming its impact (Gilead et al., 2014). Second, it is possible that the manipulation was in fact successful but that the manipulation check did not react to the difference in construal level. This is also rather unlikely, because the Behavior Identification Form was frequently used as a manipulation check for construal level, demonstrating a good responsiveness (e.g., Krüger et al., 2014). Also, the measurement of the dependent variables took rather little time and was directly followed by the manipulation check. Thus, a too long time period in between the manipulation of construal level and the manipulation check can be excluded as a potential reason for the present results. In sum, it remains unclear, whether the manipulation of construal level didn't induce significantly different construal levels or whether the manipulation check did not react to the difference in construal level.

The present study analyzed the influence of construal level on credit attractiveness in two ways: First, focusing on the two experimental conditions from the construal level manipulation and second, focusing on the stable difference as measured by the Behavior Identification Form. Both analyses found no effect of construal level on credit attractiveness. This suggests that beyond rather technical aspects the underlying theoretical assumptions might be wrong. This possibility is further discussed in the following section.

General Discussion on Part II

To recapitulate, both studies aimed to extend research on construal level theory in the consumer credit context by focusing on 0%-interest credits as a new form of credit offers. Study 3 investigated whether the prominent display of the number 0 induces a higher construal level than positive numbers, and whether the resulting difference in construal level leads to different

product preferences, when making a credit financed purchase. Study 4 investigated the influence of construal level on participants' preferences for credit offers with interest rates of 0%, 1% and 2%. The study focused on a replication of the zero-price effect in the credit domain – an overly strong positive reaction towards 0% interest credits – and a fit effect between high construal level and the abstract nature of 0 that would increase the attractiveness of 0%-interest credit offers. The manipulations in both studies did not work as expected. A measure of construal level constructed from the score of the Behavior Identification Form was used to run additional analyses, despite the fact that the manipulations did not induce the desired effects. All hypotheses around the abstract nature of 0 and its effect on credit-related decisions had to be rejected based on the empirical results.

What does this mean for the guiding idea of this section that 0 is more abstract than positive numbers and that this difference in abstraction influences credit decisions? As noted in the discussion section of study 3, there is still room for interpretations in favor of this idea and despite the discouraging results. The reported problems with mainly the presentation of credit and product alternatives offer explanations for the missing empirical support of the hypotheses that are different from a non-existent difference in abstraction between 0 and positive numbers. However, with competing explanations, it remains unclear what exactly led to the results in the present form. Study 4 also suffered from problems around the manipulation of construal level. However, the analyses indicated that it is rather unlikely that the insignificance of the results can be traced back solely to these flaws. Instead, the results suggest that there is no connection between construal level and credit attractiveness regarding the special case of 0%-interest credit offers. Overall the two studies presented here failed to deliver convincing evidence for the abstract nature of 0 and its implications for credit decisions. While the theoretical arguments for

the relative abstractness of 0 are persuasive, empirical support is lacking. Thus, the possibility that 0%-interest credits are perceived and processed like any other credit offer with a positive annual percentage rate cannot be excluded. Maybe the special context of annual percentage rates renders 0 rather practical and clear instead of abstract. Generally, research found that people underestimate the time it takes to repay a credit (Overton & MacFadyen, 1998; Ranyard & Craig, 1993) and argues that one reason is peoples' low understanding of compound interest (Lusardi & Mitchell, 2007). Against this background, an annual percentage rate of 0 is a very clear information because unlike a positive figure it implies that no costs incur from interest. By abandoning the need to make calculations regarding compound effects it could be that this context counteracts a potentially abstract nature of 0 when dissociated from any contextual information.

Nevertheless, this would not explain the absence of an effect of 0 without contextual information on construal level as observed in study 3 before the measurement of the dependent variables. Thus, the relation of 0 as a relatively abstract number and construal level remains somewhat unclear, despite the fact that such a relation seems to be absent in the credit context. Future studies might nevertheless benefit from the points raised in the individual discussion sections, in order to design further experiments for more sophisticated tests on the nature of 0.

Part III – System 1 and System 2 Processing of 0%-Credits

The main purpose of this third part of the thesis is to extend research on 0%-interest credit choice by examining credit attractiveness under System 1 and System 2 processing. To this end, laboratory experiments were conducted in which System 1 / 2 processing was manipulated using either cognitive load manipulations (studies 5 and 6) or an information processing mindset manipulation (study 7).

Throughout the last decades, dual process theories have greatly influenced social cognition research (e.g., Fiske & Taylor, 2013; Nosek, Hawkins, & Frazier, 2011; Sherman, Gawronski, & Trope, 2014). The term describes a variety of theories that postulate different modes of information processing used to make decisions or form judgements. As a central assumption, information processing is said to be either intuitive or deliberate (Evans & Stanovich, 2013). While earlier theories aimed mainly to explain specific phenomena like attitude-behavior relations (Ajzen & Fishbein, 2000) or stereotyping (Blair & Banaji, 1996), more recent models are characterized by rather broad applicability (Strack, Werth, & Deutsch, 2006). The following subsections will first outline the core ideas behind dual process theories, followed by an in-depth presentation of System 1 / 2 information processing as the specific theoretical framework used in the present studies. A final subsection will concentrate on different ways to manipulate System 1 / 2 information processing, before the actual studies are presented. Hypotheses are derived from the theoretical background and introduced individually with each study.

Dual Process Theories

The central idea to all dual process theories is that there are two kinds of cognitive information processing: Intuitive processing and deliberate processing (Evans & Stanovich, 2013).

Intuitive in this context means that information is processed automatically as opposed to controlled. As such, intuitive processing can be triggered without the intention to do so and often happens without the person being aware of the process. Furthermore, cognitive resources are preserved in this kind of information processing (Gawronski & Creighton, 2013). While it is possible that all these features are present in a given instance of intuitive processing, this does

not necessarily have to be the case. For example, in some situations the person may be aware that she is using a fast and frugal heuristic (Gigerenzer & Todd, 1999) such that only the low amount of cognitive resources associated with such a heuristic characterizes the intuitive processing.

This can be clarified using an example of a person who wants to find out how long it will take to pay off her overdraft credit of € 5,000 with an annual interest rate of 12%⁷. Wanting to repay € 100 per month and relying on a heuristic, the person could divide the outstanding credit by the monthly payment and adjust the result by some month to adjust for the interest charges. This is likely to yield a result of about 56 months. In such a situation, the person is well aware of the fact that she is using a rule of thumb to come up with an estimation for the question at hand. However, it is also possible to think of other situations in which the person is not aware of her intuitive processing, e.g., in case of stereotype-congruent evaluations of ambiguous behavior (Devine, 1989).

In contrast, deliberate processing means that information is processed in a controlled and reflective way. As such, deliberate processing is intentional and therefore requires the person to be aware of the process. Furthermore, such processing relies on the availability of cognitive resources because the reasoning is cognitively effortful (Gawronski & Creighton, 2013). In contrast to intuitive processing, all these features are present in a given instance of deliberate processing: It is not possible to actively process information in a controlled way without being aware of this or without using cognitive resources. As an example for deliberate processing, the credit repayment situation described above can be used again. However, this time the person thinks about a formula to calculate the time needed to repay the overdraft, uses all information in a structured way and calculates the result of 69 months. While this is the correct result, deliberate

⁷ According to Stiftung Warentest (2013), an independent organization investigating and comparing goods and services, this represents a common interest rate for overdraft credits in Germany.

processing can also lead to wrong outcomes (e.g., if the person uses the wrong formula).

System 1 / 2 Information Processing

In an attempt to integrate previous research on dual-process theories (e.g., Klein, 1998; Hammond, 1996; Sloman, 1996; Epstein, 1994; Pollock, 1989), Stanovich (1999) introduced the labels System 1 for intuitive processing and System 2 for deliberate processing. Instead of a distinct definition, these labels each encompass a set of properties, describing the underlying cognitive processes. While System 1 processing is characterized to be associative, holistic, automatic, undemanding of cognitive capacity and fast, System 2 processing is characterized to be rule-based, analytic, controlled, demanding of cognitive capacity and slow (Stanovich, 1999). More recently, additional attributes associated with System 1 / 2 have been identified regarding consciousness (e.g., default process vs. inhibitory), evolution (e.g., shared with animals vs. uniquely human), functional characteristics (e.g., stereotypical vs. egalitarian) and individual differences (e.g., independent of general intelligence vs. linked to general intelligence) (Evans, 2008).

While discovering more and more characteristics for either System 1 or System 2 processing helps to understand the two underlying concepts, this is also a subject to criticism. Keren and Schul (2009), for example, raised the question whether the large amount of binary attributes could really be combined in such a way that they support the notion of exactly two modes of processing. Put differently, they assumed that some System 1 characteristics could also be seen together with some System 2 processing characteristics, leading to modes of processing that are neither System 1 nor System 2. While Evans and Stanovich (2013) do not respond to the point of mixed modes, they clarify that the terms System 1 and System 2 refer in fact to multiple forms of intuitive or deliberate processing that are grouped under the respective heading (e.g.,

Stanovich, 2011). The fact that both System 1 and System 2 processing are associated with a clear and distinct pattern of neural activation (Liberman, 2007) supports this interpretation.

Some older as well as more recent theories under the umbrella of dual processes assume that intuitive and deliberate processing proceed in parallel (e.g., cognitive-experiential self-theory (Epstein, 1994); reflective-impulsive model of social behavior (Deutsch & Strack, 2006)). In this view, two simultaneously operating information processing systems compete for control over a judgement, decision or behavior, with the possibility to interact at several processing steps. In contrast to this view, System 1 / 2 information processing proposes a default-interventionist structure (Evans, 2007). System 1 processing automatically leads to an intuitive default response in any given situation. While this represents the final response in some situations, others trigger the use of System 2 processing that may lead to another response, altering or overriding the System 1 processing response.

Research on System 1 / 2 Information Processing in Economic Contexts

While initial applications of dual-process theories focused on classical themes of social psychology, more recent studies also utilized the theories in the area of individual economic judgement and decision making. For example, in an online shopping context, Roghanizad and Neufeld (2015) found that consumers assessing website trustworthiness tend to rely more on System 1 processing as opposed to System 2 processing when the purchase situation involves ambiguity and risk. Related to this area of application, Zhang, Zhao, Cheung, and Lee (2014) identified source credibility and quantity of online consumer reviews as System 1 processing cues whereas they identified argument quality in online consumer reviews as a System 2 processing cue, influencing purchase decisions. Independent from other people's opinions, features of the product itself are related to processing modes as well. For example, Bradu,

Orquin, and Thøgersen (2014) investigated the impact of traceability labels printed on chocolate bars on willingness to buy the product and found that this product feature is processed relying on System 1 instead of System 2 processing. On a general level, involvement with the product is highly correlated with System 2 processing (Arens & Rust, 2012). According to Hochman, Ayal, and Ariely (2015), System 2 processing should lead to less self-centered behavior. Using an ultimatum game framework, they were able to show that System 1 processing led to higher priority of information on the personal utility and stronger personal utility driven behavior than System 2 processing.

System 1 / 2 Information Processing in Credit Research

To the best knowledge of the author of the present thesis, there is no study that introduces System 1 / 2 information processing (or any other dual process theory) to the area of consumer credit research. Given the huge impact of the theory on other fields, this is quite surprising. Nevertheless, there is some research on the use of heuristics in credit decision-making that will be presented here.

Kidwell and Jewell (2008) investigated the influence of past credit experience on credit card acquisition. They found that participants who were less experienced were more likely to mobilize cognitive resources and deliberate about acquiring the credit as compared to participants who were more experienced and hence rather just followed their attitude towards acquiring the credit card. Ranyard et al. (2006) asked participants to imagine wanting to buy a relatively inexpensive (a washing machine for £400) or a relatively expensive (a used car for £2700) good on credit. Several credit alternatives were presented about which the participants could ask questions before having to make a decision for one of the alternatives. The study showed that most participants did not ask for all pieces of information to make an informed

decision. Instead, many just asked for the annual interest rate (APR) or based their decision for a specific credit alternative just on this feature of the credit, even if they asked for other pieces of information as well. This was especially true for the scenario with the relatively cheap product, implying that smaller financial consequences might promote the use of this single-attribute choice heuristic that Ranyard et al. (2006) termed ‘take the best APR’-heuristic.

After taking up a credit, the repayment period starts either directly or with a time-delay. In any case, consumers should know how long it is going to take them to pay back the credit including interest fees and other costs. Despite the importance of this knowledge, Overton and MacFadyen (1998) found that about one third of the participants in a study on underestimations of loan burdens did not calculate the repayment period but relied on guessing it. This led to relatively large underestimations of the repayment period. One possible explanation that is also backed by the results of Soll et al. (2013) would be that the participants who refrained from precise calculating relied on a heuristic similar to the one described above (dividing the outstanding credit by the monthly payment and adjusting the result by some months to account for the interest charges).

Taken together, the results suggest that heuristic processing of credit aspects focuses strongly on the interest rate. Consumers seem to interpret this credit detail as an indicator of the credit quality (Ranyard et al., 2006) when deciding about credit take-up. Afterwards, heuristic processing puts a strong emphasis on the interest rate when it comes to basic repayment considerations (Soll et al., 2013). Other aspects are rather neglected or considered to a smaller extent. This prominent role of interest rates is especially interesting for 0%-interest credit offers. In such cases, heuristic processing (i.e. System 1 processing) emphasizes a particularly favorable aspect of the credit offer that does not necessarily reflect other aspects of the credit. For example,

many 0%-interest credit offers come with additional early repayment fees or a mandatory expensive default insurance. Focusing one's attention on only one aspect can lead to a biased picture of the offer. On the contrary, System 2 processing should lead to a more comprehensive analysis of credit offers. Relying on System 2 information processing, people should take more aspects of the credit into account and integrate them according to weighting rules into a more holistic evaluation of the offer. Because an interest rate of 0% is already the best form of this credit aspect, other credit aspects can only take a worse form. For example, the monthly installment rate cannot be € 0,00 and the repayment duration cannot be 0 months, because it would not be possible to repay the credit in such a case. Therefore, integrating several credit aspects into an overall picture of a 0%-interest credit can never lead to a more favorable evaluation than the isolated consideration of the 0%-interest rate. Given this, System 1 information processing is assumed to lead to better evaluations of 0%-interest credit offers as compared to System 2 information processing.

Manipulating System 1 / 2 Information Processing

Studies on System 1 / 2 information processing can be grouped in three categories.

The first category comprises studies that assess individual differences in System 1 / 2 information processing using performance measures. The most widely used tool in this domain is the cognitive reflection test (Frederick, 2005; see Primi, Morsanyi, Chiesi, Donati, & Hamilton, 2016 and Toplak, West, & Stanovich, 2014 for newer versions). It tests whether participants follow an intuitive but incorrect response or whether they reflect deliberately to arrive at the correct response. The cognitive reflection test is seen as a good performance predictor for classic heuristics-and-biases tasks (Toplak, West, & Stanovich, 2011) and was widely used as an indicator for System 1 / 2 information processing in the area of economic decision making (e.g.,

Alós-Ferrer & Hügelschäfer, 2016; Calvillo & Burgeno, 2015; Corgnet, Espín, & Hernández-González, 2015).

The second category comprises studies that assess individual or situational differences in System 1 / 2 information processing using neural imaging methodology. Using mostly functional magnetic resonance imaging to observe brain activity via the blood flow and repetitive transcranial magnetic stimulation to temporarily deactivate brain areas, studies in this category tend to map System 1 and System 2 processing to different neural systems. Results from this area consistently show that decisions are the outcome of an interplay of different neuronal systems instead of being the result of a consistent data processing entity (Brocas, & Carrillo, 2014; Liberman, 2007). However, some brain areas are more strongly associated with either System 1 or with System 2 information processing. For example, it was shown that the left inferior frontal gyrus is more strongly linked to System 1 processing, while the bilateral superior parietal lobules is more strongly linked to System 2 processing (Tsujii & Sakatani, 2012; Tsujii, Sakatani, Masuda, Akiyama, & Watanabe, 2011). Nevertheless, a direct one-to-one translation of System 1 / 2 information processing to neural systems might be too simplistic (Klein, 2011).

The third category comprises studies that experimentally manipulate System 1 / 2 information processing. Usually, this is done either by instructing participants to use System 1 processing or System 2 processing or by inhibiting the use of System 2 processing through the tasks or the setting of the study.

One way to inhibit the use of System 2 processing is to use time pressure in a given task (Evans & Curtis-Holmes, 2005; Furlan, Agnoli, & Reyna, 2016). Processing information in a deliberate and effortful way requires the availability of working memory resources but also the time needed to make use of these resources. Time pressure therefore limits a person's ability to

rely on System 2 processing. Thus, decisions under time pressure are more strongly driven by System 1 processing which is often automatic and therefore requires less time.

Another way to inhibit the use of System 2 processing is to limit available working memory capacity in a given task (De Neys, Schaeken, & d'Ydewalle, 2005; Whitney, Rinehart, & Hinson, 2008). One approach is to have participants store information in their short term memory so that less of this resource is available for the primary task in an experiment. For example, some studies asked participants to remember a list of letters or digits. In the System 1 information processing condition, the list consisted just of one or very few different letters or digits (e.g., FFFFFFF) while in the System 2 information processing condition, the list consisted of many or entirely different letters or digits (e.g., FLPHRT). The primary task of interest in a given study is then situated between the presentation of the list of letters or digits and a recall question. The idea is that memorizing a list of one or few different letters or digits leaves more working memory capacity for the primary task as compared to memorizing a list of many or entirely different letters or digits. The recall question can take various forms. Mostly, participants are asked to recall one specific element (e.g., the number to the right of 5 in a sequence 25341; Hinson, Jameson, & Whitney, 2002), recall whether a given letter or digit was part of the list (Dittrich & Stahl, 2012), or recall the whole list (Kessler & Meier, 2014). Besides from memorizing a list of letters or digits, some studies also used variants of tasks where participants had to memorize a sequence of symbols (Van den Bos, Peters, Bobocel, & Ybema, 2006), specific dot patterns (De Neys, 2006; Nagel et al., 2009), a series of art slides (Ward & Mann, 2000) or other elements (Milinski & Wedekind, 1998; Gilbert, Pelham, & Krull, 1988).

Inhibiting the use of System 2 processing by limiting available working memory capacity is also the idea behind the n-back task (Gevins & Cutillo, 1993). Here, participants have to

monitor a sequence of individually presented stimuli and press a key whenever the current stimulus is identical to the stimulus presented n trials back. Because this requires monitoring, updating and manipulation of information, the n -back task is suited to impose higher cognitive load than memory tasks like the one described above. In a 0-back variant, a participant would just have to respond to a current stimulus that equals a preset target, thus leaving enough working memory to engage in System 2 processing in a simultaneous task. In a 2-back variant, the task requires much more working memory, because the participant has to memorize the previous two stimuli, compare the current stimuli with the one presented two trials before and then update her information on the previous two stimuli, as the next trial starts. Thus, much less working memory can be used in a simultaneous task, therefore making use of System 1 processing more likely. The stimuli can consist of numbers (Callicott et al., 1999), letters (Ragland et al., 2002), words (Kim et al., 2002), shapes (Hautzel et al., 2002), or other entities (Druzgal & D'Esposito, 2001) and be presented in a spatial (Carlson et al., 1998) or verbal fashion (Rämä et al., 2001), contributing to the broad applicability of the n -back task (Owen, McMillan, Laird, & Bullmore, 2005).

Another way to experimentally manipulate System 1 / 2 information processing relies rather on mindset manipulations instead of limiting working memory. Hsee and Rottenstreich (2004) found that asking participants to solve math problems (e.g. "If an object travels at five feet per minute, then by your calculations how many feet will it travel in 360 seconds?" p.24) led them to System 2 processing in a subsequent task, while asking them to describe their feelings (e.g., When you hear the name 'George W. Bush', what do you feel? Please use one word to describe your predominant feeling." p.24) led them to System 1 processing in a subsequent task. Other studies successfully replicated this method (Small, Loewenstein, & Slovic, 2007) or

similar variations like including either System 1-related words or System 2-related words in the instructions for a given task (Zhong, 2011). While such priming-based mindset manipulations are rather subtle, Skarlicki and Rupp (2010) openly asked their participants to either use a System 1 processing frame or a System 2 processing frame, emphasizing either rational evaluations and objective analysis or intuition and gut feelings. Van den Bos and Maas (2009) developed a mindset manipulation that combines these two elements. In essence, they asked their participants to answer questions on a described situation but also to either use a System 1 processing frame or a System 2 processing frame in doing so.

The following studies will concentrate on the last category of experimental manipulations of System 1 / 2 information processing, in order to benefit from the advantages of experimental designs (Wampold, 2006). Studies 5 and 6 will use cognitive load as a mean of manipulating System 1 / 2 information processing via the availability of working memory. Study 7 will use a mindset manipulation targeting information processing style directly.

Hedonic and Utilitarian Qualities in Credit Financed Purchases

Next to information processing, the product that is to be financed should be important in credit decisions. After all, it represents the reason why people even start to think about spending money and in particular using credit in a given instance.

One way to characterize products is by focusing on their utilitarian and hedonic qualities. Utilitarian products fulfil at least one specific function. In many cases, that renders the product's usefulness stable over time. For example, a lawnmower fulfils its function equally well when using it for the first or 97th time. In contrast, hedonic products provide pleasure and fun. Because people adapt quickly to these positive experiences (Wang, Novemsky, & Dhar, 2009), the provided pleasure decreases over time. For example, the first hour of playing on a new video

game console provides more pleasure than the 97th hour of playing. When consumers think about using a product in the future, they are aware of this difference between utilitarian and hedonic products (Mishra & Mishra, 2011). Thus, it could influence their choice, such that they rather buy utilitarian products on credit than hedonic products, because the thought of repaying a credit for a good that does not constantly fulfil the expectations that one has in the first place seems rather discouraging.

Similarly, Kivetz, and Simonson (2002) found that pain of payment – that is the perceived disutility of payment (Prelec & Loewenstein, 1998) – looms larger for hedonic goods than for utilitarian goods. They argue that this is because hedonic consumption is seen as not absolutely needed and is therefore harder to justify as compared to utilitarian consumption. This impeded justifiability might also be the reason why consumers are more reluctant of downstream payments for hedonic products than for utilitarian products (Prelec & Loewenstein, 1998).

When consumers nevertheless purchase both, hedonic and utilitarian products on credit, they show a preference for repaying hedonic debt faster than utilitarian debt (Besharat et al., 2015). The fact that this is even the case when a prioritization of non-hedonic debt repayment would be financially advantageous emphasizes the aversive character of hedonic debt. Thus, it can be assumed that people are less likely to purchase hedonic products on credit as compared to purchasing utilitarian products on credit.

However, adding System 1 / 2 information processing to the picture can lead to a more fine-grained view. There is no general preference for utilitarian over hedonic products. Instead, it is easier to justify utilitarian purchases as compared to hedonic purchases. This is why Diefenbach and Hassenzahl (2011) found that consumers in a buying scenario preferred a primarily utilitarian mobile phone over a primarily hedonic mobile phone. In contrast, when

information was provided that made hedonic attributes appear more legitimate, thereby enhancing justifiability, participants preferred the primarily hedonic mobile phone. So when the potential conflict of justifiability of hedonic purchases is resolved, people are in fact choosing hedonic over utilitarian alternatives. While all previously mentioned studies focus on deliberate decision making, that is System 2 processing, System 1 processing might offer another route to hedonic consumption. In System 1 processing, people do neither analyze costs and potential benefits nor do they consider long-term adaptation to positive experiences evoked by hedonic goods. Instead their response to a given stimulus is rather automatic, driven by affect and associations. In this light, it is very reasonable to assume that hedonic products evoke a stronger desire than utilitarian products. Seeing a video game console, the fun of playing a good game comes to mind. This is more appealing than seeing a lawn mower that might help to prevent the garden from evolving into a jungle but is rather associated with effort and loss of leisure time.

While this argument focuses on product preferences, it is easy to transfer the idea to credit attractiveness. To illustrate this, one can imagine a product that is advertised in combination with a 0%-interest credit offer. Relying on System 2 processing, consumers should be aware of the fact that the product to be financed is a different thing than the credit supposed to finance the product. Thus, consumers should be able to evaluate the product in isolation. If it appeals to them, they should evaluate the credit offer as a second thing that is not connected with the product. It follows that the question whether the product is a rather hedonic one or a rather utilitarian one does not influence the credit evaluation. Therefore, credit attractiveness is independent of the product type in case of System 2 processing. For System 1 processing, the procedure might differ substantially. The lack of working memory or the lack of motivation to engage in analytic processing should lead to consumers making a joint evaluation of the product

and the respective credit. Instead of separating both entities and analyzing them separately, it can be assumed that consumers perceive the bundle of product and credit as one entity. In such a case, credit attractiveness may also depend on the product type. As explained before, a video game console as a hedonic product evokes a stronger positive affective reaction than a lawn mower as a utilitarian product. This affective reaction could then manifest in a more positive rating of credit attractiveness. This way, System 1 processing should lead to higher credit attractiveness for hedonic products as compared to utilitarian products.

Study 5 – Evaluation of Credit Offers Under Number-Based Cognitive Load

Study 5 examines how different levels of cognitive load influence the evaluation of 0%-interest credit offers for everyday products. Drawing on the previously presented literature on System 1 / 2 information processing in economic decision-making and the theoretical considerations on the salience of the number 0, the hypothesis reads as follows:

H1: Evaluating 0%-interest credit offers for specific products under high cognitive load leads to higher credit attractiveness as compared to evaluating them under low cognitive load.

The hypothesis was tested using a laboratory experiment on hypothetical purchase opportunities.

Method.

Participants.

Data collection took place from November 10th to 13th, 2014⁸. Participants were approached on the campus of a large German university. All participants were asked to take part in a study on “information processing in the context of consumption decisions and 0%-financing”. They were informed that they could earn up to € 5.00, depending on their

⁸ I would like to thank Penghua Sun, Atar Herziger, Rufina Gafeeva, Jenny Maurer, Christian Brünger, and Michael Blens for their help in the survey promotion and data collection.

performance and that they could take part in a lottery where five winners would receive € 20.00 each.

From the original sample of 184 students who agreed to participate in this study, data from 6 participants was excluded for the following reasons: One participant failed to provide any data on the dependent variables and five participants stated that their data should not be used in the analyses. The final sample included 178 participants. It consisted of 63 (35.4%) men and 115 women (64.6%) with an age between 18 and 44 years ($M = 23.0$, $Mdn_{Age} = 22$, $SD = 4.3$). The median duration to complete the study was $Mdn_{Dur} = 29:47$ minutes and the median payout was $Mdn_{Pay} = € 3.25$, leading to an hourly earning equivalent of around € 6.50.

Procedure.

A two-group between-subjects design was used in this study. The independent variable was level of cognitive load (low load or high load). The dependent variable was credit attractiveness.

When entering the lab, participants were seated individually at a computerized workplace and asked to start working on the study. All information was provided on screen. The allocation of participants to the conditions in this study was random.

At the start, participants read the instructions for the study, learned about the payoffs from the tasks and completed an example. The example was included to familiarize participants with the somewhat complex design of the tasks in the study and to promote their understanding of the incentive scheme. Although they were not paid for their answers in the example, participants learned about their score from it and the money that they would have earned, immediately after completing it. They were then free to look at the instructions again to clarify any unclear points or to go on directly.

The main part of the study then consisted of two parallel tasks. While performing an evaluation task, participants were engaged in a cognitive load task at the same time. In the evaluation task, participants were presented with a product offer and a corresponding credit offer for this product. They were asked to evaluate the product offer and the credit offer. In the cognitive load task, participants were asked to pay attention to a sequence of digits that was read to them via headphones and to state afterwards whether a certain digit was included in the sequence. Correct answers on this task were incentivized.

The two tasks were combined in the following way: On a first page, participants saw the product and credit details and evaluated the product offer. Simultaneously, they were listening to the sequence of digits. A second page then asked whether a certain digit was included in the previous sequence. On a third page, participants again saw the product and credit details, only this time were asked to evaluate the credit offer. Again, they simultaneously listened to another sequence of digits. On a fourth page, they were then asked whether a certain digit was included in this second sequence. This scheme was repeated for 10 different products. To control for potential order effects, half of the participants saw the products in ascending price order and half of the participants saw the products in descending price order.

After this part of the study, participants worked on a recall task. A total of 10 incentivized questions were asking for the correct recall of details of the previously seen offers.

In the last part of the study, participants answered questions on the complexity of the offers, the relevance of the offered products and the understandability of the credit details. Furthermore, they provided information on the quality of their answers (Meade & Craig, 2012) and demographic information (gender, age, field of studies).

