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Decision-Making in Online Retailing: The Effect of Payment Solutions on Cognitive Dissonance and Brand Attitude

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Summary

The growing consumer debt in many western countries is a major concern for the economy. In the meantime, online retailers are growing in number and are offering multiple payment solutions, many of which include delaying payments. However, there is little understanding of how consumers make the decision on how to finance their purchases, or how different payment solutions affect the consumer's post-purchase cognitive dissonance. This thesis intends to understand how consumers decide upon a payment method, by labelling the active cognitive decision-making system. Furthermore, it determines that consumers who choose payment delaying methods display strong indications of having higher cognitive dissonance levels than those who choose debit payment. Finally, this thesis proves that this experienced cognitive dissonance has a larger impact on the purchased brand than towards the third-party payment solution company, as the negative consumer attitude change was stronger towards the purchased brand.

Introduction

Over the last few years, economists and the media have raised concern about the growing consumer debt in developed countries. In Norway, the consumer loan debt increased by 15.3% between 2015 and 2016 (Hovland, 2017), and consumer debt is now at a record high in the US (US Federal Reserve, 2017; Weller, 2007). Some economists claim this growing consumer loan debt is a real threat to the economy (Vedeler, 2016; Vedeler, 2016; Maki, 2000). Economists have especially expressed concern over the usage of consumer loans and credit cards in young age segments (Vedeler, 2016; Fredriksen & Lindin, 2016). Previous research shows that the age group 25 and younger have the highest positive attitudes towards credit cards (Kaynak & Harcar, 2001). This could indicate that future generations may encounter financial trouble related to consumer debt if these trends continue. Companies are also enabling this trend, and are making consumer loans more accessible through online credit services (Barlow, 2015).

Alongside the growing consumer debt, the number of online retail stores and their sales have grown (SSB, 2017). In many online stores, cash/debit payment is not the default payment method. Online stores offer multiple payment solutions, e.g., credit cards, down-payment solutions, invoices, and consumer loans. With regards to credit card usage, research shows that willingness to pay may increase up to 100% compared to a cash payment (Prelec & Simester, 2001). This indication of irrational overspending makes it interesting to understand the payment method decision in an online retail setting. However, there is a lack of relevant research on how consumers make their decision of financing their online purchases, especially with respect to the accessibility of payment extension solutions. This information can in turn help managers to market their payment solutions more effectively. It is especially important to understand the effects of chosen payment methods on other psychological constructs, such as cognitive dissonance and consumer attitude.

To examine the payment decision-making process, we are using Kahneman's dual system thinking theory (Kahneman, 2011). Kahnemans' research has been used to label decision-makers' system thinking, as it divides between the fast and automatic System 1, and the slow and thoughtful System 2 decision-making processes. The amount of research in terms of cognitive decision-making is excessive with great research contributions from the father of this field, Daniel Kahneman, and scholars

who have built on his work such as Alter, Oppenheimer, Raghuram and Srivastava. However, this has never been applied in a context of online payment decisions. It is interesting to see if there is an existing relationship between the active cognitive decision-making system and the consumers' choice of payment solution. System 1 often falls short when faced with complexity and logic, as it does not have voluntary control (Kahneman, 2011). With the growth of online sales and payment methods, it is important to understand how consumers make decisions on how to finance their purchases, especially if consumers operate in System 1. Fast and automatic decision-making may lead consumers to make suboptimal financial decisions, which could result in consumer debt.

Furthermore, we explore whether the offered payment solutions influence the degree of post-purchase cognitive dissonance and whether the dissonance in turn alters consumer brand attitudes. The field of post-purchase cognitive dissonance has also been well explored (Schiffman et al., 2012), especially in the offline retail setting. Factors that increase the cognitive dissonance in an offline setting are for example sales staff who act pushy at the point of sale, the consumers' level of involvement and requirements for personal service (Soutar & Sweeney, 2003). However, many of these factors do not exist in an online retail setting, thus leaving the field open for researching new factors influencing the effect of cognitive dissonance.