Finally, the experimenter thanked the participants, calculated their payout, and paid the

participants. Overall, they could get a maximum of 400 points. As 1 point translated into 1.25 euro cents, this equaled a maximum payout of € 5.00. After receiving their money, participants could write their email address on a piece of paper and put it in an opaque box to participate in a lottery and win one of five € 20.00 prizes. The winners of this lottery were contacted via the provided address after completion of the study.

Material.

Cognitive load.

Cognitive load was manipulated using a verbal-auditory task adapted from Dittrich and Stahl (2012). Participants listened to a sequence of nine digits ranging from 1 to 9 that was recorded by a male speaker. In the high load condition, this sequence consisted of six different digits, (e.g., 7 – 3 – 4 – 7 – 6 – 7 – 9 – 3 – 1) whereas in the low load condition, it consisted of three different digits (e.g., 9 – 3 – 4 – 3 – 9 – 4 – 9 – 3 – 9). The sequence was constructed such that every low load sequence consisted of a subset of the digits used in the high load sequence. Those digits that appeared in both sequences were always in the same position in both sequences (e.g., positions two, three, seven and eight in the above example). Furthermore, within every sequence, a maximum of two digits could appear in a directly ascending or descending order (e.g., 3 – 4, but not 2 – 3 – 4).

Participants heard one digit at the beginning of a 5-second interval, followed by silence for the remaining part of the interval. With the beginning of the next 5-second interval, they heard the next digit. Due to this, every sequence had a length of 45 seconds. Centered at the bottom of the screen, participants saw a countdown displaying the remaining time on the page in seconds.

At the end of this interval, the study automatically continued to the next page, where

participants were asked “Did the sequence that you just listened to contain the digit X?” For half of the sequences, the digit referred to in the question was part of the sequence and for the other half of the sequences the digit referred to in the question was not part of the sequence. Every correct answer earned participants 10 points, whereas an incorrect answer led to a deduction of 5 points. Over a total of 10 sequences parallel to the evaluation of product offers and another 10 sequences parallel to the evaluation of credit offers, they could earn a maximum of 200 points in this task.

Product and credit offer.

Participants were presented with a total of 10 products and credit offers. Each offer was presented on an individual page. To control for potential order effects, half of the participants saw the products in ascending price order, starting with a tablet PC for € 379, and half of the participants saw the products in descending price order, starting with a car for € 9,975. In any case, participants saw the same 10 products for the exact same prices in both conditions. The products used in this study were a tablet PC, a gaming console, a season ticket for the local soccer team, a couch, a holiday package, a surround sound system, a mountain bike, a skydiving license, a kitchen and a car. Each page with a product and a credit offer was set up in the same way: In the upper left corner of the screen, participants saw a picture of the respective product. In the upper right corner of the picture, they saw a red price tag that informed about the name of the product and its price. Below the picture, in the lower left corner of the screen, credit details were provided. A table contained information on the credit amount, annual percentage rate, credit period, amount of monthly installment rates, a one-time additional charge and dunning fees.

The credit amount always equaled the product price and the annual percentage rate was 0 percent for all products. Credit period was either 12, 18 or 24 months, amount of monthly

installment rates was calculated as credit amount divided by credit period and the one-time additional charge was either 2%, 3% or 4% of the credit amount, expressed in absolute numbers. The dunning fees were either € 0 or € 5. The random variation in credit period, one-time additional charge and dunning fees was predetermined and used for all participants. It served the purpose to make the offers more realistic. All specific details were in line with comparable real credit offers.

Product and credit evaluation.

Next to the product and credit offer, on the right side of the screen, participants were asked to evaluate the product and credit offer. The respective questions for the credit offer read “How attractive do you find the depicted financing possibility?” (1 = not at all attractive; 7 = very attractive), “To which extent does the depicted financing possibility meet your expectations?” (1 = not at all; 7 = completely), “How advantageous is the depicted financing possibility?” (1 = not at all advantageous; 7 = very advantageous) and “How likely is it that you take the depicted financing possibility?” (1 = not at all likely; 7 = very likely). The questions for the product had the same wording, except for the fact that they replaced “financing possibility” with “offer”. Asking for an evaluation of the product offer just served the purpose to disentangle this information from the evaluation of the credit offer. While the latter was the variable of interest, the former was of no further interest. Credit attractiveness was computed as the mean value of the four questions. Cronbach’s alpha ranged between $\alpha = .86$ and $\alpha = .90$ for the 10 products.

Recall task.

After evaluating all offers and completing the verbal-auditory task, participants answered 10 questions on the previously seen offers. Each question asked for the correct recall of either a

credit detail (e.g., “Which price range includes the one-time additional charge for the 0%-financing of the skydiving license?”) or a detail of the product to be financed (e.g., “What was *not* shown in the picture for the all-inclusive holiday?”). The random order of the questions was predetermined and exactly the same for all participants, regardless of whether they saw the products in ascending price order or descending price order. For every question participants had to select the correct answer out of four answer options. Every correct answer earned them 20 points, whereas an incorrect answer led to a deduction of 5 points. Over a total of 10 questions, they could earn a maximum of 200 points in this task.

By making it possible to earn exactly the same amount of points through the cognitive load task and the recall task, participants should have no incentive to focus their attention either solely on listening to the digit sequences or solely to the visual offers. Instead, they should have tried to pay attention to both tasks, because of the balanced incentive structure. Due to the fact that the dependent variables are subjective evaluations, there was no possibility to incentivize them directly. Incentivizing the attention paid to the offers was done to indirectly motivate participants to give meaningful answers to the evaluation questions.

Manipulation check and perceived purpose of the study.

To check whether the amount of cognitive capacity needed to perform the cognitive load task differed between the two conditions, participants were asked to state how much attention they had left for the evaluation of the product and credit offers while engaging in the cognitive load task (adapted from Allen, Edwards, Snyder, Makinson, & Hamby, 2014). Answers ranged from 1 = not much at all to 7 = very much. Furthermore, participants stated their beliefs about the purpose of the study.

Control variables.

Participants indicated how complex they perceived the tasks overall to be (1 = not at all complex to 7 = very complex). Furthermore, they stated the relevance of the offers for them personally (1 = not at all relevant to 7 = very relevant), to assess whether they could to some degree relate to the situation of evaluating products and credit offers. As a measure of quality for the evaluation of the credits, participants also indicated how understandable they perceived the details of the 0%-financing to be (1 = not at all understandable to 7 = very understandable).

In addition, measures from Meade and Craig (2012) were included to assess how much effort participants devoted to the study and whether their data should be used in the analyses. The questions read “How much effort did you put forth towards the tasks in this study?” (1 = not much at all to 7 = very much) and “How thoroughly did you work on the tasks in this study?” (1 = not much at all to 7 = very much). After this, participants answered the following question with either *Yes* or *No*: “Lastly, it is vital to our study that we only include responses from people that devoted their full attention to this study. Otherwise a lot of effort (the researchers’ and other participants’) could be wasted. In your opinion, can we use your data in our analyses?”

Results.

Preliminary analysis.

Manipulation checks.

In a first step, the questions on attention left for the evaluation task, and on task complexity were analyzed to see whether the manipulation of cognitive load was successful. An independent-samples t-test indicated that participants in the low load condition had significantly more attention left for the evaluation of the product and credit offers while engaging in the cognitive load task ($M = 4.52$, $SD = 1.68$) than participants in the high load condition ($M = 3.97$,

$SD = 1.66$), $t(176) = 2.20$, $p = .015$ (one-tailed). However, participants in the low load condition ($M = 5.14$, $SD = 1.38$) did not perceive the tasks to be significantly less complex as compared to participants in the high load condition ($M = 5.43$, $SD = 1.28$), $t(176) = 1.46$, $p = .073$ (one-tailed).

While the first result supports the claim of a successful manipulation of cognitive load, the latter casts doubt. Therefore, the scores from the two incentivized tasks were analyzed as well. If the manipulation was successful, participants in the low load condition should have scored higher on the verbal auditory task as compared to participants in the high load condition, because the task was easier for them. Furthermore, the task required less attention in the low load condition, leading to a higher score on the recall task, because more cognitive resources could be invested in the latter. Due to non-normality of the score from the verbal auditory task, a Mann-Whitney test was conducted, indicating that participants in the low load condition scored significantly higher ($Mdn = 19$) as compared to participants in the high load condition ($Mdn = 18$), $U = 2137.50$, $z = -5.44$, $p < .001$ (one-tailed). Regarding the score on the recall task, participants in the low load condition ($M = 5.68$, $SD = 1.57$) did not significantly differ from participants in the high load condition ($M = 5.33$, $SD = 1.61$), $t(176) = 1.47$, $p = .074$ (one-tailed).

Overall, the evidence for a successful manipulation of cognitive load is not clear. With the question about attention left for the evaluation task being the closest indicator for cognitive load and being significant it is argued for a successful manipulation. This is supported by the tendency in the other variables examined, although not always significant.

Descriptives.

Table 15
Means, Standard Deviations, Correlation Coefficients and Reliabilities for the Variables in the Analyses

| Measure | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--|-------|------|------------|------------|-------|------|-------|------|------|---|
| 1. Credit attractiveness ^a | 3.71 | 0.84 | .86 to .90 | | | | | | | |
| 2. Product attractiveness ^a | 3.89 | 0.75 | .86*** | .82 to .89 | | | | | | |
| 3. Score: Load task ^b | 18.23 | 1.85 | -.10 | -.09 | - | | | | | |
| 4. Score: Recall task ^c | 5.50 | 1.60 | .02 | .01 | -.01 | - | | | | |
| 5. Attention left ^a | 4.24 | 1.69 | .02 | -.01 | .11 | -.02 | - | | | |
| 6. Task complexity ^a | 5.29 | 1.33 | -.01 | -.05 | -.002 | -.01 | .13 | - | | |
| 7. Product relevance ^a | 2.79 | 1.41 | .45*** | .47*** | -.10 | .01 | .07 | -.14 | - | |
| 8. Credit understanding ^a | 4.85 | 1.73 | .06 | .11 | .01 | .17* | .23** | .001 | .15* | - |

Note. $N = 178$. The diagonal displays Cronbach's α for the respective scale.

^aScale range: 1 to 7. ^bScale range: 0 to 20. ^cScale range: 0 to 10.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Means, standard deviations, correlation coefficients and reliabilities for the variables in this study are shown in Table 15.

On average, credit attractiveness was rated with $M = 3.71$ ($SD = 0.84$). The average rating for product attractiveness was $M = 3.89$ ($SD = 0.75$). The two values being so close to each other and the strong positive correlation of $r = .86$, $N = 178$, $p < .001$ can be interpreted as an indicator that participants had difficulties to differentiate between product and credit offer.

Participants' score from the verbal-auditory task was very close to the maximum of 20 points ($M = 18.23$, $SD = 1.85$). No significant correlation was found between this score and credit attractiveness. The score from the recall task was $M = 5.50$ ($SD = 1.60$) without anyone who answered all 10 questions either correctly or incorrectly.

On average, participants had some attention left for the credit evaluation while listening to the sequences of digits ($M = 4.24$, $SD = 1.69$). Overall, the tasks in this study were perceived to be rather complex, as the answers to the respective question indicate ($M = 5.29$, $SD = 1.33$).

The relevance of the products presented in this study was rather low ($M = 2.70$, $SD = 1.41$). It is interesting to note that product relevance correlates with credit attractiveness such that credit offers for more relevant products were perceived to be more attractive.

The average rating of credit understanding of $M = 4.85$ ($SD = 1.73$) suggests that participants understood the credit offers and the specific aspects of the offers. A better credit understanding was also related to a higher score in the recall task ($r = .17$, $N = 178$, $p = .026$), more attention left for the credit evaluation while working on the verbal-auditory task ($r = .23$, $N = 178$, $p = .002$) and higher product relevance ($r = .15$, $N = 178$, $p = .047$).

Main analysis.

The overall and product specific means and standard deviations of credit attractiveness,

split up for the two conditions of the cognitive load manipulation, are shown in Table 16.

A two-way analysis of variance (ANOVA) was conducted to test the hypothesis that there would be a mean difference in credit attractiveness between cognitive load levels (low and high). Product order and the interaction of cognitive load and product order were added as control variables. There was no main effect of cognitive load, $F(1, 174) = 0.40, p = .528$. However, there was a significant main effect of product order on credit attractiveness, $F(1, 174) = 10.26, p = .002$. The interaction between the two factors was not significant $F(1, 174) = .60, p = .439$. Regarding the descriptive results, participants in the low load condition ($M = 3.74, SD = 0.77$) rated credit attractiveness similar as participants in the high load condition ($M = 3.68, SD = 0.90$). Participants who saw the products in a descending price order perceived the credits to be more attractive ($M = 3.90, SD = 0.80$) as compared to participants who saw the products in an ascending price order ($M = 3.51, SD = 0.84$).

The similar level in credit attractiveness between the two conditions of cognitive load speaks against the hypothesis that participants with high cognitive load perceive credits to be more attractive.

Exploratory analyses.

Potential problems with effort invested by the participants.

Data quality was analyzed in more detail, to ensure that this aspect is not related to the absence of the hypothesized effect.

As Groves and Lyberg (2010) pointed out in their total survey error framework, describing statistical error properties of survey sample statistics, measurement error is a crucial point for data quality. Among other things, it can be caused by participants who do not pay enough attention to reading and answering the questions (Greszki, Meyer, & Schoen, 2015). This

Table 16
Sample Sizes, Overall and Product Specific Means and Standard Deviations of Credit Attractiveness

| Measure | Low load | | | | High load | | | | | |
|---|--------------------------|------|---------------------------|------|--------------------------|------|---------------------------|------|------------------|------|
| | Ascending order (n = 45) | | Descending order (n = 42) | | Ascending order (n = 47) | | Descending order (n = 44) | | Overall (n = 91) | |
| | M | SD | M | SD | M | SD | M | SD | M | SD |
| Overall credit attractiveness | 3.60 | 0.74 | 3.89 | 0.77 | 3.74 | 0.77 | 3.42 | 0.92 | 3.91 | 0.83 |
| Tablet PC | 4.06 | 1.18 | 4.36 | 1.77 | 4.20 | 1.49 | 4.10 | 1.47 | 4.63 | 1.70 |
| Gaming console | 4.14 | 1.31 | 4.36 | 1.86 | 4.25 | 1.60 | 3.50 | 1.49 | 4.27 | 1.79 |
| Season ticket for the local soccer team | 2.87 | 1.39 | 3.02 | 1.81 | 2.95 | 1.60 | 2.40 | 1.10 | 3.19 | 1.73 |
| Couch | 3.73 | 1.38 | 3.90 | 1.42 | 3.82 | 1.39 | 4.15 | 1.59 | 3.79 | 1.46 |
| Holiday package | 3.86 | 1.52 | 4.52 | 1.76 | 4.18 | 1.66 | 3.90 | 1.57 | 4.30 | 1.54 |
| Surround sound system | 3.63 | 1.32 | 4.32 | 1.48 | 3.96 | 1.43 | 3.26 | 1.56 | 4.01 | 1.65 |
| Mountain bike | 3.23 | 1.70 | 3.77 | 1.63 | 3.49 | 1.68 | 3.14 | 1.64 | 4.25 | 1.33 |
| Skydiving license | 3.04 | 1.57 | 3.08 | 1.64 | 3.06 | 1.59 | 2.45 | 1.33 | 3.01 | 1.19 |
| Kitchen | 3.53 | 1.57 | 3.82 | 1.53 | 3.67 | 1.55 | 3.60 | 1.80 | 3.88 | 1.15 |
| Car | 3.86 | 1.58 | 3.79 | 1.32 | 3.83 | 1.45 | 3.80 | 2.10 | 3.78 | 1.06 |

Note. N = 178.

can happen, for example, when they are not interested in the topic of the study but also when they are fatigued, become impatient or distracted (Krosnick, 1991). Such careless responses can have negative consequences for data quality. This is especially true for measures that include positively worded as well as negatively worded items (Huang, Curran, Keeney, Poposki, & DeShon, 2012), as is the case with the dependent measure in this study. While some argue that careless responses can lead to an attenuation of the observed relationships between variables (McGrath, Mitchell, Kim, & Hough, 2010), others argue that an inclusion of such responses in the analyses can lead to inflated relationships among the variables (Huang, Liu, & Bowling, 2015).

In order to cancel out such problems and increase data quality (Aust, Diedenhofen, Ullrich, & Musch, 2013), it was decided to reanalyze the data for those participants who invested at least a crucial amount of effort into completing the study. In doing so, it has to be said that this might have negative consequences for the generalizability of potential results (Oppenheimer et al., 2009). For this analysis, the answers on the two questions for invested effort and the thoroughness of participants' work were averaged. Only those participants who scored above the median were selected. This was equivalent to a score of 6 or higher on this generated data quality index, resulting in a subsample of $n = 84$. A chi-square test of independence was performed to examine the relation between cognitive load and passing this data quality threshold. The relation between these variables was insignificant, $\chi^2(1, N = 178) = 0.10, p = .766$. Passing the threshold was therefore not affected by participants' condition. A one-way between subjects ANOVA was conducted to investigate the effect of cognitive load on credit attractiveness in this subsample. As in the main analysis, credit attractiveness did not significantly differ between participants in the low load condition ($M = 3.62, SD = 0.85$) and participants in the high load condition

($M = 3.81$, $SD = 0.95$), $F(1, 82) = 0.91$, $p = .342$.

Potential problems with the understandability of the credit offers.

Next, understandability of the credit offers was analyzed. A low understanding of the credit offers could lead to more or less random answers concerning credit attractiveness and thus decrease data quality. Again, only those participants who scored above the median on the question for credit understandability were selected. This was equivalent to a score of 5 or higher on this question, resulting in a subsample of $n = 112$. A chi-square test of independence was performed to examine the relation between cognitive load and passing this understandability threshold. Participants in the low load condition stated a better understandability of the credit offers as compared to participants in the high load condition, $\chi^2(1, N = 178) = 5.08$, $p = .030$. This is in line with the argument that having less cognitive resources to spend on the credit offers leads to a more superficial processing of the information and thus to lower understandability. However, rerunning the previous analysis for this subsample of participants reproduced the earlier pattern of results: Credit attractiveness did not significantly differ between participants in the low load condition ($M = 3.69$, $SD = 0.77$) and participants in the high load condition ($M = 3.77$, $SD = 0.78$), $F(1, 110) = 0.32$, $p = .573$.

Potential problems with the relevance of the products.

The very same approach was used with respect to the perceived relevance of the products. It could be possible that the participants perceived the products to be different from their everyday purchases. If that was the case, they could have problems to relate to a situation where the purchase of such products is the central element, thus giving more or less random answers, leading to decreased data quality. For this analysis, only those participants who scored above the median on the question for relevance of the products were selected. This was

equivalent to a score of 3 or higher on this question, resulting in a subsample of $n = 90$. A chi-square test of independence was performed to examine the relation between cognitive load and passing this relevance threshold. The relation between these variables was insignificant, $\chi^2(1, N = 178) = 2.24, p = .177$. Rerunning the previous analysis for this subsample of participants reproduced the pattern of results: Credit attractiveness did not significantly differ between participants in the low load condition ($M = 3.98, SD = 0.62$) and participants in the high load condition ($M = 4.10, SD = 0.67$), $F(1, 88) = 0.80, p = .372$.

Product-specific analysis.

In a last step, the relationship between cognitive load and credit attractiveness was analyzed in detail for each offer, to see whether the hypothesized effect exists for some products but vanishes in the aggregation. To this end, the model from the main analysis was extended to a multivariate analysis of variance (MANOVA) with the individual ratings of credit attractiveness serving as dependent variables. Using Pillai's trace, there was no effect of cognitive load on credit attractiveness, $V = 0.07, F(10, 166) = 1.33, p = .218$. Furthermore, none of the individual follow-up ANOVAs revealed a significant effect of cognitive load on credit attractiveness.

Discussion.

The purpose of the present study was to extend research on credit choice by examining credit attractiveness under different levels of cognitive load. To this end, a laboratory experiment was conducted in which cognitive load was manipulated to be either low or high. Credit attractiveness was measured for several 0%-interest credit offers that were presented with products thought to be relevant to students. No significant difference in credit attractiveness was found between the low cognitive load and high cognitive load conditions. This finding was consistent throughout the analyses and rejects the hypothesis that participants with high cognitive

load perceive 0%-interest credits to be more attractive as compared to participants with low cognitive load.

The finding stands in contrast to the related results in the literature. Hinson, Jameson, and Whitney (2003) showed over several studies using hypothetical as well as real monetary rewards, that imposing cognitive load increased participants' preference for immediate over delayed rewards. Credit can be seen as a financial instrument that allows the debtor to engage in immediate consumption instead of having to wait for consumption through means of saving. Thus, it should be seen as more attractive under high cognitive load, because the goal it serves is strongly desired. Furthermore, Benjamin, Brown, and Shapiro (2013) found evidence for a correlation between higher cognitive ability and greater short-term impatience among students. Arguing that cognitive ability can be interpreted as a proxy for generally available cognitive resources, this is in line with Hinson et al. (2003). Adding to research on the nature of the relationship between cognitive resources and temporal decision making, Frederick (2005) found that participants with a high score on the cognitive reflection test rather realized the potential disadvantages of immediate over delayed consumption than having a pure preference for consuming later.

One possible explanation for the shortcoming of the present study to find an effect where previous research indicated a linkage might be that the manipulation used was not strong enough to show the hypothesized effect. This point will be discussed in more detail in the next section.

Surprisingly, the current study found that participants who were presented with products in a descending price order perceived the credits to be more attractive as compared to participants who were presented with products in an ascending price order.

The finding fits well with the literature on evaluation of sequences. Acquiring products is

connected to giving away money and thus to the experience of a monetary loss. The set of products in this study can then be seen as a sequence of potential losses with low losses in the beginning and high losses in the end or vice versa, depending on the prices of the products. Research shows that people prefer loss-sequences that become smaller instead of bigger over time. In an incentivized study, Langer et al. (2005) observed that participants preferred a sequence with a lower end loss even though the total loss in this sequence was higher than in an alternative with a higher end loss. In the credit context, Hassenzahl (2005) found that participants who imagined taking up a loan for a vacation preferred a repayment scheme with a larger installment at the beginning of the repayment period over a scheme with a larger installment at the end of the repayment period. About one third of the participants who preferred the sequence with decreasing installments stated concerns for the future or anxiety of rising installments the reason for their choice. Another study on repayment schemes (Hoelzl et al., 2011) found further evidence for such a preference for improvement, outweighing financial benefits.

However, it should be noted that this interpretation of the effect of price order on credit attractiveness only holds under the assumption that participants interpreted the set of products and credit offers as a sequence of potential losses. Instead of focusing on the monetary loss it is also possible that they focused on the product-specific gain in value, ignoring the fact that they had to pay for it because it was credit-financed. In this case they would have favored a worsening sequence, contradicting previous research findings.

Problems with the manipulation.

While some results indicate a successful manipulation of cognitive load, the overall pattern is not very convincing. On the one hand, there was a significant difference between the two conditions for attention left for the evaluation of the product and credit offers while

engaging in the cognitive load task and with regard to the score on the cognitive load task. On the other hand, no difference between the two conditions was found regarding the perceived complexity of the tasks in the study and the score on the recall task. It seems as if the manipulation did indeed induce different amounts of cognitive load in the two conditions. Nevertheless, even in the high load condition participants had enough cognitive resources available to process the information on the product and credit offer, as the equal score on the recall task indicates. Unfortunately, it remains an open question whether they also had the cognitive resources needed to integrate the information on the credit aspects in a sophisticated process leading to a well-reasoned judgement of the credit offer available or whether they had to concentrate on single aspects like the 0%-interest rate and used heuristics to form their judgement.

It is unlikely that the difference between the conditions regarding the attention left for the evaluation of the product and credit offers represents a measurement artefact. Paas and van Merriënboer (1994) showed that people are able to introspect on their cognitive resources and accurately report the expenditure of mental effort on a unidimensional numerical scale like the one used for left attention in the present study. Furthermore, they noted that this measurement technique was rather sensitive to small differences in several studies (Paas, van Merriënboer, & Adam, 1994). More recently, Schmeck, Opfermann, von Gog, Paas, and Leutner (2015) added that the sensitivity can be even greater for a delayed measurement as compared to a direct measurement, because participants seem to base their cognitive load rating rather on the more complex problems in a series that represents the task instead of the average or last problem. Such increased sensitivity provides a possible explanation for the question why other measures for cognitive load did not show a difference between the two conditions in this study.

If problems with the measurement can be excluded, shortcomings regarding the manipulation have to be located in the way the cognitive load manipulation was applied in the present study. In a meta-analysis on the effect of cognitive load on duration judgments, Block, Nancock, and Zakay (2010) reported that over 60% of studies that experimentally manipulated cognitive load used a manipulation relying on different levels of task difficulty to achieve different levels of cognitive load. The fact that the second most prominent approach to require participants to stay passive while presented with a stimulus (low load) or actively respond to it (high load) was only used in around 14% of studies, shows that the manipulation in the present study follows the by far most common way to manipulate cognitive load.

A direct comparison with the results from other applications of the manipulation used in the present study is not possible, because it was adapted to the specific needs of this study. Nevertheless, other scholars used very similar manipulations and were able to show a clear effect. For example Rissman, Gazzaley, and D'Esposito (2009) had their participants listen to a sequence consisting of six unique randomly ordered digits (high load) or the sequence "1, 2, 3, 4, 5, 6" (low load). As in the present study, they then presented a single digit on screen and participants had to indicate whether or not this digit was part of the sequence. With this manipulation the authors were able to show that high load led to lower performance in a visual information processing task as compared to low load.

From this it becomes clear that a possible problem with a weak manipulation must be located in the specific design of the manipulation in the present study. The score from the verbal auditory task represents a first hint towards such a problematic point. With an average of $M = 18.98$ ($SD = 1.25$) correct answers in the low load condition and $M = 17.52$ ($SD = 2.04$) correct answers in the high load condition, participants in both conditions were very close to

answering all 20 items correctly. The sequence of digits used in the high load condition was more challenging than the sequence of digits in the low load condition, but only to a small degree.

One possible explanation for this is that the silent interval between two digits was rather long. Participants heard a new digit only every 5 seconds, leaving them a considerable amount of time to memorize the digit before hearing the next one. Maybe the length of this interval gave even participants in the high load condition more time than needed to memorize the sequence of digits, thus leaving enough time for a sophisticated evaluation of the credit offers. A shorter silent interval in between the digits could result in a more difficult task for participants in the high load condition while still leaving enough time to memorize an easier sequence (low load condition). Accordingly, research indicates that free recall performance as well as recognition of a stimulus is impaired when participants are stressed at the time of memorizing a stimulus (Schwabe & Wolf, 2010).

Contrary to the underlying assumption in the previous paragraph, it is also possible that participants in the low load condition actually perceived a rather high load as well because listening to digits (no matter of the structure of the sequence) interrupted the processing of credit details which were also presented in the form of digits. Ideally, the cognitive load manipulation should of course manipulate cognitive load but without a mechanism interfering with the credit evaluation task. In order to have a clear distinction between the mechanics of the two tasks, it would be better to change the sequences of digits in the verbal auditory task to sequences of letters. This way, the manipulation would create cognitive load via a letter-based dimension, while the credit evaluation task is based on processing numerical information, thus disentangling the two tasks.

Another possible explanation for the small difference in cognitive load between the two conditions is that memorizing a sequence constructed of just six different digits (high load) is only mildly more demanding compared to memorizing a sequence consisting of three different digits (low load). Although memorizing six digits should be twice as challenging, the two versions are close to each other and on the lower end of a scale of cognitive demands compared to other cognitive load tasks, e.g., higher levels of the n-back task. Widening the spread by using more than six different digits in the high load condition and less than three different digits in the low load condition could help to improve this aspect of the manipulation.

Problems with the credit evaluation task.

While the manipulation of cognitive load represents one possible explanation for the absence of the hypothesized effect of cognitive load on credit evaluation, the design of the evaluation task might contribute to the problem as well. Similar to the argument for shorter silent intervals in the verbal auditory task, participants might have had a considerable amount of time to evaluate the credit offers. Even though the verbal auditory tasks induced more load in the high load condition, it is possible that 45 seconds were sufficient for all participants to evaluate the credit offers in a sophisticated way, taking into account all the given details. Fortunately, the amount of time that participants have to evaluate the offers is connected to the length of the silent interval in the verbal auditory task: Keeping the amount of digits in sequence fixed, a decrease of the silent intervals to 3 seconds also limits the amount of time participants have to evaluate the credit offers to 30 seconds. Less time to reach a decision (in this case the evaluation of an offer) should then increase the effect of cognitive load on the process of making that decision.

Another problematic aspect that is not related to the manipulation becomes evident in the

mean values for product attractiveness and credit attractiveness. The two values ($M = 3.89$, $SD = 0.75$, and $M = 3.71$, $SD = 0.84$) being nearly identical and highly correlated ($r = .86$, $N = 178$, $p < .001$) indicate that participants had difficulties differentiating between product and credit offer. It is likely that participants either took credit related aspects into account when evaluating the product or product related aspects when evaluating the credit offer. Furthermore, it is possible that both evaluations were affected in this way. While it is not possible to test which information was included in which judgement, the wording of the respective questions in the evaluation task could serve as a hint. For the credit evaluation, the questions referred to the “financing possibility”, making it rather clear what should be evaluated. However, for the product evaluation, the questions referred to the “offer”. This term was not chosen well, because it could also refer to the credit offer. Furthermore, participants could interpret the term as a combination of the product and the financing possibility, as it is often used in everyday situations. Following this line of thought, it is rather the measurement of product attractiveness that is affected by measurement error, while the measurement of credit attractiveness should be free of such concerns. Nevertheless it can only be speculated about possible explanations for the high similarity of product attractiveness and credit attractiveness. Regarding the explanation offered here, using the term “product” instead of “offer” in the evaluation of product attractiveness would have been favorable.

Furthermore, the amount of information to be processed in the present study might have been too high in general. For each of the 10 products, participants were asked to process information on the product from the details on the price tag and the picture of the product to form a judgement on the product. Furthermore, they had to make sense of various credit aspects that might have been unfamiliar to them and to process them in a certain way in order to form a

judgement on the credit offer. This was accompanied by the verbal auditory task and had to be accomplished in a fixed amount of time. The high average value for overall task complexity ($M = 5.29, SD = 1.33$) mirrors the demanding character of the tasks and their repetition over the 10 products. With each additional product, participants might have felt more and more depleted because of the high level of attention needed in the tasks and the information processing involved in evaluating the product and credit offers. As the literature suggests, a great expense of attention leads to impaired subsequent higher order cognitive processing (Schmeichel, Vohs, & Baumeister, 2003). Thus, for the later products, participants in the low load condition might have processed the given information in the same way as participants in the high load condition. Although the verbal auditory task was less demanding for them, the overall amount of information in the study to be processed decreased their cognitive resources to a minimum. Analyses of the influence of cognitive load on credit attractiveness for the first presented product (the tablet-PC in the ascending price order; $M_{high\ load} = 4.10, SD_{high\ load} = 1.47; M_{low\ load} = 4.06, SD_{low\ load} = 1.18, t(87) = -.15, p = .885$ and the car in the descending price order $M_{high\ load} = 3.78, SD_{high\ load} = 1.06; M_{low\ load} = 3.79, SD_{low\ load} = 1.32, t(87) = .04, p = .969$) revealed no significant effect. Even though this result does not rule out the described effect of overall information load on cognitive processing, it shows that such an effect was of marginal importance in the present study.

Further limitations.

The random assignment to the experimental conditions should have cancelled out the influence of factors that might otherwise influence credit attractiveness. Nevertheless, explicitly controlling for such factors would increase the precision of an effect of cognitive load on credit attractiveness. The fact that this was not taken into account in the present study might pose

another limitation. One such factor could be consumer spending self-control. Building on the more general concept of self-control (Muraven & Baumeister, 2000; Baumeister, Vohs, & Tice, 2007), it is defined as a person's ability to monitor and regulate spending-related thoughts and actual decisions according to preset standards (Haws, Bearden, & Nenkov, 2012). As an example, imagine a person who sets a personal limit for the price she is willing to pay for a new shirt. While shopping for clothes, she sees a nice shirt that she likes very much. Unfortunately, the price exceeds her personal limit. If the person has low spending self-control, she would probably ignore her preset limit and buy the shirt. In contrast, if the person has high self-control, she would be more likely to stick to her preset limit and refrain from the purchase.

Haws, et al. (2012) showed that participants low in consumer spending self-control were more likely to make impulsive purchases and payed more for products compared to participants high in consumer spending self-control. Related to the present study, they also found that participants low in consumer spending self-control were willing to pay a higher credit card premium than participants high in consumer spending self-control (Bearden & Haws, 2012). For the present study, these findings might be relevant in the following way: Especially participants in the low load condition could analyze the credit details and conclude that the offer is not that negative. Those among them who are low in consumer spending self-control might find the credit more attractive, as they see it as a facilitating means to acquire a desired product. In contrast, participants high in consumer spending self-control might see the credit as a negative temptation testing their willingness to overcome the purchase and thus find it less attractive.

Study 6 – Evaluation of Credit Offers Under Letter-Based Cognitive Load

As noted in the discussion of study 5, the experimental design had some limitations that might have been responsible for the non-significant results on the hypothesis of cognitive load

influencing credit attractiveness. Study 6 was conceptualized as a revised version of study 5, examining how different levels of cognitive load influence the evaluation of 0%-interest credit offers for everyday products. Based on the results of study 5, it was decided to make adjustments with regard to three major aspects: First, the manipulation of cognitive load was adjusted such that the difference between the two conditions in cognitive resources required was increased. Second, the overall level of cognitive resources required in the study was heightened through changes in the manipulation and the credit evaluation task. Third, the relevance of the credit evaluation was strengthened by selecting products that were closer to typical student purchases. The same hypothesis as in study 5 was tested:

H1: Evaluating 0%-interest credit offers for specific products under high cognitive load leads to higher credit attractiveness as compared to evaluating them under low cognitive load.

The hypothesis was tested using a laboratory experiment on hypothetical purchase opportunities.

Method.

The method of this study was similar to the previous study. Details on the specific differences are provided below.

Participants.

Data collection took place from April 7th to 8th, 2015⁹. Participants were approached on the campus of a large German university. All participants were asked to take part in a study on “information processing in the context of consumption decisions and 0%-financing”. They were informed that they could earn up to € 5.00, depending on their performance and that they could take part in a lottery where two winners would receive € 20.00 each and one winner € 10.00.

⁹ I would like to thank Penghua Sun, Atar Herziger, Rufina Gafeeva, Jenny Maurer, Paula Risius, Christian Brünger, Michael Blens, and Oliver Zabel for their help in the survey promotion and data collection.

From the original sample of 91 students who agreed to participate in this study, data from two participants was excluded for the following reasons: The PC of one participant crashed during the study and one participant stated that his data should not be used in the analyses. The final sample included 89 participants. It consisted of 32 (36.0%) men and 57 (64.0%) women with an age between 18 and 34 years ($M = 22.3$, $Mdn_{Age} = 21$, $SD = 3.3$). The median duration to complete the study was $Mdn_{Dur} = 25:50$ minutes and the median payout was $Mdn_{Pay} = € 4.25$, leading to an hourly earning equivalent of around € 9.80.

Procedure.

A two-group between-subjects design was used in this study. The independent variable was level of cognitive load (high load or low load). The dependent variable was credit attractiveness.

When entering the lab, participants were seated individually at a computerized workplace and asked to start working on the study. All information was provided on screen. The allocation of participants to the two conditions in this study was random.

The initial part of the study was identical to study 5: Participants read the instructions for the study, learned about the payoffs from the tasks and completed an example. Although they were not paid for their answers in the example, participants learned about their score and the money that they would have earned, immediately after completing it. They were then free to look at the instructions again to clarify any unclear points or to start directly with the main part of the study.

As in study 5, the main part of the present study consisted of two parallel tasks, an evaluation task and a cognitive load task, this time for six rounds. In the evaluation task, participants were presented with a product offer and a corresponding credit offer for this product

and were asked to evaluate both. In the cognitive load task, they were asked to pay attention to a sequence of letters, instead of the digits from study 5, that was read to them via headphones and to state afterwards whether a certain letter was included in the sequence. The answers on this question were incentivized.

The way in which these two tasks were combined was completely identical to the structure in study 5. The only difference was that the scheme was repeated for only six instead of 10 different products with the products being ordered randomly.

As a measure for a stable ability to suppress an intuitive and wrong answer in favor of a reflective and deliberate right answer, participants completed a cognitive reflection test. Next, they completed a recall task, aiming at the correct recall of details of the previously seen offers. For each offer, participants furthermore stated their familiarity with the respective product and its relevance to them personally. In addition, hedonic and utilitarian dimensions of their attitudes towards the product were measured. Except for the manipulation check, all measures were repeated for every product. Product order was again random.

This was followed by an assessment of participants' self-control in the domain of consumer spending. In a last part of the study, participants answered questions on the complexity of the offers and the understandability of the credit details. In addition, they stated how much attention they had left for the evaluation of the product and credit offers while engaging in the cognitive load task (adapted from Allen et al., 2014) and completed an instructional manipulation check as attention check. Furthermore, they provided information on the quality of their answers and demographic information (gender, age, field of studies).

Finally, the experimenter thanked the participants, calculated their payout, and paid the participants. Overall, they could get a maximum of 600 points from the verbal auditory task. As

1 point translated into 0.5 euro cents, this equaled a maximum payout of € 3.00 from the task. By adding a € 2.00 flat payment part, the overall maximum payout was € 5.00. After receiving their money, participants could write their email address on a piece of paper and throw it in an opaque box to participate in a lottery and win one of two € 20.00 prizes or one € 10.00 prize. The winners of this lottery were contacted via the provided address after completion of the study.

Material.

Cognitive load.

Cognitive load was again manipulated using a verbal-auditory task adapted from Dittrich and Stahl (2012). Unlike in study 5, participants did not listen to digits but to a sequence of nine letters ranging from A to Z that was recorded by a male speaker. The difference between the two conditions was more pronounced than in study 5: In the high load condition, all letters in this sequence were different from one another, (e.g., T – Q – G – N – X – L – R – W – A) whereas in the low load condition, it consisted of only two different letters (e.g., L – N – L – N – L – L – N – N – L). The sequence was constructed such that every low load sequence consisted of a subset of the letters used in the high load sequence. Those letters that appeared in both sequences were always in the same position in both sequences (e.g., positions four and six in the above example).

The silent interval between two letters was reduced from 5 seconds in study 5 to 3 seconds in the present study. Accordingly, every sequence had a length of 30 seconds instead of 45 seconds as in study 5. Centered at the bottom of the screen, participants saw a countdown displaying the remaining time on the page in seconds.

At the end of this interval, the study automatically continued to the next page, where participants were asked “Did the sequence that you just listened to contain the letter [?]?” For half of the sequences, the letter referred to in the question was part of the sequence and for the

other half of the sequences the letter referred to in the question was not part of the sequence. For every correct answer, participants earned 50 points, whereas an incorrect answer led to a deduction of 25 points. Over a total of six sequences parallel to the evaluation of product offers and another six sequences parallel to the evaluation of credit offers, they could earn a maximum of 600 points by performing this task.

Product and credit offer.

Because of the low rating of personal relevance for the products in study 5 it was decided to use different products in the present study. They were selected with regard to being owned by a majority of students (a vacuum cleaner, a desk, a washing machine, and a notebook) or thought to be desired by them (a longboard and a surf camp). In accordance with study 5, every page with a product and credit offer was set up in the same way: In the upper left corner of the screen, participants saw a picture of the respective product. In the upper right corner of the picture, they saw a red price tag that informed about the name of the product and its price. Below the picture, in the lower left corner of the screen, credit details were provided. A table contained information on the credit amount, annual percentage rate, credit period, amount of monthly installment rates, a one-time additional charge and dunning fees.

The credit amount always equaled the product price and the annual percentage rate was 0% for all products. Credit period was either 6 or 12 months, amount of monthly installment rates was calculated as credit amount divided by credit period and the one-time additional charge was either 0%, 2%, or 4% of the credit amount, expressed in absolute numbers. The dunning fees were either € 0 or € 5. The random variation in credit period, one-time additional charge and dunning fees was predetermined and used for all participants. It served the purpose to make the offers more realistic. All specific details were in line with comparable real credit offers.

Product and credit evaluation.

Product and credit attractiveness were measured as in study 5. The only difference was that the questions for product attractiveness referred specifically to the product instead of to the overall offer as in study 5 (e.g., “How attractive do you find the depicted product?”, 1 = not at all attractive; 7 = very attractive). Credit attractiveness was computed as the mean value of the four respective questions. Cronbach’s alpha ranged between $\alpha = .77$ and $\alpha = .88$ for the six products.

Cognitive reflection test.

After evaluating all offers and completing the verbal-auditory task, participants completed a cognitive reflection test, adapted from Frederick (2005). Consisting of three brainteaser items in a free-response format, it assesses participants’ ability to suppress an intuitive and spontaneous wrong answer in favor of a reflective and deliberate right answer. An example item reads “If it takes five machines 5 minutes to make five pairs of shoes, how long would it take 100 machines to make 100 pairs of shoes?”. A score was computed as the sum of correct answers to the three questions ($\alpha=.72$).

Recall task.

The structure of the recall task was identical to the one used in study 5. A recall score was computed as the sum of correct answers to the 12 questions over all six products.

Control variables.

Familiarity with the respective product was measured using the question “Have you at least once bought a product like this?” and personal relevance was measured using the question “How relevant is the product to you personally?” (1 = not at all relevant to 7 = very relevant).

Hedonic and utilitarian dimensions of participants’ attitudes towards the product were measured using the HED/UT scale (Voss, Spangenberg, & Grohmann, 2003). It consists of 10

semantic differential response items, five of which refer to the hedonic dimension (e.g., 1 = enjoyable to 7 = unenjoyable) and five of which refer to the utilitarian dimension (e.g., 1 = practical to 7 = impractical) of participants' attitudes. Hedonic and utilitarian dimensions of participants' attitudes were computed as the mean value of the five respective items. For the six products, Cronbach's alpha ranged from $\alpha = .59$ to $\alpha = .86$ for the hedonic dimension and from $\alpha = .83$ to $\alpha = .91$ for the utilitarian dimension of participant's attitudes.

Participants' self-control in the domain of consumer spending was measured using the consumer spending self-control scale (Haws et al., 2012). It consists of 10 items (e.g., "I often delay taking action until I have carefully considered the consequences of my purchase decisions.") that are assessed on a 7-point scale (1 = strongly disagree to 7 = strongly agree). Consumer spending self-control was computed as the mean value of the 10 questions ($\alpha=.89$).

Manipulation check, and further control variables.

The manipulation check and the measures regarding study purpose, task complexity, understandability of the credit offers and data usability were exactly the same as in study 5. In order to further assess whether or not participants were reading the instructions in the study carefully, an instructional manipulation check was adapted from Oppenheimer et al. (2009). Participants saw the question "Which of the following activities do you pursue regularly? Please select all that apply." Underneath, they read the following text in a smaller font: "Research in psychology was able to show that people, when answering questions, do not pay much attention and minimize their effort as much as possible. Due to that, questions are often not read carefully enough. For this reason, we are very interested in whether you take the time to deliberately read all instructions. In order to show that you really read the instructions, please ignore the above question and just type 'Jemand' in the box below. Thank you!" Under this text, participants saw

some activities (e.g., going to the movies, reading books) and the open text box, in which they should write the word ‘Jemand’.

After completing the check, participants read the following question and answered with either *Yes* or *No*: “Lastly, it is vital to our study that we only include responses from people that devoted their full attention to this study. Otherwise a lot of effort (the researchers’ and other participants’) could be wasted. In your opinion, can we use your data in our analyses?” (Meade & Craig, 2012).

Results.

Preliminary analyses.

Manipulation check.

In a first step, the questions on attention left for the evaluation task, and on task complexity were analyzed to see whether the manipulation of cognitive load was successful. Due to non-normality of the answers to the question on attention a Mann-Whitney test was conducted, indicating that participants in the low load condition (*Mdn Rank* = 5) did not have significantly more attention left for the evaluation task as compared to participants in the high load condition (*Mdn Rank* = 4), $U = 853.00$, $z = -1.14$ $p = .128$ (one-tailed). An independent-samples t-test indicated that participants in the low load condition perceived the tasks to be significantly less complex ($M = 4.82$, $SD = 1.21$) as compared to participants in the high load condition ($M = 5.58$, $SD = 1.16$), $t(87) = -3.03$, $p = .002$ (one-tailed).

While the latter result supports the claim of a successful manipulation of cognitive load, the first casts doubt. Therefore, the scores from the verbal auditory task and the recall task were analyzed as well. If the manipulation was successful, participants in the low load condition should have scored higher on the verbal auditory task as compared to participants in the high

load condition, because the task was easier for them. Furthermore, the task required less attention in the low load condition, leading to a higher score on the recall task, because more cognitive resources could be spent on the offers. Due to non-normality of the score from the verbal auditory task, a Mann-Whitney test was conducted, indicating that participants in the low load condition scored significantly higher on the verbal auditory task ($Mdn Rank = 66.00$) as compared to participants in the high load condition ($Mdn Rank = 24.47$), $U = 66.00$, $z = -7.80$ $p < .001$ (one-tailed). Also, participants in the low load condition scored significantly higher on the recall task ($M = 7.14$, $SD = 1.79$) as compared to participants in the high load condition ($M = 6.42$, $SD = 2.08$), $t(87) = 1.72$, $p = .042$ (one-tailed).

Overall, the evidence for a successful manipulation of cognitive load is not completely clear. The two scores measure behavior that should be influenced by cognitive load and therefore go beyond the subjective perception of participants' attention that was captured in the previously analyzed question. With this measure consistently showing a significant difference between the two conditions of cognitive load and the results from the analysis on perceived complexity being significant as well, it is argued for a successful manipulation.

Descriptives.

Means, standard deviations, correlation coefficients and reliabilities for the variables in this study are shown in Table 17.

As can be seen, credit offers were on average rated to be somewhat attractive ($M = 4.21$, $SD = 0.83$). The same is true for product attractiveness ($M = 4.50$, $SD = 0.55$). The two values being so close to each other and the positive correlation of $r = .53$, $N = 89$, $p < .001$ can be a first hint that participants had difficulties differentiating between product and credit offer, as seemed to be the case in study 5. Participants' score from the verbal-auditory task is further away from

the maximum of 12 points ($M = 9.15$, $SD = 1.93$). As in study 5 no significant correlation was found between this score and credit attractiveness. The score from the recall task is close to the midpoint of the respective range ($M = 6.78$, $SD = 1.96$) without anyone who answered all 12 questions either correctly or incorrectly. On average, participants had some attention left for the credit evaluation while listening to the sequences of digits ($M = 4.44$, $SD = 1.74$).

Overall, the tasks in this study were perceived to be about as complex, as the ones in study 5 ($M = 5.20$, $SD = 1.24$). In contrast, the choice of products presented in this study led to a strong increase in relevance of the products to $M = 4.42$ ($SD = 0.90$). It is interesting to note that product relevance correlates positively with credit attractiveness ($r = .24$, $N = 89$, $p = .024$) and product attractiveness ($r = .31$, $N = 89$, $p = .004$) as well as with task complexity ($r = .21$, $N = 89$, $p = .048$), which in turn is positively related to product attractiveness ($r = .23$, $N = 89$, $p = .033$).

The average rating of credit understanding of $M = 4.63$ ($SD = 1.46$) is a positive signal that participants seemed to understand the credit offer and its various aspects. The positive correlation between credit understanding and attention left for the credit evaluation while listening to the sequences of digits ($r = .29$, $N = 89$, $p = .005$) suggests that participants who could pay more attention to the credit details developed a better understanding of them.

Hedonic attitudes of participants towards the product were on average less positive ($M = 4.09$, $SD = 0.52$) than utilitarian attitudes ($M = 5.52$, $SD = 0.56$). While hedonic attitudes showed a stronger positive relation to product attractiveness ($r = .44$, $N = 89$, $p < .001$) than to product relevance ($r = .21$, $N = 89$, $p = .045$), the opposite was true for utilitarian attitudes ($r = .26$, $N = 89$, $p = .015$ and $r = .42$, $N = 89$, $p < .001$ respectively). This pattern indicates that these are indeed distinct dimensions of participants' attitudes. This notion is further supported by

Table 17
Means, Standard Deviations, Correlation Coefficients and Reliabilities for the Variables in the Analyses

| Measure | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--|------|------|------------|------------|------|------|-------|------|--------|------|------------|------------|------|-----|
| 1. Credit attractiveness ^a | 4.21 | .83 | .77 to .88 | | | | | | | | | | | |
| 2. Product attractiveness ^a | 4.50 | .55 | .53*** | .61 to .86 | | | | | | | | | | |
| 3. Score: Load task ^b | 9.15 | 1.93 | -.07 | .08 | - | | | | | | | | | |
| 4. Score: Recall task ^b | 6.78 | 1.96 | -.10 | -.01 | .11 | - | | | | | | | | |
| 5. Attention left ^a | 4.44 | 1.74 | .01 | .07 | .03 | .20 | - | | | | | | | |
| 6. Task complexity ^a | 5.20 | 1.24 | .06 | .23* | -.09 | .04 | -.03 | - | | | | | | |
| 7. Product relevance ^a | 4.42 | .90 | .24* | .31** | -.11 | .21 | -.09 | .21* | - | | | | | |
| 8. Credit understanding ^a | 4.63 | 1.46 | .17 | .08 | -.05 | .04 | .29** | -.08 | .01 | - | | | | |
| 9. Hedonic attitude ^a | 4.09 | .52 | .09 | .44*** | .01 | -.06 | .02 | .06 | .21* | .09 | .59 to .86 | | | |
| 10. Utilitarian attitude ^a | 5.52 | .56 | .15 | .26* | -.18 | .01 | -.17 | .19 | .42*** | .03 | .24* | .83 to .91 | | |
| 11. Spending self-control ^a | 5.13 | 1.12 | .03 | .12 | .10 | -.06 | .19 | .07 | .08 | -.12 | -.13 | -.15 | .89 | |
| 12. Cognitive reflection ^c | 1.05 | 1.14 | -.19 | .02 | .07 | .19 | -.03 | -.04 | -.03 | .13 | .04 | .08 | -.11 | .72 |

Note. $N = 89$. The diagonal displays Cronbach's α for the respective scale.

^aScale range: 1 to 7. ^bScale range: 0 to 12. ^cScale range: 0 to 3.

* $p < .05$. ** $p < .01$. *** $p < .001$.

the small positive correlation between both dimensions ($r = .24, N = 89, p = .024$).

Finally, consumer spending self-control averaged at $M = 5.13$ ($SD = 1.12$) and participants answered on average $M = 1.05$ ($SD = 1.14$) of the three questions of the cognitive reflection test correctly. Interestingly, there is no correlation between the performance in this test and task complexity or credit understanding.

Main analyses.

The overall and product specific means and standard deviations of credit attractiveness, split up for the two conditions of the cognitive load manipulation, are shown in Table 18.

A one-way ANOVA was conducted to test the hypothesis that there would be a mean difference in credit attractiveness between cognitive load levels (low and high). There was no significant effect of cognitive load on credit attractiveness, $F(1, 87) = 0.55, p = .462$. The means of credit attractiveness were equal for participants in the high load condition ($M = 4.28, SD = 0.94$) and participants in the low load condition ($M = 4.15, SD = 0.70$).

Next, the model was extended to a one-way analysis of covariance (ANCOVA) by adding hedonic and utilitarian dimensions of participants' attitudes towards the product and

Table 18
Sample Sizes, Overall and Product Specific Means and Standard Deviations of Credit Attractiveness

| Measure | Low load ($n = 44$) | | High load ($n = 45$) | |
|-------------------------------|-----------------------|-----------|------------------------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Overall credit attractiveness | 4.15 | 0.70 | 4.28 | 0.94 |
| Longboard | 3.32 | 1.07 | 2.94 | 1.34 |
| Laptop | 4.42 | 1.21 | 4.65 | 1.43 |
| Desk | 4.00 | 1.46 | 4.01 | 1.57 |
| Vacuum cleaner | 3.81 | 1.30 | 4.03 | 1.39 |
| Surf camp | 4.73 | 1.48 | 5.33 | 1.40 |
| Washing machine | 4.79 | 1.12 | 4.76 | 1.44 |

Note. $N = 89$.

consumer spending self-control as covariates. As in the ANOVA, there was no significant effect of cognitive load on credit attractiveness, $F(1, 84) = 0.57, p = .452$. Furthermore, none of the covariates were significantly related to credit attractiveness ($F(1, 84) = 0.35, p = .557$ for hedonic dimension of participants' attitudes, $F(1, 84) = 1.65, p = .203$ for utilitarian dimension and $F(1, 84) = 0.41, p = .525$ for consumer spending self-control).

The equality in credit attractiveness between the two conditions of cognitive load speaks against the hypothesis that participants with high cognitive load perceive credits to be more attractive.

Exploratory analyses.

Potential problems with attention paid by the participants.

As pointed out earlier in study 5, measurement error can be caused by participants who for various reasons do not pay enough attention to reading and answering the questions (Greszki et al., 2015). As a consequence, it can lead to a decrease in data quality. In order to cancel out such problems and increase data quality (Aust et al., 2013), it was decided to reanalyze the data for those participants who passed the instructional manipulation check. A chi-square test of independence was performed to examine the relation between cognitive load and passing the instructional manipulation check. The relation between these variables was insignificant, $\chi^2(1, N = 89) = 0.31, p = .669$. Passing the check was not affected by condition. As in the main analysis, no significant effect of cognitive load on credit attractiveness was obtained, $F(1, 50) = 0.03, p = .874$, for the participants who passed the instructional manipulation check ($n = 52$).

Potential problems with the relevance of the products.

Next, it was decided to take a closer look at the product relevance and prior experience

with the products. As argued in study 5, low product relevance could lead to random answers in the credit evaluation. However, product relevance ranged from $M = 4.28$ ($SD = 2.01$) for the surf camp to $M = 5.93$ ($SD = 1.31$) for the notebook with the exception of $M = 2.00$ ($SD = 1.55$) for the longboard, resulting in a mean relevance of $M = 4.42$ ($SD = 0.90$) over all six products ($\alpha = .45$). Furthermore, 20.2% of participants indicated for at least four products that they bought these or similar ones in the past. While 77.5% of participants indicated this for at least two products, only 9.0% did not buy any of the products in the past. From these results, it was concluded that a low product relevance is no primary concern for participants' ability to relate to the described situation.

Potential problems with System 1 / 2 information processing as a stable disposition.

Instead of an experimental manipulation, some researchers used the cognitive reflection test as a measure to assess the stable ability of individuals to suppress an intuitive and spontaneous wrong answer in favor of a reflective and deliberate right answer. For example, Oechssler, Roider, and Schmitz (2009) found participants scoring low on the test to be less patient for money, compared to participants scoring high. Furthermore, participants scoring low tend to make more forecast errors (Moritz, Siemsen, & Kremer, 2014) and focus more on salient pieces of information, instead of processing all available information (Hoppe & Kusterer, 2011).

Under the assumption that the cognitive reflection task captures a stable disposition towards System 1 or System 2 information processing, one could argue that participants scoring low on the measure are more impatient for the product, underestimate the occurrence of unforeseen problems in the repayment period and focus on 0%-interest as the central feature of the credit, leading to higher credit attractiveness. Kendall's tau was calculated in order to determine if there was such a relationship between the score from the cognitive reflection test

and credit attractiveness. In line with the assumption, the two variables were significantly correlated, $r_t(89) = -.15, p = .036$ (one-sided). The result suggests that a stable disposition towards System 1 information processing as indicated by a low score on the cognitive reflection task is positively related to credit attractiveness.

Product-specific analysis.

In a last step, the relationship between cognitive load and credit attractiveness was analyzed in detail for each offer, to see whether the hypothesized effect exists for some products but vanishes in the aggregation. To this end, the model from the main analysis was extended to a multivariate analysis of variance (MANOVA) with the individual ratings of credit attractiveness serving as dependent variables. Using Pillai's trace, there was no effect of cognitive load on credit attractiveness, $V = 0.10, F(6, 82) = 1.59, p = .160$. Furthermore, none of the individual follow-up ANOVAs revealed a significant effect of cognitive load on credit attractiveness. The overall and product specific means and standard deviations of credit attractiveness are shown in Table 18.

Discussion.

The purpose of the present study was to examine a potential effect of cognitive load on credit attractiveness. To this end, a revised version of study 5 was conducted in which cognitive load was manipulated to be either low or high. Credit attractiveness was measured for several 0%-interest credit offers that were presented with products thought to be relevant to students. No significant difference in credit attractiveness was found between the low cognitive load and high cognitive load conditions. This finding was consistent throughout the analyses and rejects the hypothesis that participants with high cognitive load perceive 0%-interest credits to be more attractive as compared to participants with low cognitive load.

The finding that cognitive load had no effect on credit attractiveness stands in contrast to the related results and suggestions in the literature (Benjamin et al., 2013; Frederick, 2005; Hinson et al., 2003) as already noted in the discussion section of study 5. Possible explanations for the repeated shortcoming to find an effect where previous research indicated a linkage will be derived in the next section.