Moreover, research with respect to payment solutions is also limited and has mainly been focused on the benefits of credit card payments (Chakravorti & To, 2007) and privacy concerns (Miyazaki & Fernandez, 2001). Due to growing concerns over the development of the consumer debt, a gap in the literature covering payment method decisions, and the effects of cognitive dissonance in an online retail setting, our research will focus on two areas. Firstly, the focus is finding a relationship between the cognitive decision-making systems, and chosen payment solutions. Secondly, it will explore how these payment solutions influence post-purchase cognitive dissonance and whether this influences consumer brand attitudes.

Research questions

Considering the aforementioned introduction, our research aims to find answers to the following research questions:

RQ1: To which extent is there a relationship between the cognitive decision-making process systems used (i.e. System 1 or System 2), and the chosen payment solutions in an online retail store setting?

RQ2: Does perceived risk related to purchase amount and the initial financial situation of the consumer affect this proposed relationship?

RQ3: Does post-purchase cognitive dissonance affect future cognitive decision-making processes through a change in consumer attitudes, and more specifically, does the degree of post-purchase cognitive dissonance affect the consumer's attitude towards the purchased brands, or the third-party payment solution company?

Conceptual frameworks

In order to answer the three research questions, our research is conducted in two parts. Part I consists of RQ1 and RQ2 and is focused on finding a relationship between the cognitive decision-making system used and the choice of payment solution, and whether this relationship is moderated by perceived risk. This means that we look to find a correlation between the active cognitive decision-making system (i.e., System 1 or System 2), and the chosen payment solution. The cognitive decision-making System 1 has been linked to a higher chance of irrational decision-making (Kahneman, 2011). With regards to payment by credit card, Prelec & Simester (2001) found that people make irrational decisions when paying with credit rather than with cash. It is of interest to understand if this irrationality comes from the active cognitive decision-making system, because System 1 is more sensitive to biases and fallacies (Kahneman, 2011). If consumers do not pay proper attention and effort in making financial decisions, it could help uncover further explanatory factors to why the consumer debt has risen in western countries where online payment solutions and online sales has grown. We expect perceived risk to be a moderating variable, as Kahneman & Tversky's (1979) prospect theory suggests that people have irrational tendencies based on risk.

Part I is constrained to a short-term time perspective, which means that we will look at the cognitive aspects of consumer's behavior and post-purchase cognitive dissonance immediately after purchase.