Problems with the manipulation.

While most results indicate a successful manipulation of cognitive load, the overall pattern is not completely clear. On the one hand, there was a significant difference between the two conditions regarding the perceived complexity of the tasks in the study as well as the scores on the verbal auditory task and the recall task. On the other hand, no difference between the two conditions was found regarding the self-reported attention left for the evaluation of the product and credit offers while engaging in the cognitive load task. The difference in scores from the verbal auditory load task indicates that the two conditions did significantly differ in the amount of cognitive resources needed for the task. Accordingly, participants had differing amounts of resources left to process the product and credit information, as the score from the recall task indicates. This interpretation is backed by the differing degrees of perceived complexity of the tasks in the study in the two conditions of cognitive load. Nevertheless, participants in the two conditions did not differ in the amount of perceived attention left for the credit evaluation task. The fact that the behavioral indicators indicate a difference between the two conditions that is not backed by the self-reported indicators contrasts the finding that people are able to introspect on their cognitive resources and accurately report the expenditure of mental effort (Paas & van Merriënboer, 1994, Schmeck et al., 2015).

Overall, the changes regarding the manipulation from study 5 to study 6 did improve the

discriminability of the two conditions of cognitive load, as the behavioral indicators show.

However, regarding the perception of participants, the indifference in attention left still leaves room to doubt a completely successful manipulation.

Maybe it is not the specific design of the cognitive load manipulation that needs improvement but the auditory character of it that prevents the hypothesized effect to show up in the results. Evidence for this idea comes from research on multimedia learning. Researchers found that participants acquired more knowledge from a written text with supportive pictures when the text was read to them while seeing it on screen as compared to just seeing the text without listening to it (Penney, 1989). This so called modality effect was confirmed in numerous studies (see Ginns (2005) for a meta-analysis). To explain this effect, it is assumed that cognitive processing takes place in two separate subsystems: One for visual information processing and one for auditory information processing, with independent cognitive resources (Brünken, Plass, & Leutner, 2004). For the present study, this implies that the used manipulation of cognitive load targets and occupies only cognitive resources in the auditory information processing subsystem. In contrast, the information processing in the credit evaluation task relies exclusively on cognitive resources in the visual information processing subsystem. If these two subsystems are indeed independent from each other and do not draw from the same pool of resources, the manipulation of cognitive load should not affect credit attractiveness. While this explanation fits with the results from the present study, it contradicts previous success in showing an effect of an auditory cognitive load task on an outcome variable that relies on the visual information processing subsystem (Rissman et al., 2009; Schneider, Lam, Bayliss, & Dux, 2012). Nevertheless, it must be noted that such examples are very hard to find. The overwhelming majority of published work in this area relies on cognitive load tasks and outcome variables of

the same modality. With the modality effect speaking against a coincidence, future tests of the hypothesis in the present study should rely on non-auditory cognitive load tasks.

A closer analysis of the manipulation used reveals another possible impediment. The general idea behind the manipulation is that occupying cognitive resources prevents people from processing information in an analytic and controlled way so that they tend to rely on more automatic information processing that is less demanding regarding the cognitive resources needed. That means, that the manipulation used in the present study inhibits controlled processing for participants in the high cognitive load condition. While this procedure was highly successful in previous research on economic decision making (Duffy & Smith, 2014; Schulz, Fischbacher, Thöni, & Utikal, 2014), it might not be that well suited for the present study. While the mentioned studies strongly incentivized the decision to be made under different levels of cognitive load, the present study did not do so, because the dependent variable measured attractiveness of the offer instead of an objective criterion that could be used for incentivization. Thus, it is unclear whether the participants in the low cognitive load condition were motivated to make use of their cognitive resources in the credit evaluation task and engaged in more rational and controlled information processing than participants in the high cognitive load condition. If they became tired of the repetitive tasks, had difficulties to relate to the products used or were distracted otherwise, it is likely that they processed the credit details in a rather superficial way, even though they had the cognitive resources for a more thorough processing. It would have been favorable to use a manipulation that concentrates on activating either a mindset highlighting controlled information processing or a mindset highlighting automatic information processing. By doing so, it would no longer be necessary to rely on the assumption that participants who have a large amount of cognitive resources available also make use of them to a certain degree,

without being forced to do so.

Regarding participants' score on the verbal auditory task, the changes made in the design of the manipulation were successful in both desired ways: First, the two conditions differ more from each other ($M = 10.64$, $SD = 0.57$ in the low load condition and $M = 7.69$, $SD = 1.66$ in the high load condition) than it was the case in study 5. Thus, the changes made in the design strengthened the discriminability of the two conditions of cognitive load. Second, the average score of $M = 9.15$, $SD = 1.93$ is further away from the maximum of 12 points. Thus, the existence of a ceiling effect of this measurement can be excluded.

Problems with the credit evaluation task.

The results for the product and credit evaluation in study 5 indicated that participants had difficulties differentiating between product and credit offer. In order to get a clean measure of credit attractiveness with the influence of product aspects, the wording of the questions was changed in the present study. However, this did not have the desired effect on the evaluations. Product attractiveness ($M = 4.50$, $SD = 0.55$) and credit attractiveness ($M = 4.21$, $SD = 0.83$) were still rated nearly identical and correlated ($r = .53$, $N = 89$, $p < .001$), although the link was weaker than in study 5.

One reason for mixing the evaluation of the product and the evaluation of the credit might be difficulties in making an isolated judgement. In case of the credit attractiveness, it is possible that participants lacked the knowledge necessary to form a judgement on the offer or that they felt unsure about it because of unfamiliarity with credits. Mussweiler and Strack (2000) showed that anchoring – the tendency to start forming a judgement or making a decision from a previous piece of information, often leading to biased outcomes – depends on a persons' knowledge about the object to be judged. The less knowledgeable, the more did their participants

assimilate a numeric estimate towards the anchor. In the present case, participants might have taken their previous rating of the product attractiveness as an anchor for the credit attractiveness decision. Nevertheless, participants' self-reported credit understanding was not on a particularly low level, neither in study 5 ($M = 4.85$, $SD = 1.73$) nor in study 6 ($M = 4.63$, $SD = 1.46$).

Therefore, a lack of credit understanding alone cannot account for the similarity of product attractiveness and credit attractiveness. However, these numbers also show that participants did not have a perfect understanding of the credit details. Because this is crucial to meaningful ratings of credit attractiveness, future studies should pay more attention to using simple language and taking time to explain the credit aspects in detail, to ensure a comparably high level of understanding for all participants.

A second shortcoming lies in the quality of the credit offers and could add to the explanation why the hypothesized effect of cognitive load on credit attractiveness was not found. It is possible, that the offers were simply too advantageous. More specifically, the one-time additional charge and the dunning fees were the only two components that made the credit offer more expensive than a cash payment. On average, the one-time additional charge equaled 2.00% of the product price or € 3.53. The dunning fee equaled 1.32% of the product price or € 2.50. Because most consumers do not anticipate to lag behind with their monthly instalment rate (Agarwal, Driscoll, Gabaix, & Laibson, 2008), it is likely that participants interpreted this credit aspect as one of secondary importance, leaving the one-time additional charge as the main driver of the costs for the offered credit. Participants in the low cognitive load condition should have been able to calculate that the offered credits are indeed really cheap, compared to the average loan for consumption with a duration of up to 12 months in April 2015 in Germany of 5.00% (Deutsche Bundesbank, 2016) but also in comparison to cash payment. As a consequence, they

might have concluded that the offer is very attractive. This would then resemble the conclusion of participants in the high cognitive load condition, who should have reached this conclusion on a more affective way by concentrating on the 0% interest rate, as described in the theory section. In order to observe different outcomes in the credit evaluation under different levels of cognitive load, the credits must be designed such that aspects that are relevant under low load processing lead to a different judgment than aspects that are relevant under high load processing. To ensure that this is the case, future studies should use credit offers that are worse than the ones used in the present study, while still being in line with statutory provisions and real consumer credit offers. For example, this could be done by adding an expensive mandatory residual debt insurance, requiring down payments or adding an early repayment fee.

Further limitations.

The present study used products that were selected with regard to being owned by a majority of students. This was done to come up with a set of products that participants can relate to because they are relevant in their everyday lives. Indeed, this selection of products led to a significant increase in product relevance from study 5 ($M = 2.79$, $SD = 1.41$) to study 6 ($M = 4.42$, $SD = 0.90$), $t(265) = -9.94$, $p < .001$. It can be assumed that this was also the reason for product attractiveness ($M = 3.89$, $SD = 0.75$ in study 5 and $M = 4.50$, $SD = 0.55$ in study 6, $t(265) = -6.81$, $p < .001$) and credit attractiveness ($M = 3.71$, $SD = 0.84$ in study 5 and $M = 4.21$, $SD = 0.83$ in study 6, $t(265) = -4.60$, $p < .001$) to increase significantly. Nevertheless, this is a necessary but not sufficient condition to ensure that participants take the situation described in the study as something that they could also encounter outside the laboratory. Meaningful ratings of credit attractiveness further require participants to have a certain level of involvement with the products. For example, a dish washer would be relevant to most people, as it saves a lot of effort

and money (through lowered water consumption). Nevertheless, the involvement with such a product should be rather low, because even when deciding to buy one, they all accomplish the task of cleaning dishes without offering further benefits like improved taste for the next meal on the washed plate. It is possible that participants in the present study had difficulties of making meaningful judgements on the credit offers for products with low involvement, because they lacked a connection to such a situation and perceived it as artificial. Therefore, involvement with the products should be given special emphasis in the product selection for future studies.

Related to this point, missing contextual information might have complicated participants' efforts of relating to the described situation. They were asked to rate the attractiveness of a product offer and a credit offer without any further information about the context of these offers. They were neither instructed to imagine to be looking for such products or wanting to buy them. Also, no information on why the product was needed or whether financing a purchase via credit was necessary was provided. Having to decide about the attractiveness without knowing anything about the context might have made it difficult for participants to reach a decision that is comparable to a decision in a comparable real situation with additional information. In order to eliminate such difficulties, further studies should provide at least a situational framework for the decisions on attractiveness as well as an instruction to imagine being in a specific situation that renders the purchase of the displayed products relevant.

As argued in the discussion section of study 5, a measure for spending self-control was included in the present study. Contrary to the assumption, it did not correlate significantly with either product attractiveness or credit attractiveness. This is probably a result of the dependent variable: The concept of credit attractiveness mainly consists of an affective and a cognitive component. In contrast, little importance is given to a behavioral component. In fact, only one of

the four questions used for credit attractiveness asked for a behavioral intention. Self-control however, puts great emphasis on actual behavior: The idea is that people with low self-control fail to behave in line with their goals, when confronted with a tempting choice (Baumeister et al., 2007). Thus, participants high in spending self-control should have less problems to forgo a good offer for a wanted product compared to participants low in spending self-control but this does not imply that they find the good or the credit any less attractive.

Study 7 – Evaluation of Credit Offers for Products with Different Use Under System 1 and System 2 Processing

Study 7 examines how System 1 / 2 processing influences the evaluation of 0%-interest credit offers for everyday products. Drawing on the previously presented literature on System 1 / 2 information processing in economic decision-making and the theoretical considerations on the salience of 0, the first hypothesis is similar to the hypotheses in studies 5 and 6:

H1: When people evaluate 0%-interest credit offers for specific products, relying on System 1 information processing leads to higher credit attractiveness as compared to relying on System 2 information processing.

Furthermore, study 7 examines the role of intended product use in this relationship. Drawing on the literature on hedonic and utilitarian products, the second hypothesis reads:

H2: Relying on System 1 information processing while evaluating 0%-interest credit offers for products with intended hedonic product use leads to higher credit attractiveness as compared to products with intended utilitarian product use.

The hypotheses were tested using a laboratory experiment on hypothetical purchase opportunities.

Method.

Participants.

Data collection took place from June 22nd to 24th, 2015¹⁰. Participants were approached on the campus of a large German university. They were asked to take part in a study on “consumption decisions” in return for a flat payment of € 3.00. From the original sample of 144 students who agreed to participate in this study, data from three participants was excluded for the following reasons: The PC of one participant crashed during the study and two participants stated that their data should not be used in the analyses. The final sample included 141 participants. It consisted of 41 (29.1%) men and 100 women (70.9%) with an age between 18 and 49 years ($M = 22.6$, $Mdn_{Age} = 21$, $SD = 3.8$). The median duration to complete the study was $Mdn_{Dur} = 27:48$ minutes, leading to an hourly earning equivalent of around € 6.50.

Procedure.

A 2 (information processing mindset) x 2 (intended product use) between-subjects design was used in this study. The two independent variables were information processing mindset (System 1 mindset or System 2 mindset) and intended product use of the presented products (hedonic use or utilitarian use). The dependent variable was credit attractiveness.

When entering the lab, participants were seated individually at a computerized workplace and asked to start working on the study. All information was provided on screen. The allocation of participants to the four conditions in this study was random.

At the start, participants completed the information processing mindset manipulation.

In the following evaluation task, participants were presented with a product offer and a corresponding 0%-credit offer for the product. The product was described to be of either hedonic

¹⁰ I would like to thank, Atar Herziger, Rufina Gafeeva, Jenny Maurer, Paula Risius, Michael Blens, and Oliver Zabel for their help in the survey promotion and data collection.

or utilitarian use. Unlike in studies 5 and 6, participants were asked to only evaluate the credit offer. This scheme was repeated for five different products.

After this part of the study, participants answered a manipulation check for information processing mindset. The questions of this manipulation check referred to the situation when participants were completing the manipulation. Next, participants answered a manipulation check for intended product use. Furthermore, participants' self-control in the domain of consumption expenditures, their attitude towards credit, need for cognition and their tendency to plan with money were assessed.

Following these scales, participants' understanding of credit-related terms that were used in the previously seen credit offers was measured and they completed an instructional manipulation check serving as an attention check. In a last part of the study, participants stated their involvement with each of the five products used in the previous offers, provided information on the quality of their answers (Meade & Craig, 2012) and demographic information (gender, age, field of studies).

Finally, the experimenter thanked the participants and handed the payment of € 3.00 to them.

Material.

Information processing mindset.

Information processing mindset was manipulated using a mindset manipulation adapted from van den Bos and Maas (2009). All texts from this measure were translated into German language for the purpose of this study. The texts that are printed here are back translations from the German texts that were applied in this study. On a first page, participants read a text on either System 1 mindset or System 2 mindset, depending on their respective condition. Both texts are

Table 19
Information on Information Processing Mindsets

| System 1 mindset | System 2 mindset |
|---|--|
| <p>Various studies have shown that we process the information that we read differently. Often, we <i>develop many associative thoughts while reading materials. This implies that we connect the contents to our own experiences and visualize what is described. Based on intuition, gut feelings, own experiences, and associations impulsively evoked by the information that we read, we form our opinions about the information that we process. This way of information processing can be labeled as “expressive” and “impulsive.” Furthermore, we then often say what we think and what is on our minds.</i></p> | <p>Various studies have shown that we process the information that we read differently. Often, we <i>read and process the texts carefully, weighing the pros and cons of what we read in logical and analytical ways. Based on logical evidence and precise information processing, we form our opinions about the information we process. This way of information processing can be labeled as “evaluating” and “analytic”.</i></p> |

Note. Differences in the text between the two conditions italicized. Adapted from “On the Psychology of the Belief in a Just World: Exploring Experiential and Rationalistic Paths to Victim Blaming” by K. van den Bos & M. Maas, 2009, *Personality and Social Psychology Bulletin*, 35(12), p. 1570f.

shown in Table 19.

After reading the respective text, participants were asked to think for 45 seconds about how they would read a text and process the information in the described way. After this time, the page changed and they read the following: *Please let us know what came to your mind when thinking about reading a text and processing the information expressively [evaluatively] and impulsively [analytically]. What do you think, how would you react to the information?*

Participants were asked to enter their answers into a textbox below.

In a second step, they were instructed to read a short text and to answer two open-ended questions on that text.

The instructions further specified how to read and process the information in the text that they were about to read. Again, the instructions differed for the two conditions. They are shown in Table 20.

Table 20

Instructions on how to read a given text

| System 1 mindset | System 2 mindset |
|---|---|
| <p>We would like to ask you to read the following text and answer the questions in the way just described to you. Read the text and react to it as <i>expressively and impulsively</i> as possible. <i>Furthermore, you can form your opinion about what you read on the basis of your gut feeling and intuition. You can write down anything you want while expressing your point of view. The first thing that comes to mind is often what you are thinking and we would be happy if you share your thoughts with us.</i> There are no right or wrong answers. Thus, everything that you type in will be fine, as long as <i>it is your first reaction that crossed your mind when reading the text.</i> Your answers will be treated confidentially and anonymously.</p> | <p>We would like to ask you to read the following text and answer the questions in the way just described to you. Read the text and react to it as <i>evaluative and analytically</i> as possible. <i>Try to weigh the pros and cons of what you read, and to think as rationalistically as possible about the contents of the text before forming an opinion and stating it.</i> There are no right or wrong answers. Thus, everything that you type in will be fine, as long as <i>you have thought carefully about your reaction.</i> Your answers will be treated confidentially and anonymously.</p> |

Note. Differences in the text between the two conditions italicized. Adapted from “On the Psychology of the Belief in a Just World: Exploring Experiential and Rationalistic Paths to Victim Blaming” by K. van den Bos & M. Maas, 2009, *Personality and Social Psychology Bulletin*, 35(12), p. 1570f.

Below the instructions, all participants saw a short summary in the form of four bullet points, highlighting the most core ideas (e.g., “*Be as expressive as possible in your reactions.*” or “*Try to weigh the pros and cons and take different viewpoints.*”). After reading the instructions, they proceeded to the next page where they read the actual target-text. In the original manipulation, van den Bos and Maas (2009) used an adapted version of a text by Haidt (2001). The text on a sibpair having sex with each other might be a good choice for research on moral judgement, which was the field of interest in those papers. However, for the present study an own text was formulated that is closer to the area of consumption decisions and does not stress ethical issues. In both conditions this text reads:

Vera and Mark are friends. They want to cook together and for that purpose they go grocery shopping. Mark wants to buy Fairtrade products only, to support the

producers financially and to make a statement for responsible consumption. Vera argues that eliminating market mechanisms promotes overproduction and suppresses incentives to improve the product quality and to adapt to innovations. After a short argument, on whether they would support a sustainable and positive development for the producers or rather cause harm to them by buying Fairtrade products, they decide to flip a coin. In case of heads, they will buy Fairtrade products and in case of tails they will buy products without the seal.

Participants were asked to write down their answers on the questions “What do you think of this situation? Was it the correct decision of Vera and Mark to resolve the argument by flipping the coin?” and “What do you think of Vera and Mark?” into the provided textboxes.

Product and credit offer.

Every page with a product and credit offer was set up in the same way: At the top of the page, participants read a reminder of the information processing mindset manipulation. Below, in the left half of the screen, they saw a picture of a product. Participants were asked to imagine a scenario regarding the intended use of the product that was described below the picture. Under this text, they saw details on the 0%-credit offer and explanations on the financial terms used in the credit offer. Below the reminder of the information processing mindset manipulation, in the right half of the screen, participants were asked to evaluate the credit offer by answering four questions on it. The single elements on this page will be described in further detail in the following sections.

Reminder of the information processing mindset manipulation.

The reminder summed up the previously given instructions on how to process information. Therefore, it differed between the two conditions. The respective texts are shown in

Table 21

Reminder of the information processing mindset manipulation

| System 1 mindset | System 2 mindset |
|---|--|
| We would like to ask you to read the following offer and answer the questions in the way that was described to you earlier. Read the offer and react to it as <i>expressively and impulsively</i> as possible. <i>Furthermore, you can form your opinion about what you read on the basis of your gut feeling and intuition.</i> There are no right or wrong answers. Thus, every answer will be fine, as long as <i>it mirrors the first reaction that crossed your mind when reading the offer.</i> | We would like to ask you to read the following offer and answer the questions in the way that was described to you earlier. Read the offer and react to it as <i>evaluatively and analytically</i> as possible. <i>Try to weigh the pros and cons of what you read, and to think as rationalistically as possible about the contents of the offer before answering the questions.</i> There are no right or wrong answers. Thus, every answer will be fine, as long as <i>you have thought carefully about it.</i> |

Note. Differences in the text between the two conditions italicized.

Table 21.

Intended use of the product.

Participants were asked to imagine a situation that described the intended product use to be of either rather hedonic or utilitarian nature. The scenarios provided a reason for the purchase of the product and included expectations stemming from the specific needs of the intended use.

Table 22

Hedonic und utilitarian scenario describing the intended product use

| Hedonic product use | Utilitarian product use |
|---|--|
| You need a new <i>multimedia laptop</i> . The product needs to meet the latest standards to <i>stream and play movies and series without delay</i> . In addition, <i>you want to use the laptop for digital image processing and to play the latest games in best quality without any lags</i> . Related to this, the laptop also needs to <i>meet the latest standards in networking and graphics, to connect well with all your other entertainment devices and to guarantee the best entertainment experience without any connectivity problems or communication errors between the devices</i> . In your search, you find the following offer for students: | You need a new <i>laptop for your studies and your side job</i> . The product needs to meet the latest standards to <i>ensure fast and error-free multitasking, to allow you to work on several programs at the same time without any capacity losses</i> . In addition, <i>the product needs to meet the newest security standards and be able to adapt well to long and demanding work- sessions (e.g., in the exam phase)</i> . Related to this, the laptop also needs <i>fans that are able to protect it from overheating under intense use but also work as silent as possible, to ensure maximal concentration</i> . In your search, you find the following offer for students: |

Note. Differences in the text between the two conditions italicized

They were equally long and structured in a comparable way in both conditions of intended product use and for all products. As an example, the scenario for the laptop is shown in Table 22.

Selection and presentation of products.

The products used in this study were selected based on the results from a pretest with students ($N = 36$). This pretest assessed ratings of personal relevance for each product as well as hedonic and utilitarian dimensions of participants' attitudes towards the product in the given scenario. The five products were selected due to a high personal relevance among students and a good differentiability between hedonic and utilitarian perceptions. They comprised a laptop, rent deposit, tent, bike and office chair.

All pictures were presented against a neutral background. No brand names were visible. In one corner of the picture, participants saw a red price tag that included the name of the product, a prominent placement of 0% and the product's price.

Details on the 0%-credit offer and explanation of the financial terms.

A text contained information on a 0%-interest credit offer for students. Participants were informed about the annual percentage rate, the credit period, a required down payment, the monthly installment rates from the second month on, dunning fees, an early repayment fee and a residual debt insurance. The annual percentage rate was 0% and the credit period was 12 months for all offers. The required down payment always amounted to 20% of the price for the respective product and was expressed as an absolute amount in Euro. The latter also holds for the monthly installment rates which were calculated as the price of the product minus the down payment and divided by 11 months. The dunning fee ranged from € 5.30 for the cheapest product to € 8.95 for the priciest product, while the early repayment fee ranged from € 5.30 for the cheapest product to € 9.45 for the priciest product. For all products, the residual debt insurance

ranged from 13% to 17% of the price for the respective product.

The random variation in dunning fees, early repayment fees and residual debt insurances was predetermined and used for all participants. It served the purpose to make the offers more realistic. All specific details were in line with the German statutory provisions and comparable to real credit offers.

The terms annual percentage rate, late payment, early repayment and residual debt insurance were marked with superscripts. Below the credit details, the meaning of those terms was explained in very simple words. These explanations were provided to ensure the same level of understanding for all participants.

Credit evaluation.

Next to the product picture and credit offer, on the right side of the screen, participants were asked to evaluate the credit offer. This was done as in studies 5 and 6. Cronbach's alpha ranged between $\alpha = .83$ and $\alpha = .92$ for the 5 products.

Manipulation check for information processing mindset.

In order to check whether the manipulation of information processing mindset was successful, participants answered five questions on how they reacted to the text about Vera and Mark in the manipulation, adapted from van den Bos and Maas (2009). Regarding the first four questions, participants stated whether they, while reading the text answering the according two questions, (1) thought things through thoroughly, (2) weighted the pros and cons before reacting, (3) reacted intuitively to the questions and (4) reacted impulsively to the questions by typing in the first that came to their minds. The answers to those four questions ranged from 1 = strongly disagree to 7 = strongly agree. The fifth question asked whether participants reacted more rationalistically and analytically or more impulsively and intuitively to the text (1 = very

analytically and rationalistically, 7 = very intuitively and impulsively). After recoding the last three questions, all five questions were averaged to form an index to check on the information processing mindset manipulation with lower values indicating System 1 mindset and higher values indicating System 2 mindset. Cronbach's alpha was $\alpha = .86$.

Manipulation check for intended product use.

In order to check whether the manipulation of intended product use was successful, participants answered one question on each product that they previously saw. The question asked how they would judge the respective product in the situation that was described to them. Answers ranged from 1 = mainly for functional use to 7 = mainly for one's own pleasure. Because of a low value for Cronbach's alpha ($\alpha = .23$), the items were not averaged to form an index.

Control variables.

The cognitive reflection test described in study 6 was used in the same format in the present study. Cronbach's alpha was $\alpha = .63$. Participants' self-control in the domain of consumer spending was measured as in study 6.

Participants' attitude to debt was measured using an attitude scale by Davies and Lea (1995) that was designed particularly for students. It consists of 14 items (e.g., "Taking out a loan is a good thing because it allows you to enjoy life as a student") that are assessed on a 7-point scale (1 = strongly disagree to 7 = strongly agree). The questions were recoded and attitude to debt was computed as the mean value of the 14 questions ($\alpha = .64$) with higher values indicating a more positive attitude towards debt.

Participants' need for cognition (Cacioppo & Petty, 1982; Cacioppo, Petty, & Kao, 1984) was measured using a short scale developed by Beißert, Köhler, Rempel, and Beierlein (2014). It

consists of four items (e.g., “Simply knowing the answer rather than understanding the reasons for the answer to a problem is fine with me.”) that are assessed on a 7-point scale (1 = applies completely to 7 = doesn’t apply at all). Because of a low value for Cronbach’s alpha ($\alpha = .47$), the items were not averaged to form an index.

Participants’ propensity to plan for money was measured using a scale adapted from Lynch et al. (2010). It consists of six items (e.g., “I like to look to my budget for the next 1-2 years in order to get a better view of my spending in the future.”) that are assessed on a 6-point scale (1 = strongly agree to 6 = strongly disagree). The questions were recoded and propensity to plan was computed as the mean value of the six questions ($\alpha=.92$) with higher values indicating a stronger propensity to plan.

Several questions assessed participants’ understanding of credit-related terms and their perceived understandability of the credit offers. Four questions asked participants to select the correct meaning of the terms annual percentage rate, dunning fee, early repayment fee and residual debt insurance. For each question, two to four answer options as well as a “don’t know” option were provided. The correct answer was a copy of the superscript explanation that was provided on the credit-offer pages. An index of participants’ understanding of credit-related terms was calculated by giving 1 point for every correct answer and summing up these points. Therefore, a higher score indicates a better understanding.

Furthermore, participants were asked to indicate the understandability of the credit offers (1 = very understandable, 7 = not at all understandable) and whether they had all the information necessary to form a judgement on the offers (1 = strongly disagree, 7 = strongly agree). If participants gave an answer below the midpoint to the latter question, they were asked to name any piece of information that they would have wished for.

In order to assess whether or not participants were reading the instructions in the study carefully, the instructional manipulation check (Oppenheimer et al., 2009) was adapted as described in study 6.

Involvement was measured individually for every product using a subset of six items from the personal involvement inventory by Zaichkowsky (1985). A question read “If you think about the [product]: Personally, to what extent do the following descriptions apply?”, followed by the six items in the form of semantic differentials (e.g., 1 = of no concern, 6 = of concern to me). The reason for using only six items of the original 20-item scale consists in a potential confound of the other items with the manipulation of intended product use. For example, the item unexciting – exciting would probably be scored lower by participants in the utilitarian condition as compared to participants in the hedonic condition, regardless of involvement. For the selected six items, no such problems were anticipated. The questions were recoded and involvement was computed as the mean value of the six questions. Higher values indicated a stronger involvement. Over the five products, Cronbach’s alpha ranged from $\alpha = .84$ to $\alpha = .93$.

In the last part of the study, participants indicated whether their data should be used in the analysis. The question was the same as in study 6.

Results.

Preliminary analyses.

Manipulation checks.

In a first step, the manipulation checks of information processing mindset and intended product use were analyzed.

Due to non-normality of the index created from the questions referring to the text about Vera and Mark, a Mann-Whitney test was conducted. Results indicate that participants in the

System 1 mindset condition reacted more spontaneously and intuitively (*Mdn Rank* = 43.86), while participants in the System 2 mindset condition reacted more analytically and rationally on the text (*Mdn Rank* = 97.01), $U(141) = 611.00, p < .001$ (one-tailed). Furthermore, participants in the System 1 mindset condition took significantly less time to answer the questions on credit attractiveness (*Mdn Rank* = 63.86), as compared to participants in the System 2 mindset condition (*Mdn Rank* = 77.85), $U(141) = 1991.00, p = .021$ (one-tailed). With fast decisions being related to System 1 processing and slow decisions being related to System 2 processing (Evans, 2008; Evans & Stanovich, 2013) it was concluded from these results that the manipulation of information processing mindset was successful.

In order to check for a successful manipulation of intended product use a MANOVA was conducted with participants' individual ratings of hedonic or utilitarian quality of the products serving as dependent variables. Intended product use served as the independent factor. Pillai's trace showed that there was a significant effect of intended product use on participants' ratings of hedonic and utilitarian quality of the products, $V = 0.30, F(5, 135) = 11.67, p < .001$. In the individual follow-up ANOVAs participants presented with products with intended hedonic use rated them as more hedonic as compared to participants who were presented with products with intended utilitarian use in case of the laptop ($M = 4.22, SD = 1.61$ vs. $M = 2.76, SD = 1.41, F(1, 139) = 32.67, p < .001$), the rent deposit ($M = 3.30, SD = 2.08$ vs. $M = 2.26, SD = 1.50, F(1, 139) = 11.66, p = .001$) and the tent ($M = 5.45, SD = 1.84$ vs. $M = 4.46, SD = 1.85, F(1, 139) = 10.17, p = .002$). However, for the bike the effect was reversed: Participants presented with a bike with intended hedonic use rated it as less hedonic ($M = 3.87, SD = 1.61$) as compared to participants who were presented with a bike with intended utilitarian use ($M = 4.49, SD = 1.65, F(1, 139) = 5.03, p = .026$). While the pattern held true for the office chair as well

($M = 3.00$, $SD = 1.74$ vs. $M = 3.28$, $SD = 1.94$) the difference was not significant, $F(1, 139) = 0.80$, $p = .373$. While the unexpected effect for the bike was somewhat puzzling, the multivariate test indicated a successful manipulation of intended product use.

Next, participant's answers to the questions on the understanding of the credit details were analyzed, to check whether they were able to comprehend the credit offers as a prerequisite to meaningful judgements. A score was calculated as the sum of correct answers to the four factual questions. While 35.46% of the participants answered at least three questions correctly, 74.47% answered at least half of the questions correctly. Only 9.22% of the participants answered none of the questions correctly. After recoding the question on general understandability of the credit offers to range from 1 = not at all understandable to 7 = very understandable, respondents answered with $M = 4.17$ ($SD = 1.64$). Their mean score on the question whether they had all the information necessary to form a judgement ($M = 3.87$, $SD = 1.79$) indicated rather some missing information. Of the 65 participants who answered the questions below the midpoint and therefore were asked what pieces of information they had wished for, most ($n = 17$) indicated a problem of understanding that lies beyond the terms used. Few asked for information that was in fact given ($n = 4$) and some more asked for the total costs of the credit offers ($n = 6$). Furthermore, participants rather wished for missing information on the situation (e.g., budget) ($n = 12$) than for detailed information on specific aspects of the credits that was indeed not given ($n = 7$). Overall, participants seemed to have had problems understanding the credit offers. It seems as if this is less a consequence of specific terms or mathematical understanding but rather the result of a somewhat vague and diffuse understanding of the credit concept beyond the single aspects. Nevertheless, the overall understanding can be interpreted as satisfactory and the majority of participants stated to have had all the necessary

information to form a judgement.

Descriptives.

Means, standard deviations, correlation coefficients and reliabilities for the variables in this study are shown in Table 23.

As can be seen, credit attractiveness was on average rated slightly worse than in studies 5 and 6 ($M = 3.30$, $SD = 1.06$). The rather high rating of product involvement ($M = 3.85$, $SD = 0.64$) indicates that the products selected in this study are to a certain degree typical to student purchases.

Although being a little lower as compared to studies 5 and 6, the average rating of credit understanding of $M = 4.17$ ($SD = 1.64$) is a positive signal that participants were able to grasp the credit offers and understand the single aspects of the offers. Participants answered on average one of the three questions of the cognitive reflection test correctly, which is comparable with the result from the previous use of this measure. Furthermore, the same is true for spending self-control ($M = 5.16$, $SD = 1.18$), which is positively correlated with product involvement.

Participants rather tended to plan ahead regarding their monetary situation ($M = 4.46$, $SD = 1.32$). Unsurprisingly, this correlates with spending self-control, such that participants who stated that they are making plans for the future also reported higher levels of self-control, $r = .44$, $N = 141$, $p < .001$. The items for need for cognition averaged between $M = 2.94$ ($SD = 1.60$) and $M = 5.69$ ($SD = 1.60$). Interestingly, none of the items is correlated with the cognitive reflection test score.

Finally, participants' credit attitude was on average $M = 3.98$ ($SD = 0.68$). In the sample, a more positive attitude towards credit is linked to a higher credit attractiveness ($r = .18$, $N = 141$, $p = .034$), although the connection is rather weak. Additionally, credit attitude

Table 23
Means, Standard Deviations, Correlation Coefficients and Reliabilities for the Variables in the Analyses

| Measure | <i>M</i> | <i>SD</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|--|----------|-----------|------------|------------|------|------|--------|------|--------|-------|-----|-----|-----|
| 1. Credit attractiveness ^a | 3.30 | 1.06 | .83 to .92 | | | | | | | | | | |
| 2. Product involvement ^b | 3.85 | .64 | .15 | .84 to .93 | | | | | | | | | |
| 3. Credit understanding ^a | 4.17 | 1.64 | .05 | .01 | - | | | | | | | | |
| 4. Cognitive reflection ^c | 1.19 | 1.10 | -.09 | .10 | .15 | .63 | | | | | | | |
| 5. Spending self-control ^a | 5.16 | 1.18 | -.02 | .27** | .03 | .00 | .90 | | | | | | |
| 6. Propensity to plan ^b | 4.46 | 1.32 | .08 | .13 | -.03 | -.16 | .44*** | .92 | | | | | |
| 7. Need for cognition (Item 1) ^a | 5.56 | 1.47 | -.13 | -.05 | .14 | -.01 | -.16 | -.20 | - | | | | |
| 8. Need for cognition (Item 2) ^a | 3.36 | 1.55 | -.01 | .14 | .18* | .12 | -.04 | .10 | .23*** | - | | | |
| 9. Need for cognition (Item 3) ^a | 2.94 | 1.60 | .12 | .07 | -.05 | .03 | -.09 | .04 | .19* | .44** | - | | |
| 10. Need for cognition (Item 4) ^a | 5.69 | 1.60 | -.15 | -.01 | -.04 | .01 | -.11 | -.10 | .31*** | -.06 | .01 | - | |
| 11. Credit attitude ^a | 3.98 | .68 | .18* | .06 | .10 | .03 | -.17* | -.14 | .15 | .05 | .06 | .09 | .60 |

Note. *N* = 141. The diagonal displays Cronbach's α for the respective scale.

^aScale range: 1 to 7. ^bScale range: 1 to 6. ^cScale range: 0 to 3.

* $p < .05$. ** $p < .01$. *** $p < .001$.

correlates negatively with spending self-control ($r = -.17, N = 141, p = .050$), such that a more positive attitude comes with lower levels of self-control.

Main analyses.

The overall and product specific means and standard deviations of credit attractiveness, split up for the four conditions resulting from the 2x2 design, are shown in Table 24.

A two-way ANOVA was conducted to test the hypothesis that there would be a mean difference in credit attractiveness between System 1 mindset and System 2 mindset.

Furthermore, intended product use and the interaction with information processing mindset was included as independent factors, to test the hypothesis that in System 1 mindset hedonic product use leads to higher credit attractiveness as compared to utilitarian product use. No significant effect of information processing mindset was obtained, $F(1, 137) = 0.19, p = .665$. While the effect of intended product use on credit attractiveness was significant ($F(1, 137) = 5.04, p = .026$), the interaction between the two factors was not, $F(1, 137) < 0.01, p = .973$. Regarding the descriptive results, credit attractiveness was at the same level for participants in the System 1 mindset condition ($M = 3.31, SD = 1.09$) as compared to participants in the System 2 mindset condition ($M = 3.29, SD = 1.05$). Furthermore, credit attractiveness was higher for participants in the utilitarian product use condition ($M = 3.49, SD = 1.04$) than for participants in the hedonic product use condition ($M = 3.10, SD = 1.06$).

Next, the model was extended to a two-way ANCOVA by adding consumer spending self-control, credit attitude, propensity to plan and the four items on need for cognition as covariates. As in the ANOVA, there was no significant effect of information processing manipulation on credit attractiveness, $F(1, 130) = 0.32, p = .576$. The effect of intended product use was no longer significant, ($F(1, 130) = 3.09, p = .081$) and the interaction between the two

Table 24
Sample Sizes, Overall and Product Specific Means and Standard Deviations of Credit Attractiveness

| Measure | System 1 mindset | | | | System 2 mindset | | | | | |
|-------------------------------|---|-----------|---|-----------|---|-----------|---|-----------|-----------------------------|-----------|
| | Hedonic product use (<i>n</i> = 39) | | Utilitarian product use (<i>n</i> = 30) | | Hedonic product use (<i>n</i> = 30) | | Utilitarian product use (<i>n</i> = 42) | | Overall (<i>n</i> = 72) | |
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Overall credit attractiveness | 3.13 | 1.04 | 3.54 | 1.11 | 3.31 | 1.09 | 3.06 | 1.10 | 3.29 | 1.05 |
| Laptop | 2.88 | 1.31 | 3.19 | 1.61 | 3.01 | 1.45 | 2.82 | 1.21 | 3.13 | 1.35 |
| Rent deposit | 3.15 | 1.36 | 3.40 | 1.59 | 3.26 | 1.46 | 3.02 | 1.51 | 3.20 | 1.51 |
| Tent | 3.21 | 1.66 | 4.19 | 1.51 | 3.63 | 1.66 | 3.22 | 1.71 | 3.61 | 1.70 |
| Bike | 3.27 | 1.47 | 3.13 | 1.40 | 3.21 | 1.43 | 2.88 | 1.41 | 3.01 | 1.41 |
| Office chair | 3.13 | 1.55 | 3.78 | 1.71 | 3.41 | 1.64 | 3.35 | 1.83 | 3.48 | 1.82 |

Note. *N* = 141.

factors was not significant as well, $F(1, 130) = 0.19, p = .661$. Among the covariates, only credit attitude obtained a significant effect with a more positive attitude resulting in greater credit attractiveness, $F(1,130) = 4.69, p = .032$.

The results suggest to reject the hypothesis that participants relying on System 1 mindset perceive credits to be more attractive than participants relying on System 2 mindset.

Furthermore, there is no significant interaction between the two factors information processing mindset and intended product use.

Exploratory analyses.

Potential problems with attention paid by the participants.

As pointed out earlier in study 5, measurement error can be caused by participants who for various reasons do not pay enough attention to reading and answering the questions (Greszki et al., 2015). As a consequence, it can lead to a decrease in data quality. As in study 6, it was decided to reanalyze the data for those participants who passed the instructional manipulation check, using the ANOVA model from the main analyses, to circumvent problems stemming from data quality. A chi-square test of independence was performed to examine the relation between information processing mindset and passing the instructional manipulation check. The relation between these variables was insignificant, $\chi^2(1, N = 141) = 0.55, p = .614$. The same is true for intended product use and passing the instructional manipulation check, $\chi^2(1, N = 141) = 0.68, p = .737$. Passing the check was not affected by participants' condition. For those participants who passed the instructional manipulation check ($n = 72$), as in the main analysis, no significant effect of information processing mindset on credit attractiveness ($M = 3.35, SD = 1.06$ and $M = 3.29, SD = 0.89$ respectively) was obtained, $F(1, 68) = 0.14, p = .707$. Furthermore, intended product use did not have a significant effect on credit

attractiveness ($F(1, 68) = 3.42, p = .069$) and the interaction between the two factors was insignificant ($F(1, 68) = 1.81, p = .183$), as well. Regarding the descriptive results, credit attractiveness was at the same level for participants in the System 1 mindset condition ($M = 3.35, SD = 1.06$) than for participants in the System 2 mindset condition ($M = 3.29, SD = 0.89$). Furthermore, credit attractiveness was higher for participants in the utilitarian product use condition ($M = 3.51, SD = 1.00$) than for participants in the hedonic product use condition ($M = 3.10, SD = 0.91$).

Potential problems with the understandability of the credit offers.

As already noted, credit understanding did not show overly positive results. Therefore it was decided to rerun the analyses for the subsample of participants who answered at least two of the four questions on credit details correctly, using the ANOVA model from the main analyses. Prior to this, a chi-square test of independence was calculated comparing the score on the credit understanding questions for participants in the System 1 and System 2 mindset conditions. No significant effect was found, $\chi^2(4, N = 141) = 4.78, p = .316$. Similarly, the relation between intended product use and the score on the credit understanding questions was also insignificant, $\chi^2(4, N = 141) = 3.17, p = .538$. For those who answered at least two questions on the credit details correctly ($n = 105$), as in the main analysis, no significant effect of information processing mindset on credit attractiveness was obtained, $F(1, 101) = 0.13, p = .720$. The same is true for the second hypothesis on the interaction of information processing mindset and intended product use, as the interaction in the model remained insignificant ($F(1, 101) = 0.20, p = .887$), as well. As in the ANOVA from the main analysis, the effect of intended product use on credit attractiveness was significant in this subsample as well, ($F(1, 101) = 6.12, p = .015$): Utilitarian intended product use evoked a higher credit attractiveness ($M = 3.64, SD = 0.98$) as compared to

hedonic intended product use ($M = 3.15$, $SD = 1.03$).

Potential problems with the involvement with the products.

Next, it was decided to take a closer look at participants' involvement with the products. As outlined in study 5, it could be possible that the participants perceived the products to be different from their everyday purchases. If that was the case, they could have had problems to relate to a situation where the purchase of such products is the central element, thus giving more or less random answers, leading to decreased data quality. However, product involvement ranged from $M = 3.28$ ($SD = 1.33$) for the rent deposit to $M = 4.83$ ($SD = 0.87$) for the laptop with the exception of $M = 2.98$ ($SD = 1.36$) for the tent. Being measured on a 6-point scale this indicates a medium level of involvement. Nevertheless, this value was interpreted as high enough to assume that a lack of involvement is not a primary concern.

Potential problems with the time spent on the evaluation task.

While the manipulation check for information processing mindset indicated a successful manipulation, it is unclear how long it remained effective. Although the questions used for the corresponding manipulation check were asked after all measures of the dependent variables, they referred to the moment when information processing mindset was manipulated. While the pages with the product presentation and credit evaluation also included a reminder to emphasize System 1 or System 2 mindset, it cannot be said for sure that the manipulation was effective over all products. However, because System 1 mindset is characterized to be comparably fast (Evans, 2008), it was decided to use the time spent on the credit attractiveness rating as a proxy for System 1 or System 2 mindset usage and analyzed credit attractiveness depending on this duration. To this end, participants were allocated to two groups via a median split on time spent on the five product pages. In the fast pace group, participants spent on average $M = 4m14s$

($SD = 49s$) on the product pages compared to $M = 7m41s$ ($SD = 1m44s$) in the slow pace group. Analogous to the main analysis, no significant effect of time spent on the pages on credit attractiveness was obtained, $F(1, 137) = 2.68, p = .104$. The same is true for the interaction of time spent and intended product use, ($F(1, 137) = 1.99, p = .161$). As in the ANOVA from the main analysis, the effect of intended product use on credit attractiveness was significant in this model as well, ($F(1, 137) = 4.16, p = .043$): Utilitarian intended product use evoked a higher credit attractiveness ($M = 3.49, SD = 1.04$) as compared to hedonic intended product use ($M = 3.10, SD = 1.06$).

Potential problems with System 1 / 2 information processing as a stable disposition.

As in study 6, the relationship between the cognitive reflection test score as an indicator for a stable disposition towards System 1 or System 2 information processing and credit attractiveness was analyzed. Kendall's tau was calculated in order to determine if there was such a relationship. Contrary to the assumption, the two variables were not significantly correlated, $r_{\tau}(141) = -.08, p = .100$ (one-sided). The result suggests that a stable disposition towards System 1 or System 2 information processing as measured with the cognitive reflection task is unrelated to credit attractiveness.

Product-specific analysis.

In a last step, the relationship between information processing mindset, intended product use and credit attractiveness was analyzed in detail for each offer, to see whether the hypothesized effects exist for some products but vanish in the aggregation. To this end, a multivariate analysis of variance (MANOVA) was conducted with the individual ratings of credit attractiveness serving as dependent variables. Information processing mindset and intended product use served as independent factors. In addition, the interaction between the two was

included. Using Pillai's trace, there was no effect of information processing mindset on credit attractiveness, $V = 0.01$, $F(5, 133) = 0.32$, $p = .899$. However, when participants were presented with products with an intended utilitarian use, credit attractiveness was higher ($M = 3.66$, $SD = 1.77$) than when presented with products with an intended hedonic use ($M = 3.23$, $SD = 1.67$), $V = 0.08$, $F(5, 133) = 2.37$, $p = .043$. The interaction between the two factors was not significant, $V = 0.02$, $F(5, 133) = 0.49$, $p = .786$. In the individual follow-up ANOVAs the only significant effect was a main effect of intended product use on credit attractiveness for the tent ($F(1, 137) = 8.89$, $p = .003$): Utilitarian intended product use led to greater credit attractiveness ($M = 4.02$, $SD = 1.59$) as compared to hedonic intended product use ($M = 3.62$, $SD = 1.66$). The overall and product specific means and standard deviations of credit attractiveness are shown in Table 24.

Discussion.

The purpose of the present study was to extend research on credit choice by examining credit attractiveness for products with different intended use in different modes of information processing. To this end, a laboratory experiment was conducted in which intended product use was manipulated to be either hedonic or utilitarian and information processing mindset was manipulated to be either System 1 mindset or System 2 mindset. Credit attractiveness was measured for several 0%-interest credit offers that were presented with products thought to be relevant to students. No significant difference in credit attractiveness was found between the System 1 mindset and System 2 mindset conditions. This finding was consistent throughout the analyses and rejects the hypothesis that participants in System 1 mindset perceive 0%-interest credits to be more attractive as compared to participants in System 2 mindset. Surprisingly, several analyses showed that utilitarian intended product use led to higher credit attractiveness as

compared to hedonic intended product use. Furthermore, the interaction between the two factors was not significant in any of the analyses. Therefore, the hypothesis that participants in System 1 mindset evaluate credits for products with hedonic intended use more positively than credits for products with utilitarian use has to be rejected as well.

Lee, Lee, Bertini, Zauberan, and Ariely (2015) found that monetary considerations trigger the use of System 2 information processing. They argue that thoughts about money activate a value-maximization goal and considerations of economic value. Similarly, Su and Gao (2014) showed that participants primed with money (as opposed to time) engaged in more analytical processing, leading to a more fine-grained attribute-based (as opposed to alternative-based) evaluation strategy for different products. If the concept of money universally causes people to focus on cost-benefit considerations and piecemeal assessment over enjoyment and holistic assessment, the manipulation of information processing mindset that was used in the present study is likely to be unsuitable for the purpose. It activates either a mindset highlighting controlled information processing or a mindset highlighting automatic information processing and tries to uphold the respective mindset via the reminder in the credit evaluation task. However, when participants made their judgement on the credit offer, they had to consider monetary aspects. Given that the presented results on money priming hold true, this should have led participants to ignore contrary instructions (in the System 1 mindset condition) and engage in System 2 mindset in any case. In contrast to studies 5 and 6, no further obstacle like a lack of cognitive resources should have prevented this from happening. Following this argument, even a successful manipulation of information processing mindset as judged by the significant manipulation check would not prevent participants to process the credit offers in a rather analytical and rational way, thereby rendering the manipulation unsuitable.

The finding that information processing mindset had no effect on credit attractiveness stands in contrast to the theory-based assumptions in the literature. For example, Strack et al. (2006) argue that impulse buying can be linked to arousal and emotions. They state that the active use of cognitive resources is a prerequisite to overcome such impulses. Put differently, relying on System 1 information processing where arousal and emotions play a strong role should make people susceptible to impulse purchases. As a credit is a financial tool that enables people to act in line with their intention, regardless of their cash restrictions, it should be seen as more attractive.

One possible explanation for the shortcoming of the present study to find an effect where previous research indicated a linkage might be that the manipulation used was not strong enough to show the hypothesized effect. This point will be discussed in more detail in the next section.

Problems with the information processing mindset manipulation.

The manipulation of information processing mindset was successful, as indicated by the manipulation check. However, it is less clear how long participants followed the instruction to process information either expressively and impulsively or evaluatively and analytically. Although the questions for the manipulation check were placed at the end of the questionnaire, to allow for a minimization of the time between the manipulation and the credit evaluation task, they referred directly to the time point when participants completed the manipulation. While the reminder served to uphold the mindset manipulation during the credit evaluation task, there is no further direct measure for the success of it. In this context, it is important to note that participants in the System 1 mindset condition took less time to answer the questions on credit attractiveness, as compared to participants in the System 2 mindset condition. With fast decisions being related to System 1 information processing and slow decisions being related to System 2 information

processing (Evans, 2008, Evans & Stanovich, 2013) this result indicates a lasting effect of the manipulation. Nevertheless, the time taken to complete the credit evaluation task is no guarantee for a lasting effect of the manipulation for two reasons. First, enhanced speed is a correlate but not a defining characteristic of System 1 information processing. Therefore, it should not be interpreted as proof for engaging in System 1 mindset. Second, participants took less time to evaluate the credit offers in the System 1 mindset condition over all five products. However, this is driven by a significant difference in only the first two products that were presented. Thus, while the manipulation of information processing mindset was successful it cannot be said with certainty how long the effect lasted.

Concerning the second experimental factor, intended product use, the manipulation was successful. Participants presented with products with intended hedonic use rated them as more hedonic as compared to participants who were presented with products with intended utilitarian use. While this is true on the aggregate level, the finding also holds for the majority of products when analyzed individually. Therefore, the manipulation of intended product use was successful.

Problems with the credit evaluation task.

While the mindset manipulation represents one possible explanation for the absence of the hypothesized effect of information processing mindset on credit evaluation, the design of the evaluation task might contribute to the problem as well. Although the task was considerably less complex as compared to the one in the previous studies, the amount of information to be processed might still have been too high in general. For each of the five products participants were asked to process information on the product from the details on the price tag and the picture of the product to form a judgement on the product. Furthermore, they had to make sense of various credit aspects that might have been unfamiliar to them and process them in a certain way

to form a judgement on the credit offer. This was accompanied by imagining wanting to buy the product for a specific hedonic or utilitarian reason. Over the course of the products, participants might have felt more and more depleted because of the high level of attention needed in the task and the information processing involved in evaluating the credit offers. As the literature suggests, a great expense of attention leads to impaired subsequent higher order cognitive processing (Schmeichel et al., 2003). Thus, for the later products, participants in the System 2 mindset condition might have processed the given information in the same way as participants in the System1 mindset condition. Although they were instructed to apply a System 2 mindset, the overall amount of information in the study to be processed could have decreased their cognitive resources to a minimum. Analyses of the influence of information processing mindset on credit attractiveness for only the first presented product (the laptop) revealed no significant effect (results not shown). Even though this result does not rule out the described effect of overall information load on information processing mindset, it shows that such an effect was of marginal importance in the present study.

Intended product use and credit attractiveness.

As already noted, several analyses showed that utilitarian intended product use led to higher credit attractiveness as compared to hedonic intended product use. As no such hypothesis was stated, this represents a surprise. At first, the effect seems puzzling. Okada (2005) found that consumers prefer hedonic over utilitarian alternatives, when just one of the two alternatives is offered. She argued that the benefit from hedonic goods in the form of experiential enjoyment seems more appealing compared to the benefit from utilitarian goods in the form of practical functionality. Such a setting of separate judgement corresponds to the present study, as participants read either a scenario with hedonic intended product use or utilitarian intended

product use, in a between subjects design. Dhar and Wertenbroch (2000) confirmed the preference for hedonic over utilitarian goods only for situations in which consumers had to decide which of several items to give up. In contrast, they found no difference in preferences for buying situations. Similarly, O'Curry and Strahilevitz (2001) demonstrated that the preference for hedonic over utilitarian goods held true for gift selection but not for purchase situations. According to Kivetz (1999), spending money on hedonic goods is perceived as more painful as compared to spending on utilitarian goods because the former represents non-essential spending by definition. In line with this argument, Diefenbach and Hassenzahl (2011) found that consumers in a buying scenario preferred a primarily utilitarian mobile phone over a primarily hedonic mobile phone. This preference was correlated with the need for justification: The more participants felt the need to justify their choice, the stronger they preferred the utilitarian mobile phone. Furthermore, when information was provided that made hedonic attributes appear more legitimate, thereby enhancing justifiability, participants preferred the primarily hedonic mobile phone. Overall, there are many situations in which consumers prefer hedonic over utilitarian products (for an overview see Alba and Williams (2013)). Nevertheless, in buying situations they rather seem to prefer utilitarian products because the purchase of such goods is easier to justify, usually, because there is a clear need for them. In the present study, participants found themselves not only thinking about a purchase of a given good but more specifically about buying it on credit. Because such purchases mostly exceed own available cash reserves, it can be argued that the issue of justification is of major importance. Under such conditions, the finding that utilitarian intended product use led to higher credit attractiveness as compared to hedonic intended product use is in line with the picture painted by previous research.

Problems with the intended product use manipulation.

Another possible explanation for the obtained finding that utilitarian intended product use led to higher credit attractiveness as compared to hedonic intended product use could be the manipulation of intended product use. Participants were asked to imagine a situation that described the intended product use to be of either rather hedonic or utilitarian nature. The scenarios provided a reason for the purchase of the product and included expectations stemming from the specific needs of the intended use. This could have made it possible that participants formed a reference against which the presented product was compared. Because of the different expectations towards the product in the two conditions, it is likely, that such references differed from one another. For example, in the hedonic intended product use condition participants were asked to imagine wanting to buy a laptop to play the latest video games in best quality. Contrary, participants in the utilitarian intended product use condition were asked to imagine wanting to buy a business laptop, focusing on a powerful battery. By forming a reference from the scenario, participants in the hedonic intended product use condition would probably have thought of an expensive high-end laptop, while participants in the utilitarian intended product use condition would probably have thought of a less highly-prized laptop, sufficient for business purposes. Following the argument, participants in the former condition could have been disappointed by the presented product, as the price signals that this is clearly not a high-end laptop. Contrary, participants in the latter condition could have been pleased to be offered a product that seems to fit with their reference. As it was shown in the previous studies, product evaluation correlates with the evaluation of the credit offers. Thus, it is plausible that a better fit between participants' reference created through the manipulation of intended product use on the one hand and the presented product on the other hand led to higher credit attractiveness.

However, in order to explain the finding that utilitarian intended product use led to higher

credit attractiveness as compared to hedonic intended product use, the reference-mechanism outlined above must have been present for the majority of presented products. Unfortunately, the data does not allow to test whether and to which degree this was indeed the case, because expectations towards the product described in the intended product use manipulation were not assessed.

General Discussion on Part III

The main purpose of studies 5, 6 and 7 was to extend research on credit choice by examining credit attractiveness under System 1 and System 2 processing. To this end, laboratory experiments were conducted in which System 1 / 2 processing was manipulated using either cognitive load manipulations (studies 5 and 6) or an information processing mindset manipulation (study 7) In all three studies, credit attractiveness was measured for several 0%-interest credit offers that were presented with products thought to be relevant to students. No significant difference in credit attractiveness was found between the System 1 and System 2 processing conditions in any of the studies. This finding was consistent throughout the additional analyses and rejects the hypothesis that participants relying on System 1 information processing perceive 0%-interest credits to be more attractive as compared to participants relying on System 2 information processing. Surprisingly, participants who were presented with products in a descending price order perceived the credits to be more attractive as compared to participants who were presented with products in an ascending price order (study 5). Furthermore, several analyses showed that utilitarian intended product use led to higher credit attractiveness as compared to hedonic intended product use (study 7). No interaction between neither the respective System 1 / 2 information processing manipulations used in the studies nor price order or intended product use was significant in any of the analyses (studies 5 and 7). Therefore, the

hypothesis that participants using a System 1 mindset evaluate credits for products with hedonic intended use more positively than credits for products with utilitarian use has to be rejected as well.

Limitations with the sample composition.