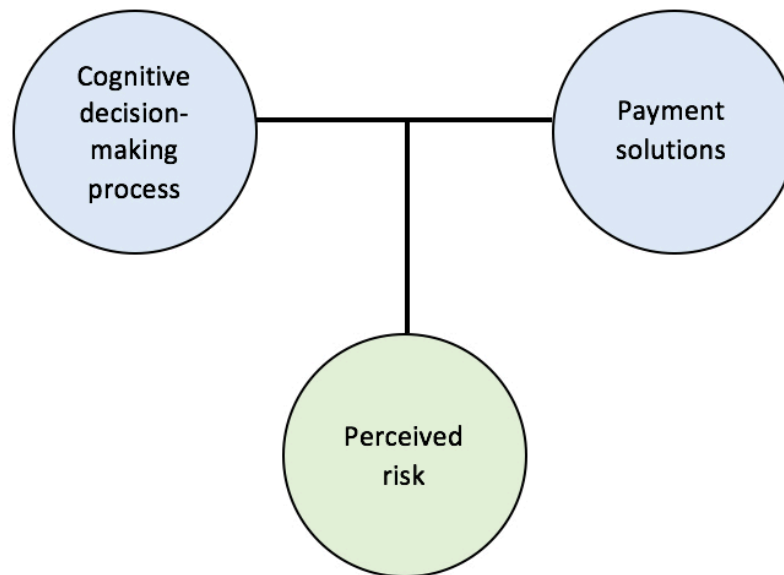


Figure 1: Conceptual framework part I

In part II, we set out to answer RQ3 by shifting our focus from the short-term perspective to the long-term effects on the consumer's behavior, as these long-term effects can alter future consumer behavior (Bagozzi & Dholakia, 1999). The focus is to measure the degree of post-purchase cognitive dissonance in a long-term online setting, to establish whether the possible dissonance affects future cognitive decision-making processes through a change in consumer attitudes. This is of relevance as there is a lack of research on post-purchase cognitive dissonance in an online setting, especially with the growth of online commitments through sales and stores. Brand owners and retailers need to understand whether there are factors in the online sphere that trigger cognitive dissonance. These factors are often different from directly experienced factors in an offline purchase setting, such as sales staff (Soutar & Sweeney, 2003). The conceptual framework looks as follows:

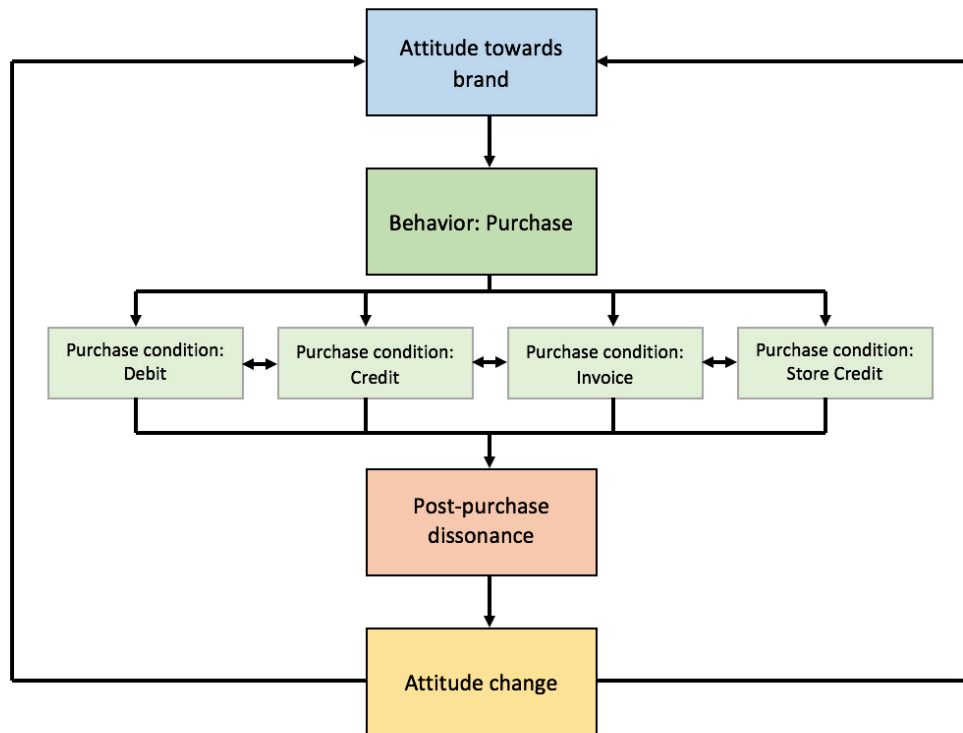


Figure 2: Conceptual framework part II

The model is built on our idea that the consumer's attitude will change differently based on the chosen payment type. After examining several online stores in the Norwegian market, we chose to include the four most common seen combinations of alternatives, namely debit (i.e., Visa), credit (i.e., Mastercard), invoice (i.e., you pay in 14 or 30 days after confirming purchase), and store credit (i.e., you choose a down-payment plan over 36 months). The model is also framed to specifically test whether the attitude changes towards the purchased brands, or the third-party payment solution company. This is of managerial relevance as it can provide insights on what the effect on attitude change is when an online store offers multiple payment solutions.