Considering the results, it is important to keep in mind that all 3 studies used student samples. This segment of the population might not be likely to represent the general public regarding their judgements of credits. Several authors report a rather low level of credit knowledge for students (Jones, 2005; Lachance, Beaudoin, & Robitaille, 2006), especially in comparison to employed, unemployed and other population groups (Lyons, Rachlis, & Scherpf, 2007). While the situation is a little better for students who hold or held a loan as compared to inexperienced students (Lyons et al., 2007), it can be argued that this subgroup is rather small in the samples used in the present studies. In Germany, only 2.7% of 18- and 19-year olds and 11.3% of 20 to 24-year olds hold installment credits (SCHUFA Holding AG, 2016). As the attitude towards credit correlates positively with credit knowledge (Lachance et al., 2006), it can be argued that students have a less positive attitude towards credit than other parts of the population. This corresponds to the finding that 57% of 18 to 20-year olds in a representative German sample strongly agreed to an item stating that credit should be used exclusively in case of financial problems (SCHUFA Holding AG, 2013). Partly attributable to the absence of tuition fees, their low involvement with credits seems to discourage German students from using credit at least when other options are available. It seems likely that this also shows in their ratings of credit attractiveness. People with more personal experience with credits or higher financial knowledge in general might have shown different results in the present studies. It is up to future studies to further explore potential connections between mode of cognitive processing and credit

evaluation for non-students.

Limitations with the relevance of the products used.

As already noted in the individual discussion sections of studies 5 to 7, relevance of the presented products is crucial for data quality and thus for a thorough test of the hypotheses. It could be possible that the participants perceived the products to be different from their everyday purchases. If that was the case, they could have had problems to relate to a situation where the purchase of such products is the central element, thus giving more or less random answers. In order to address this problem, the products used in the 3 studies were selected according to perceptions being characteristic to student purchases. Regarding study 7, it might seem overstretched that students actually consider to take a credit for hedonic goods. Nevertheless, when asked for the purpose of taken small instant loans, young adults most often named celebration (62%) as well as beer, wine and tobacco (61%; Autio et al., 2009). Also beyond everyday goods, hedonic consumption is an important driver of credit take-up, as the respective numbers for leisure time activities (20%) and travelling (14%) show. While these results refer to Finnish consumers, young Germans seem to be comparable. When they were asked for the purpose of their loans, travelling was named nearly as often (12%, SCHUFA Holding AG, 2013). However, they most frequently named consumer electronics (43%) which were used in all three present studies. Furthermore, even buying a car - the most expensive product used in the present studies - was named as a reason for taking up a credit (8%). Overall this shows that the products used in studies 5 to 7 are somewhat typical for credit financed purchases in the target group.

Concluding Discussion

Consumer credit is an integral part of consumers' everyday lives. Enabling them to

acquire needed products now and pay for them later with an interest premium, credit use is a useful tool to deal with low present financial means. However, a lack of responsibility, financial skills, and knowledge about the future income situation can have severe economic and psychological consequences. Therefore, it is important to understand how consumers make decisions about credit use. In this context, the individual decision to enter a specific credit is of particular importance. It marks the point where needs, attitudes, hopes, and ideas translate into actual behavior and thus unfold into tangible consequences of any kind. This thesis contributes to the understanding of this decision by regarding the cognitive processes that lead to it from a psychological point of view. To this end, seven lab studies were conducted.

The first two studies focused on answering the question whether mental abstraction influences credit choice. Although some studies discuss potential links between the two concepts (Auh et al., 2008; Chatterjee & Rose, 2012; Chen et al., 2016; Hansen, et al., 2013) none investigated the relationship empirically. Building on one of the core elements of construal level theory (Trope & Liberman, 2011) – closeness to the self in the here and now – it was assumed that some credit aspects are more prone to be part of high-level credit construals, while others are more prone to be part of low-level credit construals. Thus, depending on their credit construals, people should either prefer those credits that are advantageous on low construal level aspects or those credits that are advantageous on high construal level aspects. Contrary to the hypotheses, construal level did not influence the importance of different credit aspects for either evaluations of credit attractiveness or for credit choice. Furthermore, construal level did not affect what credit aspects were important to people when no particular offer was made. Even though the manipulations used in the two studies were well-established measures (Gilead et al., 2014), results for a successful manipulation were mixed. It remains an open question whether the

absence of significant differences between the experimental conditions must be attributed to construal level not being related to the credit evaluations and decisions in the two studies or whether this is due to the manipulations not being successful.

The third and fourth study followed-up on the idea of mental abstraction and transferred it to a relatively new form of credit: 0%-interest credit offers. They focused on answering the question how mental abstraction and the 0 in 0%-interest credits interact to influence credit evaluation as well as the choice of the product that is to be financed. Previous research demonstrated that 0 as a price leads to an overly strong increase in demand for the respective product as compared to very low prices like 1¢ (Baumbach, 2016; Hossain & Saini, 2015; Murata, 2017; Nicolau, 2012; Shampanier et al., 2007). Palmeira (2011) argued that the number is harder to compare, relative to other numbers, thus introducing the idea of a more abstract nature of 0. Experiments in the domain of judgement and decision making further found that people favor information that matches their construal level over information that does not match (e.g., Kim & John, 2008; Nussbaum et al., 2003; Trope & Liberman, 2000). Combining these findings in the credit context, the studies 4 and 5 investigated whether there is a relationship between 0 and high construal level, with one activating or emphasizing the other. The results showed suggest that this is not the case. The number 0 did not induce a higher construal level than other numbers nor did a high construal level lead to an overly strong positive reaction towards a 0%-interest credit offer. Again, there were problems with the manipulations in both studies. However, it seems unlikely that the lack of significant results can be attributed solely to these technical aspects. The pattern of results throughout the analyses rather suggests that, at least in the credit context, 0 is not more abstract than positive numbers.

Turning towards another theory in the area of information processing, the last three

studies continued to investigate attractiveness and choice of 0%-interest credits from the perspective of System 1 / 2 information processing. The studies focused on answering the question whether consumers are more willing to take up a 0%-interest credit when they process information in a more intuitive and heuristic way. It was assumed that in System 1 information processing the central element – an annual percentage rate of 0 – diverts attention from less advantageous aspects of such credits like, for example, mandatory residual debt insurances or high dunning fees. Using cognitive load manipulations and an information processing mindset manipulation, no significant difference in credit attractiveness was found between the System 1 and System 2 processing conditions in any of the studies. Surprisingly, participants who were presented with products in a descending price order perceived the credits to be more attractive as compared to participants who were presented with products in an ascending price order (study 5). This finding fits well with the literature on evaluation of sequences (Hassenzahl, 2005; Hoelzl et al., 2011; Langer et al. 2005). When financing something on credit is seen as a monetary loss, the effect can be interpreted as a preference for improvement in a sequence of potential losses. Furthermore, several analyses in study 7 showed that utilitarian intended product use led to higher credit attractiveness as compared to hedonic intended product use. Several studies found opposite effects of utilitarian and hedonic preferences in domains other than spending (O'Curry & Strahilevitz, 2001; Okada, 2005; Dhar & Wertenbroch, 2000). In contrast, spending money on hedonic goods is perceived as more painful as compared to spending on utilitarian goods because the former represents non-essential spending Kivetz (1999). In line with this argument, Diefenbach and Hassenzahl (2011) showed that consumers in a buying context prefer primarily utilitarian products over primarily hedonic products. Thus, the finding that utilitarian intended product use led to higher credit attractiveness as compared to hedonic intended product use is in

line with the picture painted by previous research.

To date, research taking a cognitive perspective on the actual credit take-up decision focused mostly on biases in the perception of individual credit aspects (e.g., Ranyard & Craig, 1993 for repayment duration) and the limited understanding of them (e.g., Lewis & van Venrooij, 1995 for annual percentage rate). The present thesis contributed to the existing literature by examining not the individual aspects as such, but the cognitive processes that underlie the integration and evaluation of these aspects to form an overall judgement on specific credit offers and ultimately make a credit decision. Highlighting the importance of cognitive processes is overdue as the majority of credit contracts is signed at the point of sale (Bankenfachverband, 2015). The amount of cognitive resources available in such situations and peoples' motivation to make a good decision can vary to a great extent. Especially the combination of a high social acceptance of credit use (Merskin, 1998; Watkins, 2000) and the widespread availability of the relatively new 0%-interest credit offers with less obvious disadvantages (GfK Finanzmarktforschung, 2014) is likely to result in more financial problems at least for those with low credit understanding. Understanding the underlying processes at credit take-up can help to protect potential debtors from making bad decisions by providing them with proper decision rules (e.g., to actively mentally separate the product to be financed from the credit offer when the product is tempting) or by initiating legal adjustments (e.g., outlawing the overly prominent display of "0%" in 0%-interest credit offer advertisement and marking additional costs more clearly).

The absence of significant results coincides with problems of the manipulations used in the sections on construal level. This is particularly surprising because the manipulations were well-established measures (Gilead et al., 2014). Two specific circumstances of the present

studies could contribute to an explanation to this.

First, all studies reported here were conducted in a computer lab where participants worked on individual PCs. In contrast, a check-up on the methodology in 2015 found no single study documenting the successful use of one of the applied manipulations in a setting different from pen and paper (J. Rudzińska-Wojciechowska, personal communication, September 8, 2015). Detailed analyses of participants' data entries in the present manipulations revealed that many participants did not follow the instructions exactly in the specified way or did not complete all subsections of the manipulation with the necessary accuracy. Maybe the possibility of reaching the next step in a given study with just a mouse click leads to more carelessness than having a sheet of paper in front, which does not disappear from one's field of view when proceeding with the study.

Second, both the manipulations as well as the Behavior Identification form place great emphasis on linguistic aspects. Translating these measures into German language could have affected their proper functioning.

Because of these and other potential problems with the designs of the studies in the present thesis, future studies should focus on replications that take these shortcomings into account and test the hypotheses in a revised manner. It would be premature to conclude that the absence of significant findings is a clear sign that the theoretical assumptions were wrong. However, this possibility cannot be excluded. Furthermore, future studies should concentrate on gathering data directly at the instance when people make real credit decisions. Asking people to imagine buying a specific product – and in study 7 also to imagine the intended product use – and then to decide on fictitious credit offers is somewhat problematic. The situation is very theoretical and there are no financial consequences. However, such consequences are always real

when actual credit decisions are made. This could have led to a significant bias in participants' involvement in the lab experiments as compared to an actual credit decision setting, thus potentially affecting cognitive processing.

References

- Administrative Office of the U.S. Courts. (2007) *U.S. Bankruptcy Courts - Business and Nonbusiness Cases Filed, by Chapter of the Bankruptcy Code* [Data file]. Retrieved from <http://www.uscourts.gov/file/10888/download>
- Administrative Office of the U.S. Courts. (2011) *U.S. Bankruptcy Courts - Business and Nonbusiness Cases Filed, by Chapter of the Bankruptcy Code* [Data file]. Retrieved from <http://www.uscourts.gov/file/10920/download>
- Administrative Office of the U.S. Courts. (2017) *U.S. Bankruptcy Courts - Business and Nonbusiness Cases Filed, by Chapter of the Bankruptcy Code* [Data file]. Retrieved from <http://www.uscourts.gov/file/21667/download>
- Agarwal, S., Driscoll, J. C., Gabaix, X., & Laibson, D. (2008). *Learning in the credit market* (NBER Working Paper No. 13822). Retrieved from National Bureau of Economic Research website: <http://www.nber.org/papers/w13822.pdf>
- Aggarwal, P., & Zhao, M. (2015). Seeing the big picture: The effect of height on the level of construal. *Journal of Marketing Research*, *52*, 120-133. doi:10.1509/jmr.12.0067
- Ajzen, I., & Fishbein, M. (2000). Attitudes and the attitude-behavior relation: Reasoned and automatic processes. *European Review of Social Psychology*, *11*, 1-33.
doi:10.1080/14792779943000116
- Aknin, L. B., van Boven, L., & Johnson-Graham, L. (2014). Abstract construals make the emotional rewards of prosocial behavior more salient. *Journal of Positive Psychology*, *10*, 458-462. doi:10.1080/17439760.2014.967801.
- Alba, J. W., & Williams, E. F. (2013). Pleasure principles: A review of research on hedonic consumption. *Journal of Consumer Psychology*, *23*, 2-18. doi:10.1016/j.jcps.2012.07.003

- Allen, P. M., Edwards, J. A., Snyder, F. J., Makinson, K. A., & Hamby, D. M. (2014). The effect of cognitive load on decision making with graphically displayed uncertainty information. *Risk Analysis, 34*, 1495-1505. doi:10.1111/risa.12161
- Alós-Ferrer, C., & Hügelschäfer, S. (2016). Faith in intuition and cognitive reflection. *Journal of Behavioral and Experimental Economics, 64*, 61-70. doi:10.1016/j.socec.2015.10.006
- Amar, M., Ariely, D., Ayal, S., Cryder, C. E., & Rick, S. I. (2011). Winning the battle but losing the war: The psychology of debt management. *Journal of Marketing Research, 48*, 38-50. doi:10.1509/jmkr.48.SPL.S38
- Antonides, G., de Groot, I. M., & van Raaij, W. F. (2011). Mental budgeting and the management of household finance. *Journal of Economic Psychology, 32*, 546-555. doi:10.1016/j.joep.2011.04.001
- Arens, Z. G., & Rust, R. T. (2012). The duality of decisions and the case for impulsiveness metrics. *Journal of the Academy of Marketing Science, 40*, 468-479. doi:10.1007/s11747-011-0256-3
- Auh, S., Shih, E., & Yoon, Y. (2008). Aligning benefits with payments: A test of the pattern alignment hypothesis. *Journal of Consumer Psychology, 18*, 292-303. doi:10.1016/j.jcps.2008.09.007
- Aust, F., Diedenhofen, B., Ullrich, S., & Musch, J. (2013). Seriousness checks are useful to improve data validity in online research. *Behavior Research Methods, 45*, 527-535. doi:10.3758/s13428-012-0265-2
- Autio, M., Wilska, T., Kaartinen, R., & Lähteenmaa, J. (2009). The use of small instant loans among young adults: A gateway to a consumer insolvency? *International Journal of Consumer Studies, 33*, 407-415. doi:10.1111/j.1470-6431.2009.00789.x

- Bank of England. (2017). *Money and Credit: January 2017*. Retrieved from <http://www.bankofengland.co.uk/statistics/Documents/mc/2017/jan/moneyandcredit.pdf>
- Bankenfachverband (2015). *Finanzierung 2015. Jahresbericht [Financing 2015. Annual report]*. Berlin, Germany: Bankenfachverband
- Banque de France. (2017). *BSII: Monetary Statistics - France* [Data file]. Retrieved from http://webstat.banque-france.fr/en/quickview.do?SERIES_KEY=246.BSII.M.FR.N.R.A210Z.A.1.U6.2254FR.Z01.E
- Bar-Anan, Y., Liberman, N., Trope, Y., & Algom, D. (2007). Automatic processing of psychological distance: Evidence from a Stroop task. *Journal of Experimental Psychology. General*, *136*, 610-622. doi:10.1037/0096-3445.136.4.610
- Barba, A., & Pivetti, M. (2009). Rising household debt: Its causes and macroeconomic implications – a long-period analysis. *Cambridge Journal of Economics*, *33*, 113-137. doi:10.1093/cje/ben030
- Baskin, E., Wakslak, C. J., Trope, Y., & Novemsky, N. (2014). Why feasibility matters more to gift receivers than to givers: A construal-level approach to gift giving. *Journal of Consumer Research*, *41*, 169-182. doi:10.1086/675737
- Baumbach, E. (2016). The zero-price effect in a multicomponent product context. *International Journal of Research in Marketing*, *33*, 689-694. doi:10.1016/j.ijresmar.2016.01.009
- Baumeister, R. F., Vohs, K. D., & Tice, D. M. (2007). The strength model of self-control. *Current Directions in Psychological Science*, *16*, 351-355. doi:10.1111/j.1467-8721.2007.00534.x

- Bearden, W. O., & Haws, K. L. (2012). How low spending control harms consumers. *Journal of the Academy of Marketing Science*, *40*, 181-193. doi:10.1007/s11747-011-0282-1
- Beißert, H., Köhler, M., Rempel, M., & Beierlein, C. (2014). *Eine deutschsprachige Kurzsкала zur Messung des Konstrukts Need for Cognition: Die Need for Cognition Kurzsкала (NFC-K) [A German-language short-scale for the measurement of the construct need for cognition: The need for cognition short-scale (NFC-K)]* (GESIS-Working Papers No. 2014|32). Retrieved from http://www.gesis.org/fileadmin/kurzskalen/working_papers/WorkingPapers_2014-32.pdf
- Benjamin, D. J., Brown, S. A., & Shapiro, J. M. (2013). Who is 'behavioral'? Cognitive ability and anomalous preferences. *Journal of the European Economic Association*, *11*, 1231-1255. doi:10.1111/jeea.12055
- Berlemann, M., & Salland, J. (2016). The Joneses' income and debt market participation: Empirical evidence from bank account data. *Economics Letters*, *142*, 6-9. doi:10.1016/j.econlet.2016.02.030
- Besharat, A., Carrillat, F. A., & Ladik, D. M. (2014). When motivation is against debtors' best interest: The illusion of goal progress in credit card debt repayment. *Journal of Public Policy & Marketing*, *33*, 143-158. doi:10.1509/jppm.13.007
- Besharat, A., Varki, S., & Craig, A. W. (2015). Keeping consumers in the red: Hedonic debt prioritization within multiple debt accounts. *Journal of Consumer Psychology*, *25*, 311-316. doi:10.1016/j.jcps.2014.08.005
- Blair, I. V., & Banaji, M. R. (1996). Automatic and controlled processes in stereotype priming. *Journal of Personality and Social Psychology*, *70*, 1142-1163. doi:10.1037/0022-3514.70.6.1142

- Block, R. A., Hancock, P. A., & Zakay, D. (2010). How cognitive load affects duration judgments: A meta-analytic review. *Acta Psychologica, 134*, 330-343.
doi:10.1016/j.actpsy.2010.03.006
- Bonner, C., & Newell, B. R. (2008). How to make a risk seem riskier: The ratio bias versus construal level theory. *Judgment and Decision Making, 3*, 411-416. Retrieved from <http://journal.sjdm.org/8210/jdm8210.html>
- Bradu, C., Orquin, J. L., & Thøgersen, J. (2014). The mediated influence of a traceability label on consumer's willingness to buy the labelled product. *Journal of Business Ethics, 124*, 283-295. doi:10.1007/s10551-013-1872-2
- Brocas, I., & Carrillo, J. D. (2014). Dual-process theories of decision-making: A selective survey. *Journal of Economic Psychology, 41*, 45-54. doi:10.1016/j.joep.2013.01.004
- Broniarczyk, S. M., Hoyer, W. D., & McAlister, L. (1998). Consumers' perceptions of the assortment offered in a grocery category: The impact of item reduction. *Journal of Marketing Research, 35*, 166-176. doi:10.2307/3151845
- Brown, S., Taylor, K., & Wheatley Price, S. (2005). Debt and distress: Evaluating the psychological cost of credit. *Journal of Economic Psychology, 26*, 642-663.
doi:10.1016/j.joep.2005.01.002
- Brünken, R., Plass, J. L., & Leutner, D. (2004). Assessment of cognitive load in multimedia learning with dual-task methodology: Auditory load and modality effects. *Instructional Science, 32*, 115-132. doi:10.1023/B:TRUC.0000021812.96911.c5
- Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology, 42*, 116-131. doi:10.1037/0022-3514.42.1.116

- Cacioppo, J. T., Petty, R. E., & Kao, C. F. (1984). The efficient assessment of need for cognition. *Journal of personality assessment*, *48*, 306-307. doi:10.1207/s15327752jpa4803_13
- Cakarnis, J., & D'Alessandro, S. P. (2015). Does knowing overcome wanting? The impact of consumer knowledge and materialism upon credit card selection with young consumers. *Young Consumers*, *16*, 50-70. doi:10.1108/YC-01-2014-00418
- Callicott, J. H., Mattay, V. S., Bertolino, A., Finn, K., Coppola, R., Frank, J. A., . . . Weinberger, D. R. (1999). Physiological characteristics of capacity constraints in working memory as revealed by functional MRI. *Cerebral Cortex*, *9*, 20-26. doi:10.1093/cercor/9.1.20
- Calvillo, D. P., & Jessica N. Burgeno. (2015). Cognitive reflection predicts the acceptance of unfair ultimatum game offers. *Judgment and Decision Making*, *10*, 332-341. Retrieved from <http://journal.sjdm.org/14/14715/jdm14715.pdf>
- Carlson, S., Martinkauppi, S., Rämä, P., Salli, E., Korvenoja, K., & Aronen, H. J. (1998). Distribution of cortical activation during visuospatial n-back tasks as revealed by functional magnetic resonance imaging. *Cerebral Cortex*, *8*, 743-752. doi:10.1093/cercor/8.8.743.
- Carter, S. P. (2015). Payday loan and pawnshop usage: The impact of allowing payday loan rollovers. *Journal of Consumer Affairs*, *49*, 436-456. doi:10.1111/joca.12072
- Chatterjee, P., & Rose, R. L. (2012). Do payment mechanisms change the way consumers perceive products? *Journal of Consumer Research*, *38*, 1129-1139. doi:10.1086/661730
- Chen, R., Xu, X., & Shen, H. (2016). Go beyond just paying: Effects of payment method on level of construal. *Journal of Consumer Psychology*, *27*, 207-217. doi:10.1016/j.jcps.2016.09.003

- Chiou, W., Wu, W., & Chang, M. (2013). Think abstractly, smoke less: A brief construal-level intervention can promote self-control, leading to reduced cigarette consumption among current smokers. *Addiction, 108*, 985-992. doi: 10.1111/add.12100
- Choi, S. Y., Park, H. S., & Oh, J. Y. (2012). Temporal distance and blood donation intention. *Journal of Health Psychology, 17*, 590-599. doi:10.1177/1359105311421048
- Consumer credit. (n.d.). In *Oxford Dictionary*. Retrieved from https://en.oxforddictionaries.com/definition/consumer_credit
- Corgnet, B., Espin, A. M., & Hernan-Gonzalez, R. (2015). The cognitive basis of social behavior: cognitive reflection overrides antisocial but not always prosocial motives. *Frontiers in Behavioral Neuroscience, 9*, 1-17. doi:10.3389/fnbeh.2015.00287
- Davies, E., & Lea, S. E. (1995). Student attitudes to student debt. *Journal of Economic Psychology, 16*, 663-679. doi:10.1016/0167-4870(96)80014-6
- De Neys, W. (2006). Dual processing in reasoning: Two systems but one reasoner. *Psychological Science, 17*, 428-433. doi:10.1111/j.1467-9280.2006.01723.x
- De Neys, W. de, Schaeken, W., & d'Ydewalle, G. (2005). Working memory and everyday conditional reasoning: Retrieval and inhibition of stored counterexamples. *Thinking & Reasoning, 11*, 349-381. doi:10.1080/13546780442000222
- Despard, M. R., Perantie, D., Taylor, S., Grinstein-Weiss, M., Friedline, T., & Raghavan, R. (2016). Student debt and hardship: Evidence from a large sample of low- and moderate-income households. *Children and Youth Services Review, 70*, 8-18. doi:10.1016/j.chilyouth.2016.09.001

- Deutsch, R., & Strack, F. (2006). Duality models in social psychology: From dual processes to interacting systems. *Psychological Inquiry*, *17*, 166-172.
doi:10.1207/s15327965pli1703_2
- Deutsche Bundesbank. (2016). *Time series MIR.M.DE.B.A2B.F.R.A.2250.EUR.N: Euro area and national MFI interest rates (MIR) / 1.2.1.3. For consumption floating rate and up to 1 year initial rate fixation: Germany*. Retrieved from http://www.bundesbank.de/Navigation/EN/Statistics/Time_series_databases/ESCB_Time_Series/eszb_details_value_node.html?nsc=true&nsc=true&tsId=MIR.M.DE.B.A2B.F.R.A.2250.EUR.N
- Deutsche Bundesbank. (2017). *MFI-Zinsstatistik [MFI-interest-statistics]*. Retrieved from https://www.bundesbank.de/Redaktion/DE/Downloads/Statistiken/Geld_Und_Kapitalmaerkte/Zinssaetze_Renditen/S510ATRAT.pdf?__blob=publicationFile
- Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology*, *56*, 5-18. doi:10.1037/0022-3514.56.1.5
- Dew, J. (2011). The association between consumer debt and the likelihood of divorce. *Journal of Family and Economic Issues*, *32*, 554-565. doi:10.1007/s10834-011-9274-z
- Dew, J., Britt, S., & Huston, S. (2012). Examining the relationship between financial issues and divorce. *Family Relations: An Interdisciplinary Journal of Applied Family Studies*, *61*, 615-628. doi:10.1111/j.1741-3729.2012.00715.x
- Dhar, R., & Wertenbroch, K. (2000). Consumer choice between hedonic and utilitarian goods. *Journal of Marketing Research*, *37*, 60-71. doi:10.1509/jmkr.37.1.60.18718
- Diefenbach, S., & Hassenzahl, M. (2011). The dilemma of the hedonic – appreciated, but hard to justify. *Interacting with Computers*, *23*, 461-472. doi:10.1016/j.intcom.2011.07.002

- Disney, R., & Gathergood, J. (2013). Financial literacy and consumer credit portfolios. *Journal of Banking & Finance*, *37*, 2246-2254. doi:10.1016/j.jbankfin.2013.01.013
- Dittrich, K., & Stahl, C. (2012). Selective impairment of auditory selective attention under concurrent cognitive load. *Journal of Experimental Psychology. Human Perception and Performance*, *38*, 618-627. doi:10.1037/a0024978
- Druzgal, T., & D'Esposito, M. (2001). Activity in fusiform face area modulated as a function of working memory load. *Cognitive Brain Research*, *10*, 355-364. doi:10.1016/S0926-6410(00)00056-2
- Duffy, S., & Smith, J. (2014). Cognitive load in the multi-player prisoner's dilemma game: Are there brains in games? *Journal of Behavioral and Experimental Economics*, *51*, 47-56. doi:10.1016/j.socec.2014.01.006
- Durkin, T. A., Elliehausen, G., Staten, M., & Zywicki, T. J. (2014). *Consumer credit and the American economy*. New York, NY: Oxford University Press.
- Ein-Gar, D., & Levontin, L. (2013). Giving from a distance: Putting the charitable organization at the center of the donation appeal. *Journal of Consumer Psychology*, *23*, 197-211. doi:10.1016/j.jcps.2012.09.002
- Epstein, S. (1994). Integration of the cognitive and the psychodynamic unconscious. *American Psychologist*, *49*, 709-724. doi:10.1037/0003-066X.49.8.709
- Espvall, M., & Dellgran, P. (2010). Can we count on each other? Reciprocity and conflicts in financial support in Sweden. *International Journal of Social Welfare*, *19*, 84-94. doi:10.1111/j.1468-2397.2008.00615.x
- Evans, J. T. (2007). On the resolution of conflict in dual process theories of reasoning. *Thinking & Reasoning*, *13*, 321-339. doi:10.1080/13546780601008825

- Evans, J. T. (2008). Dual-processing accounts of reasoning, judgment, and social cognition. *Annual Review of Psychology, 59*, 255-278.
doi:10.1146/annurev.psych.59.103006.093629
- Evans, J. T., & Curtis-Holmes, J. (2005). Rapid responding increases belief bias: Evidence for the dual-process theory of reasoning. *Thinking & Reasoning, 11*, 382-389.
doi:10.1080/13546780542000005
- Evans, J. T., & Stanovich, K. E. (2013). Dual-process theories of higher cognition: Advancing the debate. *Perspectives on Psychological Science, 8*, 223-241.
doi:10.1177/1745691612460685
- Federal Reserve System. (2016) *Consumer Credit - G.19*. Retrieved from
<https://www.federalreserve.gov/releases/g19/about.htm>
- Federal Reserve System. (2017). *Consumer credit – G.19* [Data file]. Retrieved from
https://www.federalreserve.gov/releases/g19/HIST/cc_hist_sa_levels.html
- Field, A. (2009). *Discovering statistics using IBM SPSS Statistics*. London, England: SAGE Publications.
- Fiske, S. T., & Taylor, S. E. (2013). *Social cognition: From brains to culture*. London, England: SAGE Publications.
- Forster, J., & Tory Higgins, E. (2005). How global versus local perception fits regulatory focus. *Psychological Science, 16*, 631-636. doi:10.1111/j.1467-9280.2005.01586.x
- Förster, J., Friedman, R. S., & Liberman, N. (2004). Temporal construal effects on abstract and concrete thinking: Consequences for insight and creative cognition. *Journal of Personality and Social Psychology, 87*, 177-189. doi:10.1037/0022-3514.87.2.177

- Frederick, S. (2005). Cognitive reflection and decision making. *Journal of Economic Perspectives, 19*, 25-42. doi:10.1257/089533005775196732
- Frederick, S., Loewenstein, G., & O'Donoghue, T. (2002). Time discounting and time preference: A critical review. *Journal of Economic Literature, 40*, 351-401. doi:10.1257/002205102320161311
- Freitas, A. L., Gollwitzer, P., & Trope, Y. (2004). The influence of abstract and concrete mindsets on anticipating and guiding others' self-regulatory efforts. *Journal of Experimental Social Psychology, 40*, 739-752. doi:10.1016/j.jesp.2004.04.003
- Fujita, K., Henderson, M. D., Eng, J., Trope, Y., & Liberman, N. (2006). Spatial distance and mental construal of social events. *Psychological Science, 17*, 278-282. doi:10.1111/j.1467-9280.2006.01698.x
- Fujita, K., Trope, Y., Liberman, N., & Levin-Sagi, M. (2006). Construal levels and self-control. *Journal of Personality and Social Psychology, 90*, 351-367. doi:10.1037/0022-3514.90.3.351
- Furlan, S., Agnoli, F., & Reyna, V. F. (2016). Intuition and analytic processes in probabilistic reasoning: The role of time pressure. *Learning and Individual Differences, 45*, 1-10. doi:10.1016/j.lindif.2015.11.006
- Ganzach, Y., & Amar, M. (2017). Intelligence and the repayment of high- and low-consequences debt. *Personality and Individual Differences, 110*, 102-108. doi:10.1016/j.paid.2017.01.037
- Gathergood, J. (2012). Self-control, financial literacy and consumer over-indebtedness. *Journal of Economic Psychology, 33*, 590-602. doi:10.1016/j.joep.2011.11.006

- Gathergood, J., & Weber, J. (2014). Self-control, financial literacy & the co-holding puzzle. *Journal of Economic Behavior & Organization*, 107(Part B), 455-469.
doi:10.1016/j.jebo.2014.04.018
- Gawronski, B., & Creighton, L. A. (2013). Dual process theories. In D. E. Carlston (Ed.), *The Oxford handbook of social cognition* (pp. 282-312). New York, NY: Oxford University Press.
- German Federal Statistical Office. (2016) *Bevölkerung auf Grundlage des Zensus 2015 [Population based on the 2015 census]* [Data file]. Retrieved from https://www.destatis.de/DE/ZahlenFakten/GesellschaftStaat/Bevoelkerung/Bevoelkerungssstand/Tabellen/Zensus_Geschlecht_Staatsangehoerigkeit.html
- German Federal Statistical Office. (2017) *Insolvenzverfahren - Fachserie 2 Reihe 4.1 - Dezember und Jahr 2016 [Insolvency procedures - technical series 2 series 4.1 - December and year 2016]* [Data file]. Retrieved from https://www.destatis.de/DE/Publikationen/Thematisch/UnternehmenHandwerk/Insolvenzen/Insolvenzen2020410161125.xlsx?__blob=publicationFile
- Gevins, A., & Cutillo, B. (1993). Spatiotemporal dynamics of component processes in human working memory. *Electroencephalography and Clinical Neurophysiology*, 87, 128-143.
doi:10.1016/0013-4694(93)90119-G
- GfK Finanzmarktforschung. (2014). *Marktstudie 2014 – Konsum- und Kfz-Finanzierung [Market survey 2014 – Consumption- and automobile-financing]*. Retrieved from http://www.bfach.de/media/file/7273.Marktstudie_2014_Konsum-Kfz-Finanzierung_bfach.pdf

- Gigerenzer, G., & Todd, P. M. (1999). Fast and frugal heuristics: The adaptive toolbox. In G. Gigerenzer & P. M. Todd (Eds.), *Evolution and cognition. Simple heuristics that make us smart* (pp. 3-34). New York, NY: Oxford University Press.
- Gilbert, D. T., Pelham, B. W., & Krull, D. S. (1988). On cognitive busyness: When person perceivers meet persons perceived. *Journal of Personality and Social Psychology*, *54*, 733-740. doi:10.1037/0022-3514.54.5.733
- Gilead, M., Liberman, N., & Maril, A. (2014). From mind to matter: Neural correlates of abstract and concrete mindsets. *Social Cognitive and Affective Neuroscience*, *9*, 638-645. doi:10.1093/scan/nst031
- Ginns, P. (2005). Meta-analysis of the modality effect. *Learning and Instruction*, *15*, 313-331. doi:10.1016/j.learninstruc.2005.07.001
- Goedertier, F., Geskens, K., Geuens, M., & Weijters, B. (2012). Increasing choice satisfaction through goal-based labeling. *Marketing Letters*, *23*, 119-136. doi:10.1007/s11002-011-9141-6
- Goodman, J. K., & Malkoc, S. A. (2012). Choosing here and now versus there and later: The moderating role of psychological distance on assortment size preferences. *Journal of Consumer Research*, *39*, 751-768. doi:10.1086/665047
- Graeber, D. (2011). *Debt: The first 5,000 years*. Brooklyn, NY: Melville House.
- Graham, D. J., & Mohr, G. S. (2014). When zero is greater than one: Consumer misinterpretations of nutrition labels. *Health Psychology*, *33*, 1579-1587. doi:10.1037/hea0000080

- Grant, S. J., & Tybout, A. M. (2008). The effect of temporal frame on information considered in new product evaluation: The role of uncertainty. *Journal of Consumer Research*, *34*, 897-913. doi:10.1086/527342
- Greszki, R., Meyer, M., & Schoen, H. (2015). Exploring the effects of removing 'too fast' responses and respondents from web surveys. *Public Opinion Quarterly*, *79*, 471-503. doi:10.1093/poq/nfu058
- Groves, R. M., & Lyberg, L. (2010). Total survey error: Past, present, and future. *Public Opinion Quarterly*, *74*, 849-879. doi:10.1093/poq/nfq065
- Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review*, *108*, 814-834. doi:10.1037/0033-295X.108.4.814
- Hamilton, R. W., & Thompson, D. V. (2007). Is there a substitute for direct experience? Comparing consumers' preferences after direct and indirect product experiences. *Journal of Consumer Research*, *34*, 546-555. doi:10.1086/520073
- Hammond, K. R. (1996). *Human judgment and social policy: Irreducible uncertainty, inevitable error, unavoidable injustice*. New York, NY: Oxford University Press.
- Hancock, A. M., Jorgensen, B. L., & Swanson, M. S. (2013). College students and credit card use: The role of parents, work experience, financial knowledge, and credit card attitudes. *Journal of Family and Economic Issues*, *34*, 369-381. doi:10.1007/s10834-012-9338-8
- Hansen, J., & Wanke, M. (2010). Truth from language and truth from fit: The impact of linguistic concreteness and level of construal on subjective truth. *Personality & Social Psychology Bulletin*, *36*, 1576-1588. doi:10.1177/0146167210386238

- Hansen, J., Kutzner, F., & Wänke, M. (2013). Money and thinking: Reminders of money trigger abstract construal and shape consumer judgments. *Journal of Consumer Research*, *39*, 1154-1166. doi:10.1086/667691
- Hassenzahl, M. (2005). Intertemporale Wahl: Die Präferenz für Verbesserung bei der Rückzahlung von Schulden [Intertemporal choice: The preference for improvement in debt repayment]. *Wirtschaftspsychologie*, *7*, 102-108. Retrieved from http://pabst-publishers.de/wirtschaftspsychologie/wpzeit/wp_3-2005.htm
- Hautzel, H., Mottaghy, F., Schmidt, D., Zemb, M., Shah, N., Müller-Gärtner, H.-W., & Krause, B. (2002). Topographic segregation and convergence of verbal, object, shape and spatial working memory in humans. *Neuroscience Letters*, *323*, 156-160. doi:10.1016/S0304-3940(02)00125-8
- Haws, K. L., Bearden, W. O., & Nenkov, G. Y. (2012). Consumer spending self-control effectiveness and outcome elaboration prompts. *Journal of the Academy of Marketing Science*, *40*, 695-710. doi:10.1007/s11747-011-0249-2
- Hayes, T. A. (2000). Stigmatizing indebtedness: Implications for labeling theory. *Symbolic Interaction*, *23*, 29-46. doi:10.1525/si.2000.23.1.29
- Heath, S., & Calvert, E. (2013). Gifts, loans and intergenerational support for young adults. *Sociology*, *47*, 1120-1135. doi:10.1177/0038038512455736
- Helion, C., & Gilovich, T. (2014). Gift cards and mental accounting: Green-lighting hedonic spending. *Journal of Behavioral Decision Making*, *27*, 386-393. doi:10.1002/bdm.1813
- Henderson, M. D. (2013). When seeing the forest reduces the need for trees: The role of construal level in attraction to choice. *Journal of Experimental Social Psychology*, *49*, 676-683. doi:10.1016/j.jesp.2013.03.001

- Herrmann, A., & Wricke, M. (1998). Evaluating multidimensional prices. *Journal of Product & Brand Management*, 7, 161-169. doi:10.1108/10610429810216973
- Higgins, E. T., Chen Idson, L., Freitas, A. L., Spiegel, S., & Molden, D. C. (2003). Transfer of value from fit. *Journal of Personality and Social Psychology*, 84, 1140-1153. doi:10.1037/0022-3514.84.6.1140
- Hinson, J. M., Jameson, T. L., & Whitney, P. (2002). Somatic markers, working memory, and decision making. *Cognitive, Affective, & Behavioral Neuroscience*, 2, 341-353. doi:10.3758/CABN.2.4.341
- Hinson, J. M., Jameson, T. L., & Whitney, P. (2003). Impulsive decision making and working memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 29, 298-306. doi:10.1037/0278-7393.29.2.298
- Hirst, D., Joyce, E. J., & Schaedewald, M. S. (1994). Mental accounting and outcome contiguity in consumer-borrowing decisions. *Organizational Behavior and Human Decision Processes*, 58, 136-152. doi:10.1006/obhd.1994.1031
- Hochman, G., Ayal, S., & Ariely, D. (2015). Fairness requires deliberation: The primacy of economic over social considerations. *Frontiers in Psychology*, 6, 1-7. doi:10.3389/fpsyg.2015.00747.
- Hodson, R., Dwyer, R., & Neilson, L. (2014). Credit card blues: The middle class and the hidden costs of easy credit. *The Sociological Quarterly*, 55, 315-340. doi:10.1111/tsq.12059
- Hoelzl, E., Kamleitner, B., & Kirchler, E. (2011). Loan repayment plans as sequences of instalments. *Journal of Economic Psychology*, 32, 621-631. doi:10.1016/j.joep.2011.02.002

- Hojman, D. A., Miranda, A., & Ruiz-Tagle, J. (2016). Debt trajectories and mental health. *Social Science & Medicine*, *167*, 54-62. doi:10.1016/j.socscimed.2016.08.027
- Homburg, C., Totzek, D., & Krämer, M. (2014). How price complexity takes its toll: The neglected role of a simplicity bias and fairness in price evaluations. *Journal of Business Research*, *67*, 1114-1122. doi:10.1016/j.jbusres.2013.05.049
- Hoppe, E. I., & Kusterer, D. J. (2011). Behavioral biases and cognitive reflection. *Economics Letters*, *110*, 97-100. doi:10.1016/j.econlet.2010.11.015
- Hossain, M. T., & Saini, R. (2015). Free indulgences: Enhanced zero-price effect for hedonic options. *International Journal of Research in Marketing*, *32*, 457-460. doi:10.1016/j.ijresmar.2015.10.001
- Hsee, C. K., & Rottenstreich, Y. (2004). Music, pandas, and muggers: On the affective psychology of value. *Journal of Experimental Psychology: General*, *133*, 23-30. doi:10.1037/0096-3445.133.1.23
- Huang, J. L., Curran, P. G., Keeney, J., Poposki, E. M., & DeShon, R. P. (2012). Detecting and deterring insufficient effort responding to surveys. *Journal of Business and Psychology*, *27*, 99-114. doi:10.1007/s10869-011-9231-8
- Huang, J. L., Liu, M., & Bowling, N. A. (2015). Insufficient effort responding: Examining an insidious confound in survey data. *Journal of Applied Psychology*, *100*, 828-845. doi:10.1037/a0038510
- Irmak, C., Wakslak, C. J., & Trope, Y. (2013). Selling the forest, buying the trees: The effect of construal level on seller-buyer price discrepancy. *Journal of Consumer Research*, *40*, 284-297. doi:10.1086/670020

- Jappelli, T., Pagano, M., & Di Maggio, M. (2013). Households' indebtedness and financial fragility. *Journal of Financial Management, Markets and Institutions*, *1*, 23-46.
doi:10.12831/73631
- Jiang, S. S., & Dunn, L. F. (2013). New evidence on credit card borrowing and repayment patterns. *Economic Inquiry*, *51*, 394-407. doi:10.1111/j.1465-7295.2012.00456.x
- Jones, J. E. (2005). College students' knowledge and use of credit. *Journal of Financial Counseling and Planning*, *16*, 9-16. Retrieved from
<https://afcpe.org/assets/pdf/vol1622.pdf>
- Kamleitner, B., & Erki, B. (2013). Payment method and perceptions of ownership. *Marketing Letters*, *24*, 57-69. doi:10.1007/s11002-012-9203-4
- Kamleitner, B., Hoelzl, E., & Kirchler, E. (2012). Credit use: Psychological perspectives on a multifaceted phenomenon. *International Journal of Psychology*, *47*, 1-27.
doi:10.1080/00207594.2011.628674
- Kamleitner, B., & Kirchler, E. (2007). Consumer credit use: a process model and literature review. *European Review of Applied Psychology*, *57*, 267-283.
doi:10.1016/j.erap.2006.09.003
- Kanten, A. B. (2011). The effect of construal level on predictions of task duration. *Journal of Experimental Social Psychology*, *47*, 1037-1047. doi:10.1016/j.jesp.2011.04.005
- Keren, G., & Schul, Y. (2009). Two is not always better than one: A critical evaluation of two-system theories. *Perspectives on Psychological Science*, *4*, 533-550. doi:10.1111/j.1745-6924.2009.01164.x

- Kessler, J. B., & Meier, S. (2014). Learning from (failed) replications: Cognitive load manipulations and charitable giving. *Journal of Economic Behavior & Organization*, *102*, 10-13. doi:10.1016/j.jebo.2014.02.005
- Kettle, K. L., Trudel, R., Blanchard, S. J., & Häubl, G. (2016). Repayment concentration and consumer motivation to get out of debt. *Journal of Consumer Research*, *43*, 460-477. doi:10.1093/jcr/ucw037
- Khan, J., Belk, R. W., & Craig-Lees, M. (2015). Measuring consumer perceptions of payment mode. *Journal of Economic Psychology*, *47*, 34-49. doi:10.1016/j.joep.2015.01.006
- Kidwell, B., & Jewell, R. D. (2008). The influence of past behavior on behavioral intent: An information-processing explanation. *Psychology and Marketing*, *25*, 1151-1166. doi:10.1002/mar.20258
- Kim, H., & John, D. R. (2008). Consumer response to brand extensions: Construal level as a moderator of the importance of perceived fit. *Journal of Consumer Psychology*, *18*, 116-126. doi:10.1016/j.jcps.2008.01.006
- Kim, J.-J., Kim, M. S., Lee, J. S., Lee, D. S., Lee, M. C., & Kwon, J. S. (2002). Dissociation of working memory processing associated with native and second languages: PET investigation. *NeuroImage*, *15*, 879-891. doi:10.1006/nimg.2001.1025
- Kivetz, R. (1999). Advances in research on mental accounting and reason-based choice. *Marketing Letters*, *10*, 249-266. doi:10.1023/A:1008066718905
- Kivetz, R., & Simonson, I. (2002). Earning the right to indulge: Effort as a determinant of customer preferences toward frequency program rewards. *Journal of Marketing Research*, *39*, 155-170. doi:10.1509/jmkr.39.2.155.19084

- Klein, C. (2011). The dual track theory of moral decision-making: A critique of the neuroimaging evidence. *Neuroethics*, 4, 143-162. doi:10.1007/s12152-010-9077-1
- Klein, G. A. (1998). *Sources of power: How people make decisions*. Cambridge, MA: MIT Press.
- Köcher, S., & Holzmüller, H. H. (2014). Zu viel des Guten? Eine Analyse der Wirkung von Verbraucherschutzinformation [Too much of a good thing? An analysis of the impact of consumer protection information]. *Schmalenbachs Zeitschrift für betriebswirtschaftliche Forschung*, 66, 306-343. doi:10.1007/BF03373720
- Kriete-Dodds, S., & Maringer, D. (2015). Overconfidence in the credit card market. In M. Diehl, B. Alexandrova-Kabadjova, R. Heuver & S. Martínez-Jaramillo (Eds.), *Analyzing the economics of financial market infrastructures* (pp. 150-168). Hershey, PA: IGI Global.
- Krosnick, J. A. (1991). Response strategies for coping with the cognitive demands of attitude measures in surveys. *Applied Cognitive Psychology*, 5, 213-236. doi:10.1002/acp.2350050305
- Krüger, T., Fiedler, K., Koch, A. S., & Alves, H. (2014). Response category width as a psychophysical manifestation of construal level and distance. *Personality & Social Psychology Bulletin*, 40, 501-512. doi:10.1177/0146167213517009
- Lachance, M. (2014). Financial literacy and neighborhood effects. *Journal of Consumer Affairs*, 48, 251-273. doi:10.1111/joca.12024
- Lachance, M. J., Beaudoin, P., & Robitaille, J. (2006). Quebec young adults' use of and knowledge of credit. *International Journal of Consumer Studies*, 30, 347-359. doi:10.1111/j.1470-6431.2006.00521.x

- Lamberton, C. P., & Diehl, K. (2013). Retail choice architecture: The effects of benefit- and attribute-based assortment organization on consumer perceptions and choice. *Journal of Consumer Research*, *40*, 393-411. doi:10.1086/671103
- Langer, T., Sarin, R., & Weber, M. (2005). The retrospective evaluation of payment sequences: Duration neglect and peak-and-end effects. *Journal of Economic Behavior & Organization*, *58*, 157-175. doi:10.1016/j.jebo.2004.01.001
- Lea, S. E. (1999). Credit, debt and problem debt. In P. E. Earl & S. Kemp (Eds.), *The Elgar companion to consumer research and economic psychology* (pp. 139-144). Cheltenham, England: Edward Elgar.
- Lee, H., Deng, X., Unnava, H. R., & Fujita, K. (2014). Monochrome forests and colorful trees: The effect of black-and-white versus color imagery on construal level. *Journal of Consumer Research*, *41*, 1015-1032. doi:10.1086/678392
- Lee, J., & Hogarth, J. M. (1999). The price of money: Consumers' understanding of APRs and contract interest rates. *Journal of Public Policy & Marketing*, *18*, 66-76. Retrieved from <http://www.jstor.org/stable/30000509>
- Lee, A. Y., Keller, P. A., & Sternthal, B. (2010). Value from regulatory construal fit: The persuasive impact of fit between consumer goals and message concreteness. *Journal of Consumer Research*, *36*, 735-747. doi:10.1086/605591
- Lee, L., Lee, M. P., Bertini, M., Zauberan, G., & Ariely, D. (2015). Money, time, and the stability of consumer preferences. *Journal of Marketing Research*, *52*, 184-199. doi:10.1509/jmr.10.0386

- Lee, S., & Koubek, R. J. (2010). Understanding user preferences based on usability and aesthetics before and after actual use. *Interacting with Computers*, 22, 530-543. doi:10.1016/j.intcom.2010.05.002
- Lee, S., & Koubek, R. J. (2012). Users' perceptions of usability and aesthetics as criteria of pre- and post-use preferences. *European Journal of Industrial Engineering*, 6, 87-117. doi:10.1504/EJIE.2012.044812.
- Leiser, D., Azar, O. H., & Hadar, L. (2008). Psychological construal of economic behavior. *Journal of Economic Psychology*, 29, 762-776. doi:10.1016/j.joep.2008.08.002
- Lessard-Bonaventure, S., & Chebat, J.-C. (2015). Psychological ownership, touch, and willingness to pay for an extended warranty. *Journal of Marketing Theory and Practice*, 23, 224-234. doi:10.1080/10696679.2015.1002341
- Lewis, A., & van Venrooij, M. (1995). A note on the perceptions of loan duration and repayment. *Journal of Economic Psychology*, 16, 161-168. doi:10.1016/0167-4870(95)00002-6
- Liberman, N., & Förster, J. (2009). Distancing from experienced self: How global-versus-local perception affects estimation of psychological distance. *Journal of Personality and Social Psychology*, 97, 203-216. doi:10.1037/a0015671
- Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology*, 75, 5-18. doi:10.1037/0022-3514.75.1.5
- Liberman, N., & Trope, Y. (2008). The psychology of transcending the here and now. *Science*, 322, 1201-1205. doi:10.1126/science.1161958

- Liberman, N., & Trope, Y. (2014). Traversing psychological distance. *Trends in Cognitive Sciences, 18*, 364-369. doi:10.1016/j.tics.2014.03.001
- Liberman, N., Trope, Y., McCrea, S. M., & Sherman, S. J. (2007). The effect of level of construal on the temporal distance of activity enactment. *Journal of Experimental Social Psychology, 43*, 143-149. doi:10.1016/j.jesp.2005.12.009
- Liberman, N., Trope, Y., & Stephan, E. (2007). Psychological distance. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology. Handbook of basic principles* (pp. 353-381). New York, NY: Guilford Press.
- Liberman, N., Sagristano, M. D., & Trope, Y. (2002). The effect of temporal distance on level of mental construal. *Journal of Experimental Social Psychology, 38*, 523-534. doi:10.1016/S0022-1031(02)00535-8
- Lieberman, M. D. (2007). Social cognitive neuroscience: A review of core processes. *Annual Review of Psychology, 58*, 259-289. doi:10.1146/annurev.psych.58.110405.085654
- Liviatan, I., Trope, Y., & Liberman, N. (2008). Interpersonal similarity as a social distance dimension: Implications for perception of others' actions. *Journal of Experimental Social Psychology, 44*, 1256-1269. doi:10.1016/j.jesp.2008.04.007
- Loewenstein, G. F., & Prelec, D. (1991). Negative time preference. *The American Economic Review, 81*, 347-352. Retrieved from <http://www.cmu.edu/dietrich/sds/docs/loewenstein/negativeTimePref.pdf>
- Loewenstein, G. F., & Prelec, D. (1993). Preferences for sequences of outcomes. *Psychological Review, 100*, 91-108. doi:10.1037/0033-295X.100.1.91

- Lu, J., Xie, X., & Xu, J. (2013). Desirability or feasibility: Self-other decision-making differences. *Personality & Social Psychology Bulletin*, *39*, 144-155.
doi:10.1177/0146167212470146
- Lusardi, A., & Mitchell, O. (2007). Financial literacy and retirement preparedness: Evidence and implications for financial education. The problems are serious, and remedies are not simple. *Business Economics*, *42*, 35-44. doi:10.2145/20070104
- Lusardi, A., & Tufano, P. (2015). Debt literacy, financial experiences, and overindebtedness. *Journal of Pension Economics and Finance*, *14*, 332-368.
doi:10.1017/S1474747215000232
- Lynch, J. G., Netemeyer, R. G., Spiller, S. A., & Zammit, A. (2010). A generalizable scale of propensity to plan: The long and the short of planning for time and for money. *Journal of Consumer Research*, *37*, 108-128. doi:10.1086/649907
- Lyons, A. C., Rachlis, M., & Scherpf, E. (2007). What's in a score? Differences in consumers' credit knowledge using OLS and quantile regressions. *Journal of Consumer Affairs*, *41*, 223-249. doi:10.1111/j.1745-6606.2007.00079.x
- Macdonnell, R., & White, K. (2015). How construals of money versus time impact consumer charitable giving. *Journal of Consumer Research*, *42*, 551-563. doi:10.1093/jcr/ucv042
- Malkoc, S. A., Zauberan, G., & Bettman, J. R. (2010). Unstuck from the concrete: Carryover effects of abstract mindsets in intertemporal preferences. *Organizational Behavior and Human Decision Processes*, *113*, 112-126. doi:10.1016/j.obhdp.2010.07.003
- McCrea, S. M., Liberman, N., Trope, Y., & Sherman, S. J. (2008). Construal level and procrastination. *Psychological Science*, *19*, 1308-1314. doi:10.1111/j.1467-9280.2008.02240.x

- McGrath, R. E., Mitchell, M., Kim, B. H., & Hough, L. (2010). Evidence for response bias as a source of error variance in applied assessment. *Psychological Bulletin*, *136*, 450-470. doi:10.1037/a0019216
- McGuire, V. C. (2017, February 10). Best 0% and Low Interest Credit Cards of 2017. Retrieved from <https://www.nerdwallet.com/blog/top-credit-cards/nerdwallets-best-low-interest-credit-cards/>
- McHugh, S., & Ranyard, R. (2012). Credit repayment decisions: The role of long-term consequence information, economic and psychological factors. *Review of Behavioral Finance*, *4*, 98-112. doi:10.1108/19405971211284880
- McHugh, S., Ranyard, R., & Lewis, A. (2011). Understanding and knowledge of credit cost and duration: Effects on credit judgements and decisions. *Journal of Economic Psychology*, *32*, 609-620. doi:10.1016/j.joep.2011.02.005
- Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods*, *17*, 437-455. doi:10.1037/a0028085
- Meltzer, H., Bebbington, P., Brugha, T., Jenkins, R., McManus, S., & Dennis, M. S. (2011). Personal debt and suicidal ideation. *Psychological Medicine*, *41*, 771-778. doi:10.1017/S0033291710001261
- Mentovich, A., Yudkin, D., Tyler, T., & Trope, Y. (2016). Justice without borders: The influence of psychological distance and construal level on moral exclusion. *Personality and Social Psychology Bulletin*, *42*, 1349-1363. doi:10.1177/0146167216659477
- Merskin, D. (1998). The show for those who owe: Normalization of credit on lifetime's debt. *Journal of Communication Inquiry*, *22*, 10-26. doi:10.1177/0196859998022001003

- Milinski, M., & Wedekind, C. (1998). Working memory constrains human cooperation in the prisoner's dilemma. *Proceedings of the National Academy of Sciences*, *95*, 13755-13758. doi:10.1073/pnas.95.23.13755
- Mishra, A., & Mishra, H. (2011). The influence of price discount versus bonus pack on the preference for virtue and vice foods. *Journal of Marketing Research*, *48*, 196-206. doi:10.1509/jmkr.48.1.196
- Moritz, B., Siemen, E., & Kremer, M. (2014). Judgmental forecasting: Cognitive reflection and decision speed. *Production and Operations Management*, *23*, 1146-1160. doi:10.1111/poms.12105
- Murata, A. (2017). Discussion on human's irrational behavior to price of zero. *International Journal of Applied Behavioral Economics*, *6*, 34-46. doi:10.4018/IJABE.2017010103
- Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin*, *126*, 247-259. doi:10.1037//0033-2909.126.2.247
- Mussweiler, T., & Strack, F. (2000). Numeric judgments under uncertainty: The role of knowledge in anchoring. *Journal of Experimental Social Psychology*, *36*, 495-518. doi:10.1006/jesp.1999.1414
- Nagel, I. E., Preuschhof, C., Li, S.-C., Nyberg, L., Backman, L., Lindenberger, U., & Heekeren, H. R. (2009). Performance level modulates adult age differences in brain activation during spatial working memory. *Proceedings of the National Academy of Sciences*, *106*, 22552-22557. doi:10.1073/pnas.0908238106
- Nicolau, J. L. (2012). Battle royal: Zero-price effect vs relative vs referent thinking. *Marketing Letters*, *23*, 661-669. doi:10.1007/s11002-012-9169-2