Part I – The Short-Term Time Perspective

Financing decisions

Financing decisions are complex, and many people often do not manage their finances efficiently. One problem is that many people make their financial decisions with mainly the short-term in mind (Atkinson et al., 2007; Antonides et al., 2008). Lusardi & Mitchel (2007) found that there is a clear relationship between financial

literacy and planning for the future, meaning that being financially literate affects financial decisions positively. Given that financial decisions often are not well-managed, it is reasonable to assume that for many consumers, it can be difficult to decide which payment option is most beneficial.

To add further complexity to this, each option has their own benefits and downsides. For debit payment, the benefits include no additional interest cost on the purchase, as well as no feeling of debt about the purchase once the payment is complete. However, a downside may be that the funds no longer are available. Interest cannot be collected on the amount, as one could do if the funds were placed in an account with monthly interest accumulation. Delaying the payment by either credit card payment, consumer loan, or invoice, are beneficial in that it allows the consumer to see the payment as a problem for the future (Chakravorti & To, 2007). Furthermore, the consumers can then use their available funds on something else during that period, or collect interest on the amount. In cases where the purchased items need to be returned to the store, invoices or credit cards can make the return process easier as the payment has not yet been settled and thus the consumer is spared the additional effort of filling out bank statement forms, etc. In addition, payments with credit cards can offer benefits such as air miles or other bonus programs. The downsides of delaying payments are that it usually comes with a cost, as extending payment terms often has high effective interest rates. Also, in situations of delaying a payment, the benefits and costs are often not directly experienced.

The cognitive decision-making process and the two systems of the mind:

System 1 and System 2

In terms of online purchases, most research is focused on purchase intention and trust (Van der Heijden et al., 2003; Yoon, 2002). However, with the increasing number of finance solutions available, it is interesting to explore why consumers choose a certain payment solution, and how their cognitive decision-making process works with respect to the choice of payment.

The cognitive decision-making process is one of four main views of consumer decision-making processes (Schiffman et al. 2012), and is based on the notion that consumers are not actively seeking out to attain all available information on each

choice, but rather seek an acceptable level of information on the choice alternatives to reach a satisfactory decision. Kahneman's (2011) decision theory is based on that the mind operates with two systems, labeled System 1 and System 2. System 1 is automatic and fast, and the mind operates with little or no effort and has no sense of voluntary control. It is a person's intuition where decisions are made based on rules of thumb that come from previous experience (Kahneman, 2011). On the other hand, System 2 allocates attention to complex mental activities, thus being a reflective decision-making process where people use cognitive thinking to reach a decision (Kahneman, 2011). In cases where the choice of payment solution is a decision made with System 1, it may be affected by biases and fallacies, in addition to being vulnerable to suboptimal decisions (Kahneman, 2011). However, this seems to be acceptable for decision-makers as the fact that individuals are willing to settle for imperfect solutions is well supported (Kahneman & Tversky, 1979; Payne et al., 1988; Johnson & Payne, 1982; Payne et al., 1993). Also, decision-makers frequently choose options that are satisfactory, yet would be suboptimal if decision costs were zero, as they are willing to sacrifice accuracy of their decision-making for speed (Payne et al., 1993). This is especially common when there are numerous alternatives that are difficult to compare, i.e. when the complexity of the decision-making process is high (Payne et al., 1993), as can be the case when browsing in online stores. Furthermore, research shows that consumers typically are good at selecting variables that are relevant in the decision process, but weak at integrating and retaining large amounts of information (Hoch & Schkade, 1996). The difficulty of handling complex decisions and information structures could lead to an increased risk of making decisions with more positive effects but less favorable cognitions when the availability of processing resources are low (Shiv & Fedorikhin, 1999). In such situations, the cost of using System 2 in terms of time and effort exceeds the more accurate decision.