- Niness, K. R. (1999). Inulin and oligofructose: What are they? *Journal of Nutrition*, *129*, 1402-1406. Retrieved from <http://jn.nutrition.org/content/129/7/1402S.full.pdf+html>
- Nosek, B. A., Hawkins, C. B., & Frazier, R. S. (2011). Implicit social cognition: From measures to mechanisms. *Trends in Cognitive Sciences*, *15*, 152-159.
doi:10.1016/j.tics.2011.01.005
- Nussbaum, S., Trope, Y., & Liberman, N. (2003). Creeping dispositionism: The temporal dynamics of behavior prediction. *Journal of Personality and Social Psychology*, *84*, 485-497. doi:10.1037/0022-3514.84.3.485
- O'Curry, S., & Strahilevitz, M. (2001). Probability and mode of acquisition effects on choices between hedonic and utilitarian options. *Marketing Letters*, *12*, 37-49.
doi:10.1023/A:1008115902904
- Oechssler, J., Roider, A., & Schmitz, P. W. (2009). Cognitive abilities and behavioral biases. *Journal of Economic Behavior & Organization*, *72*, 147-152.
doi:10.1016/j.jebo.2009.04.018
- Okada, E. M. (2005). Justification effects on consumer choice of hedonic and utilitarian goods. *Journal of Marketing Research*, *42*, 43-53. doi:10.1509/jmkr.42.1.43.56889
- Oppenheimer, D. M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satisficing to increase statistical power. *Journal of Experimental Social Psychology*, *45*, 867-872. doi:10.1016/j.jesp.2009.03.009
- Orazi, D. C., Lei, J., & Bove, L. L. (2015). The nature and framing of gambling consequences in advertising. *Journal of Business Research*, *68*, 2049-2056.
doi:10.1016/j.jbusres.2015.03.002

- Overton, A. A., & MacFadyen, A. J. (1998). Time discounting and the estimation of loan duration. *Journal of Economic Psychology, 19*, 607-618. doi:10.1016/S0167-4870(98)00027-0
- Owen, A. M., McMillan, K. M., Laird, A. R., & Bullmore, E. (2005). N-back working memory paradigm: A meta-analysis of normative functional neuroimaging studies. *Human Brain Mapping, 25*, 46-59. doi:10.1002/hbm.20131
- Paas, F. C., & Van Merriënboer, J. G. (1994). Variability of worked examples and transfer of geometrical problem-solving skills: A cognitive-load approach. *Journal of Educational Psychology, 86*, 122-133. doi:10.1037/0022-0663.86.1.122
- Paas, F. C., Van Merriënboer, J. G., & Adam, J. J. (1994). Measurement of cognitive load in instructional research. *Perceptual and Motor Skills, 79*, 419-430. doi:10.2466/pms.1994.79.1.419
- Palmeira, M. M. (2011). The zero-comparison effect. *Journal of Consumer Research, 38*, 16-26. doi:10.1086/657998
- Peetz, J., & Buehler, R. (2012). When distance pays off: The role of construal level in spending predictions. *Journal of Experimental Social Psychology, 48*, 395-398. doi:10.1016/j.jesp.2011.07.016
- Peñaloza, L., & Barnhart, M. (2011). Living U.S. capitalism: The normalization of credit/debt. *Journal of Consumer Research, 38*, 743-762. doi:10.1086/660116
- Penney, C. G. (1989). Modality effects and the structure of short-term verbal memory. *Memory & Cognition, 17*, 398-422. doi:10.3758/BF03202613
- Pfannenstiel, A., & Chaparro, B. S. (2015). An Investigation of the usability and desirability of health and fitness-tracking devices. In C. Stephanidis (Ed.), *HCI International 2015 -*

- Posters' Extended Abstracts. HCI 2015. Communications in Computer and Information Science: Vol. 529* (pp. 473-477). doi:10.1007/978-3-319-21383-5_79
- Pham, M. T., Hung, I. W., & Gorn, G. J. (2011). Relaxation increases monetary valuations. *Journal of Marketing Research*, 48, 814-826. doi:10.1509/jmkr.48.5.814
- Pierce, J. L., Kostova, T., & Dirks, K. T. (2003). The state of psychological ownership: Integrating and extending a century of research. *Review of General Psychology*, 7, 84-107. doi:10.1037//1089-2680.7.1.84
- Pizzi, G., Scarpi, D., & Marzocchi, G. L. (2014). Showing a tree to sell the forest: The impact of attribute- and alternative-based information presentation on consumers' choices. *Journal of Economic Psychology*, 42, 41-51. doi:10.1016/j.joep.2013.12.001
- Pollock, J. L. (1989). OSCAR: A general theory of rationality. *Journal of Experimental & Theoretical Artificial Intelligence*, 1, 209-226. doi:10.1080/09528138908953702
- Prelec, D., & Loewenstein, G. (1998). The red and the black: Mental accounting of savings and debt. *Marketing Science*, 17, 4-28. doi:10.1287/mksc.17.1.4
- Primi, C., Morsanyi, K., Chiesi, F., Donati, M. A., & Hamilton, J. (2016). The development and testing of a new version of the cognitive reflection test applying item response theory (IRT). *Journal of Behavioral Decision Making*, 29, 453-469. doi:10.1002/bdm.1883.
- Pulina, M. (2011). Consumer behaviour in the credit card market: A banking case study. *International Journal of Consumer Studies*, 35, 86-94. doi:10.1111/j.1470-6431.2010.00939.x
- Ragland, J. D., Turetsky, B. I., Gur, R. C., Gunning-Dixon, F., Turner, T., Schroeder, L., . . . Gur, R. E. (2002). Working memory for complex figures: An fMRI comparison of letter and fractal n-back tasks. *Neuropsychology*, 16, 370-379. doi:10.1037/0894-4105.16.3.370

- Rämä, P., Martinkauppi, S., Linnankoski, I., Koivisto, J., Aronen, H. J., & Carlson, S. (2001). Working memory of identification of emotional vocal expressions: An fMRI study. *NeuroImage, 13*, 1090-1101. doi:10.1006/nimg.2001.0777
- Ramirez, E., Jiménez, F. R., & Gau, R. (2015). Concrete and abstract goals associated with the consumption of environmentally sustainable products. *European Journal of Marketing, 49*, 1645-1665. doi:10.1108/EJM-08-2012-0483
- Ranyard, R., & Craig, G. (1993). Estimating the duration of a flexible loan: The effect of supplementary information. *Journal of Economic Psychology, 14*, 317-335. doi:10.1016/0167-4870(93)90005-6
- Ranyard, R., & McHugh, S. (2012). Defusing the risk of borrowing: The psychology of payment protection insurance decisions. *Journal of Economic Psychology, 33*, 738-748. doi:10.1016/j.joep.2012.02.002
- Ranyard, R., Hinkley, L., Williamson, J., & McHugh, S. (2006). The role of mental accounting in consumer credit decision processes. *Journal of Economic Psychology, 27*, 571-588. doi:10.1016/j.joep.2005.11.001
- Read, D., & Powell, M. (2002). Reasons for sequence preferences. *Journal of Behavioral Decision Making, 15*, 433-460. doi:10.1002/bdm.429
- Richins, M. L. (2011). Materialism, transformation expectations, and spending: Implications for credit use. *Journal of Public Policy & Marketing, 30*, 141-156. doi:10.1509/jppm.30.2.141
- Rim, S., Uleman, J. S., & Trope, Y. (2009). Spontaneous trait inference and construal level theory: Psychological distance increases nonconscious trait thinking. *Journal of Experimental Social Psychology, 45*, 1088-1097. doi:10.1016/j.jesp.2009.06.015

- Rissman, J., Gazzaley, A., & D'Esposito, M. (2009). The effect of non-visual working memory load on top-down modulation of visual processing. *Neuropsychologia*, *47*, 1637-1646. doi:10.1016/j.neuropsychologia.2009.01.036
- Rizvi, S., & Bobocel, D. R. (2016). Promoting forgiveness through psychological distance. *Social Psychological and Personality Science*, *7*, 875-883. doi:10.1177/1948550616662122
- Rogers, T., & Bazerman, M. H. (2008). Future lock-in: Future implementation increases selection of 'should' choices. *Organizational Behavior and Human Decision Processes*, *106*, 1-20. doi:10.1016/j.obhdp.2007.08.001
- Roghanizad, M. M., & Neufeld, D. J. (2015). Intuition, risk, and the formation of online trust. *Computers in Human Behavior*, *50*, 489-498. doi:10.1016/j.chb.2015.04.025
- Ross, W. T., & Simonson, I. (1991). Evaluations of pairs of experiences: A preference for happy endings. *Journal of Behavioral Decision Making*, *4*, 273-282. doi:10.1002/bdm.3960040405
- Sacchi, S., Riva, P., & Aceto, A. (2016). Myopic about climate change: Cognitive style, psychological distance, and environmentalism. *Journal of Experimental Social Psychology*, *65*, 68-73. doi:10.1016/j.jesp.2016.03.006
- Sagristano, M. D., Trope, Y., & Liberman, N. (2002). Time-dependent gambling: Odds now, money later. *Journal of Experimental Psychology: General*, *131*, 364-376. doi:10.1037//0096-3445.131.3.364
- Sanna, L. J., Chang, E. C., Parks, C. D., & Kennedy, L. A. (2009). Construing collective concerns: Increasing cooperation by broadening construals in social dilemmas. *Psychological Science*, *20*, 1319-1321. doi:10.1111/j.1467-9280.2009.02458.x

- Savadori, L., & Mittone, L. (2015). Temporal distance reduces the attractiveness of p-bets compared to \$-bets. *Journal of Economic Psychology*, *46*, 26-38.
doi:10.1016/j.joep.2014.11.004
- Schmeck, A., Opfermann, M., van Gog, T., Paas, F., & Leutner, D. (2015). Measuring cognitive load with subjective rating scales during problem solving: Differences between immediate and delayed ratings. *Instructional Science*, *43*, 93-114. doi:10.1007/s11251-014-9328-3
- Schmeichel, B. J., Vohs, K. D., & Baumeister, R. F. (2003). Intellectual performance and ego depletion: Role of the self in logical reasoning and other information processing. *Journal of Personality and Social Psychology*, *85*, 33-46. doi:10.1037/0022-3514.85.1.33
- Schneider, D., Lam, R., Bayliss, A. P., & Dux, P. E. (2012). Cognitive load disrupts implicit theory-of-mind processing. *Psychological Science*, *23*, 842-847.
doi:10.1177/0956797612439070
- SCHUFA Holding AG. (2010). *SCHUFA Kredit-Kompass 2010. Empirische Indikatoren der privaten Kreditaufnahme in Deutschland. Auswirkungen der Wirtschaftskrise auf den Konsumentenkredit [SCHUFA credit-compass 2010. Empirical indicators of private borrowing in Germany. Effects of the financial crisis on consumer credit]*. Wiesbaden, Germany: SCHUFA.
- SCHUFA Holding AG. (2013). *SCHUFA Kredit-Kompass 2013: Empirische Untersuchung der privaten Kreditaufnahme in Deutschland. Finanzverhalten von Jugendlichen und jungen Erwachsenen [SCHUFA credit-compass 2013. Empirical analysis of private borrowing in Germany. Financial behavior of adolescents and young adults]*. Wiesbaden, Germany: SCHUFA.

- SCHUFA Holding AG. (2016). SCHUFA Kredit-Kompass 2016. Empirische Untersuchung der privaten Kreditaufnahme in Deutschland. Konsumentenverhalten in Zeiten des Online-Payments [*SCHUFA credit-compass 2016. Empirical analysis of private borrowing in Germany. Consumer behavior in times of online-payment*]. Wiesbaden, Germany: SCHUFA.
- Schulz, J. F., Fischbacher, U., Thöni, C., & Utikal, V. (2014). Affect and fairness: Dictator games under cognitive load. *Journal of Economic Psychology, 41*, 77-87.
doi:10.1016/j.joep.2012.08.007
- Schwabe, L., & Wolf, O. T. (2010). Learning under stress impairs memory formation. *Neurobiology of Learning and Memory, 93*, 183-188. doi:10.1016/j.nlm.2009.09.009
- Shah, A. M., Eisenkraft, N., Bettman, J. R., & Chartrand, T. L. (2016). "Paper or plastic?": How we pay influences post-transaction connection. *Journal of Consumer Research, 42*, 688-708. doi:10.1093/jcr/ucv056
- Shampanier, K., Mazar, N., & Ariely, D. (2007). Zero as a special price: The true value of free products. *Marketing Science, 26*, 742-757. doi:10.1287/mksc.1060.0254
- Shani, Y., Igou, E. R., & Zeelenberg, M. (2009). Different ways of looking at unpleasant truths: How construal levels influence information search. *Organizational Behavior and Human Decision Processes, 110*, 36-44. doi:10.1016/j.obhdp.2009.05.005
- Shen, S., Sam, A. G., & Jones, E. (2014). Credit card indebtedness and psychological well-being over time: Empirical evidence from a household survey. *Journal of Consumer Affairs, 48*, 431-456. doi:10.1111/joca.12047
- Sherman, J. W., Gawronski, B., & Trope, Y. (2014). *Dual-process theories of the social mind*. New York, NY: Guilford Publications.

- Skarlicki, D. P., & Rupp, D. E. (2010). Dual processing and organizational justice: The role of rational versus experiential processing in third-party reactions to workplace mistreatment. *Journal of Applied Psychology, 95*, 944-952. doi:10.1037/a0020468
- Sloman, S. A. (1996). The empirical case for two systems of reasoning. *Psychological Bulletin, 119*, 3-22. doi:10.1037/0033-2909.119.1.3
- Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. G. (2007). The affect heuristic. *European Journal of Operational Research, 177*, 1333-1352. doi:http://doi.org/10.1016/j.ejor.2005.04.006
- Small, D. A., Loewenstein, G., & Slovic, P. (2007). Sympathy and callousness: The impact of deliberative thought on donations to identifiable and statistical victims. *Organizational Behavior and Human Decision Processes, 102*, 143-153. doi:10.1016/j.obhdp.2006.01.005
- Smava. (2015, November 2). *Kredit für 0,0 Prozent – smava schreibt Geschichte [credit for 0.0 percent – smava writes history]*. Retrieved from <https://www.smava.de/blog/smava-aktuell/0-prozent-419/>
- Soderberg, C. K., Callahan, S. P., Kochersberger, A. O., Amit, E., & Ledgerwood, A. (2015). The effects of psychological distance on abstraction: Two meta-analyses. *Psychological Bulletin, 141*, 525-548. doi:10.1037/bul0000005
- Soll, J. B., Keeney, R. L., & Larrick, R. P. (2013). Consumer misunderstanding of credit card use, payments, and debt: Causes and solutions. *Journal of Public Policy & Marketing, 32*, 66-81. doi:10.1509/jppm.11.061
- Soman, D. (2003). The effect of payment transparency on consumption: Quasi-experiments from the field. *Marketing Letters, 14*, 173-183. doi:10.1023/A:1027444717586

- Sotiropoulos, V., & d'Astous, A. (2012). Social networks and credit card overspending among young adult consumers. *Journal Of Consumer Affairs*, *46*, 457-484. doi:10.1111/j.1745-6606.2012.01239.x
- Stango, V., & Zinman, J. (2009). Exponential growth bias and household finance. *Journal of Finance*, *64*, 2807-2849. doi:10.1111/j.1540-6261.2009.01518.x
- Stanovich, K. E. (1999). *Who is rational? Studies of individual differences in reasoning*. Mahwah, N.J: Lawrence Erlbaum Associates.
- Stanovich, K. E. (2011). *Rationality and the reflective mind*. New York, NY: Oxford University Press.
- Stephan, E., Liberman, N., & Trope, Y. (2010). Politeness and psychological distance: A construal level perspective. *Journal of Personality and Social Psychology*, *98*, 268-280. doi:10.1037/a0016960
- Stiftung Warentest. (2013, September 1). Abzocke mit Dispozinsen. *Finanztest*, pp. 13-17. Retrieved from https://www.test.de/filestore/5055403_f201309012.pdf?path=/protected/b2/55/ee17bca2-90aa-4b05-a48e-6a33e18c1102-protectedfile.pdf
- Strack, F., Werth, L., & Deutsch, R. (2006). Reflective and impulsive determinants of consumer behavior. *Journal of Consumer Psychology*, *16*, 205-216. doi:10.1207/s15327663jcp1603_2
- Su, L., & Gao, L. (2014). Strategy compatibility: The time versus money effect on product evaluation strategies. *Journal of Consumer Psychology*, *24*, 549-556. doi:10.1016/j.jcps.2014.04.006

- Tach, L. M., & Greene, S. S. (2014). 'Robbing Peter to Pay Paul': Economic and cultural explanations for how lower-income families manage debt. *Social Problems*, 61, 1-21. doi:10.1525/sp.2013.11262
- Tam, L., & Dholakia, U. M. (2011). Delay and duration effects of time frames on personal savings estimates and behavior. *Organizational Behavior and Human Decision Processes*, 114, 142-152. doi:10.1016/j.obhdp.2010.10.009
- Thaler, R. H. (1985). Mental accounting and consumer choice. *Marketing Science*, 4, 199-214. Retrieved from <http://www.jstor.org/stable/183904>
- Thaler, R. H. (1999). Mental accounting matters. *Journal of Behavioral Decision Making*, 12, 183-206. doi:10.1002/(SICI)1099-0771(199909)12:3<183::AID-BDM318>3.0.CO;2-F
- Thomas, M., Desai, K. K., & Seenivasan, S. (2011). How credit card payments increase unhealthy food purchases: Visceral regulation of vices. *Journal of Consumer Research*, 38, 126-139. doi:10.1086/657331
- Thompson, D. V., Hamilton, R. W., & Rust, R. T. (2005). Feature fatigue: When product capabilities become too much of a good thing. *Journal of Marketing Research*, 42, 431-442. doi:10.1509/jmkr.2005.42.4.431
- Toplak, M. E., West, R. F., & Stanovich, K. E. (2011). The cognitive reflection test as a predictor of performance on heuristics-and-biases tasks. *Memory & Cognition*, 39, 1275-1289. doi:10.3758/s13421-011-0104-1
- Toplak, M. E., West, R. F., & Stanovich, K. E. (2014). Assessing miserly information processing: An expansion of the cognitive reflection test. *Thinking & Reasoning*, 20, 147-168. doi:10.1080/13546783.2013.844729

- Town East Ford. (2015). *0% APR available on these new 2015 Fords!* Retrieved from <https://www.towneastford.com/promo/0-percent.htm>
- Trope, Y., & Liberman, N. (2000). Temporal construal and time-dependent changes in preference. *Journal of Personality and Social Psychology, 79*, 876-889.
doi:10.1037//0022-3514.79.6.876
- Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review, 110*, 403-421.
doi:10.1037/0033-295X.110.3.403
- Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review, 117*, 440-463. doi:10.1037/a0018963
- Trope, Y., & Liberman, N. (2011). Construal level theory. In P. A. van Lange, A. W. Kruglanski & E. T. Higgins (Eds.), *The handbook of theories of social psychology: Volume 1* (pp. 118-134). London, England: SAGE Publications. doi:10.4135/9781446249215
- Trope, Y., Liberman, N., & Wakslak, C. (2007). Construal levels and psychological distance: Effects on representation, prediction, evaluation, and behavior. *Journal of Consumer Psychology, 17*, 83-95. doi:10.1016/S1057-7408(07)70013-X
- Tsai, M.-C., Dwyer, R. E., & Tsay, R.-M. (2016). Does financial assistance really assist? The impact of debt on wellbeing, health behavior and self-concept in Taiwan. *Social Indicators Research, 125*, 127-147. doi:10.1007/s11205-014-0835-z
- Tsai, C. I., & McGill, A. L. (2011). No pain, no gain? How fluency and construal level affect consumer confidence. *Journal of Consumer Research, 37*, 807-821. doi:10.1086/655855
- Tsujii, T., & Sakatani, K. (2012). Neural mechanisms for dual-process reasoning: Evidence from the belief-bias effect. In V. Chaudhary (Ed.), *Advances in Brain Imaging* (pp. 35-50). Rijeka, Croatia: InTech. doi:10.5772/29268

- Tsujii, T., Sakatani, K., Masuda, S., Akiyama, T., & Watanabe, S. (2011). Evaluating the roles of the inferior frontal gyrus and superior parietal lobule in deductive reasoning: An rTMS study. *NeuroImage*, *58*, 640-646. doi:10.1016/j.neuroimage.2011.06.076
- Ülkümen, G., & Cheema, A. (2011). Framing goals to influence personal savings: The role of specificity and construal level. *Journal of Marketing Research*, *48*, 958-969. doi:10.1509/jmr.09.0516
- United States Census Bureau. (2017) *U.S. and World Population Clock*. Retrieved from <https://www.census.gov/popclock/>
- Vallacher, R. R., & Wegner, D. M. (1989). Levels of personal agency: Individual variation in action identification. *Journal of Personality and Social Psychology*, *57*, 660-671. doi:10.1037/0022-3514.57.4.660
- van den Bos, K., & Maas, M. (2009). On the psychology of the belief in a just world: Exploring experiential and rationalistic paths to victim blaming. *Personality & Social Psychology Bulletin*, *35*, 1567-1578. doi:10.1177/0146167209344628
- van den Bos, K., Peters, S. L., Bobocel, D. R., & Ybema, J. F. (2006). On preferences and doing the right thing: Satisfaction with advantageous inequity when cognitive processing is limited. *Journal of Experimental Social Psychology*, *42*, 273-289. doi:10.1016/j.jesp.2005.04.003
- van Kerckhove, A., Geuens, M., & Vermeir, I. (2015). The floor is nearer than the sky: How looking up or down affects construal level. *Journal of Consumer Research*, *41*, 1358-1371. doi:10.1086/679309

- van Schie, R. J., Dellaert, B. G., & Donkers, B. (2015). Promoting later planned retirement: Construal level intervention impact reverses with age. *Journal of Economic Psychology*, *50*, 124-131. doi:10.1016/j.joep.2015.06.010
- Veblen, T. (1899). *The theory of the leisure class: Economic study of institutions*. New York, NY: Random House.
- Verbraucherzentrale Niedersachsen. (2014). *Null-Prozent-Finanzierung. Hintergründe, Kostenfallen, Tipps*. Hannover, Germany: Verbraucherzentrale Niedersachsen.
- Verbraucherzentrale. (2016, Januar 20). *Null-Prozent-Finanzierung [Zero-percent-financing]*. Retrieved from <https://www.verbraucherzentrale.de/null-prozent-finanzierung-kostenfallen#vorsichtbeineuenfinanzierungskombinationen>
- Voss, K. E., Spangenberg, E. R., & Grohmann, B. (2003). Measuring the hedonic and utilitarian dimensions of consumer attitude. *Journal of Marketing Research*, *40*, 310-320. doi:10.1509/jmkr.40.3.310.19238
- Wakslak, C. J. (2012). The where and when of likely and unlikely events. *Organizational Behavior and Human Decision Processes*, *117*, 150-157. doi:10.1016/j.obhdp.2011.10.004
- Wakslak, C. J., Trope, Y., Liberman, N., & Alony, R. (2006). Seeing the forest when entry is unlikely: Probability and the mental representation of events. *Journal of Experimental Psychology: General*, *135*, 641-653. doi:10.1037/0096-3445.135.4.641
- Wakslak, C., & Trope, Y. (2009). The effect of construal level on subjective probability estimates. *Psychological Science*, *20*, 52-58. doi:10.1111/j.1467-9280.2008.02250.x

- Walsemann, K. M., Gee, G. C., & Gentile, D. (2015). Sick of our loans: Student borrowing and the mental health of young adults in the United States. *Social Science & Medicine*, *124*, 85-93. doi:10.1016/j.socscimed.2014.11.027
- Wampold, B. E. (2006). Designing a research study. In F. T. Leong & J. T. Austin (Eds.), *The psychology research handbook: A guide for graduate students and research assistants* (pp. 93-103). Thousand Oaks, CA: SAGE Publications. doi:10.4135/9781412976626.n6
- Wan, E. W., & Agrawal, N. (2011). Carryover effects of self-control on decision making: A construal-level perspective. *Journal of Consumer Research*, *38*, 199-214. doi:10.1086/658471
- Wang, J., Novemsky, N., & Dhar, R. (2009). Anticipating adaptation to products. *Journal of Consumer Research*, *36*, 149-159. doi:10.1086/597050
- Wang, L., Lu, W., & Malhotra, N. K. (2011). Demographics, attitude, personality and credit card features correlate with credit card debt: A view from China. *Journal of Economic Psychology*, *32*, 179-193. doi:10.1016/j.joep.2010.11.006
- Ward, A., & Mann, T. (2000). Don't mind if I do: Disinhibited eating under cognitive load. *Journal of Personality and Social Psychology*, *78*, 753-763. doi:10.1037//0022-3514.78.4.753
- Watkins, J. P. (2000). Corporate power and the evolution of consumer credit. *Journal of Economic Issues*, *34*, 909-932. doi:10.1080/00213624.2000.11506321
- Weichselbaumer, D., & Winter-Ebmer, R. (2005). A meta-analysis of the international gender wage gap. *Journal of Economic Surveys*, *19*, 479-511. doi:10.1111/j.0950-0804.2005.00256.x

- Weller, C. E. (2007). Need or want: What explains the run-up in consumer debt? *Journal of Economic Issues*, *41*, 583-592. doi:10.1080/00213624.2007.11507048
- Whitney, P., Rinehart, C. A., & Hinson, J. M. (2008). Framing effects under cognitive load: The role of working memory in risky decisions. *Psychonomic Bulletin & Review*, *15*, 1179-1184. doi:10.3758/PBR.15.6.1179
- Williams, L. E., & Bargh, J. A. (2008). Keeping one's distance. *Psychological Science*, *19*, 302-308. doi:10.1111/j.1467-9280.2008.02084.x
- Wolfin, K., Corneille, O., Yzerbyt, V. Y., & Förster, J. (2011). Narrowing down to open up for other people's concerns: Empathic concern can be enhanced by inducing detailed processing. *Journal of Experimental Social Psychology*, *47*, 418-424. doi:10.1016/j.jesp.2010.11.006
- Wonder, N., Wilhelm, W., & Fewings, D. (2008). The financial rationality of consumer loan choices: Revealed preferences concerning interest rates, down payments, contract length, and rebates. *Journal of Consumer Affairs*, *42*, 243-270. doi:10.1111/j.1745-6606.2008.00107.x
- World Bank. (2017). *DGP (current US\$)* [data file]. Retrieved from: <http://data.worldbank.org/indicator/%20NY.GDP.MKTP.CD>
- Xiao, W., Wu, Q., Yang, Q., Zhou, L., Jiang, Y., Zhang, J., . . . Martinez, L. M. (2015). Moral hypocrisy on the basis of construal level: To be a utilitarian personal decision maker or to be a moral advisor? *Plos ONE*, *10*(2). doi:10.1371/journal.pone.0117540.
- Yan, J., Hou, S., & Unger, A. (2014). High construal level reduces overoptimistic performance prediction. *Social Behavior and Personality*, *42*, 1303-1313. doi:10.2224/sbp.2014.42.8.1303

- Yang, S., Markoczy, L., & Qi, M. (2007). Unrealistic optimism in consumer credit card adoption. *Journal of Economic Psychology*, 28, 170-185. doi:10.1016/j.joep.2006.05.006
- Zaichkowsky, J. L. (1985). Measuring the involvement construct. *Journal of Consumer Research*, 12, 341-352. doi:10.1086/208520
- Zhang, K. Z., Zhao, S. J., Cheung, C. M., & Lee, M. K. (2014). Examining the influence of online reviews on consumers' decision-making: A heuristic–systematic model. *Decision Support Systems*, 67, 78-89. doi:10.1016/j.dss.2014.08.005
- Zhao, M., & Xie, J. (2011). Effects of social and temporal distance on consumers' responses to peer recommendations. *Journal of Marketing Research*, 48, 486-496.
doi:10.1509/jmkr.48.3.486
- Zhong, C.-B. (2011). The ethical dangers of deliberative decision making. *Administrative Science Quarterly*, 56, 1-25. doi:10.2189/asqu.2011.56.1.001

Curriculum Vitae

PERSONAL DETAILS

Date of birth 14th March 1988

PROFESSIONAL EXPERIENCE

- 04/2017 – present **Trainee at BMW AG**, personnel management department, Munich
- 07/2013 – 03/2017 **Research associate** at the **University of Cologne**, Institute of Sociology and Social Psychology
- 10/2012 – 03/2013 **Research assistant** at the **University of Cologne**, Institute of Sociology and Social Psychology
- 06/2012 – 10/2012 **Intern at REWE-Zentral AG**, personnel management department, Cologne
- 10/2010 – 12/2011 **Student assistant** at the **University of Cologne**, Institute of Sociology and Social Psychology
- 01/2010 – 03/2010 **Intern at BASF SE**, global human resources governance / employee survey department, Ludwigshafen am Rhein
- 06/2009 – 12/2009 **Student assistant** at **MANAGEMENT consult Dr. Eisele & Dr. Noll GmbH**, data analysis / charting department, Mannheim

EDUCATION

- 09/2013 – present **Dr. rer. pol.** in Economic Psychology at the University of Cologne
- 10/2010 – 09/2013 **M. Sc.** Sociology and Empirical Social Research at the University of Cologne
- 08/2007 – 06/2010 **B. A.** Sociology at the University of Mannheim

Cologne, April 24th, 2017

Marc Heise