Perceived risk

Our idea of a relationship between the cognitive decision-making process and payment solutions is moderated by perceived risk, which arises from unanticipated and uncertain consequences of an unpleasant nature resulting from the product purchase (Bauer, 1960; Forsythe & Shi, 2003). In the term perceived risk, we incorporate two additional factors; consumers' initial financial situation, and the

price of the product, as these financial factors are known to affect the consumer's risk (Bauer, 1960). Forsythe & Shi (2003) defines perceived risk in online shopping as "the subjectively determined expectation of loss by an Internet shopper in contemplating a particular online purchase" and for a consumer, it represents ambiguity about loss or gains in transactions, with a financial risk expressed as the net loss of money. It is natural to assume that the current financial situation and the cost of a product are closely linked functions of risk, as a higher price would increase risk as the investment becomes larger, whereas the financial situation of a consumer affects the relative investment made by the consumer. We thus incorporate these factors in our generic term; perceived risk. People tend to be risk-taking in situations where a choice involves a loss, and risk-averse in situations where a choice involves gains (Tversky & Kahneman, 1981). The prospect theory proves that people make decisions on potential gains and losses, and not on the eventual outcome (Kahneman & Tversky, 1979), meaning that people in a lot of situations act either irrationally risk-averse or irrationally risk-taking.

Part I Hypotheses

The following hypotheses in this section are created to answer RQ1 and RQ2.

As risk assessment and deliberate purchase decision-making requires effort, we expect the increased risk to change the cognitive decision-making process from System 1 to System 2, as the latter is the only system which can compare objects on attributes, and make choices between options (Kahneman 2011, 36). However, if the relative investment is of insignificant monetary value of the consumer and the risk thus is perceived as low or non-existent, we hypothesize that the cognitive decision-making process can take place in System 1, the reason being that the system operates on intuition, previous behavior, and can detect simple relations (Kahneman, 2011). We thus propose:

H1: The cognitive decision-making process takes place in System 1 in an online retail setting if the relative investment is perceived as low;

H2: Increased risk stemming from relative high investments changes the cognitive decision-making process from System 1 to System 2.

As previously mentioned, the focus in this part is on a short-term time perspective. We expect that in situations where delaying payment options are available,

consumers will perceive the risk as lower. With options of delaying the purchase, the current financial situation does not necessarily act as a barrier to purchase, and the cost of the product can be spread over time. These factors should in a short-term perspective mitigate the perceived risk. We hypothesize:

H3: Risk is perceived to be low with payment solutions that include delaying or paying by intervals.

H4: Consumers who choose delaying payment options, perceive the risk of payment delaying options as lower than consumers who choose debit payment options;

Based on our idea that there is a perception of lower risk in situations where payment delaying solutions are offered, and that the cognitive decision-making process can take place in System 1 when risk is perceived as low, we propose that subjects operating in System 1 are more likely to choose payment delaying options than those operating in System 2. The reasoning behind this idea is that they are not operating with high processing capacity, and thus could see the payment as a problem of the future, not worthy of the cognitive effort to make an accurate choice in the immediate future:

H5A: Due to lower risk, subjects operating in System 1 are more likely to choose delaying payment options in a short-term time perspective than subjects operating in System 2.

H5B: Due to lower risk, subjects operating in System 2 are more likely to choose delaying payment options in a short-term time perspective than subjects operating in System 1.

Part II – The Long-Term Time Perspective

As mentioned, the cognitive decision-making process proposes that consumers attain an acceptable level of information on their choice alternatives. In addition, the cognitive decision-making process also proposes that the consumer behavior is goal-directed (Bagozzi & Dholakia, 1999). The cognitive process takes the consumer from the initial goal setting, through the formation of goal intentions, action planning, action initiating and control, ending with goal attainment or goal failure. The cognitive reflection that grows from the goal attainment or failure then affects future consumer behavior (Bagozzi & Dholakia, 1999). Therefore, it is

important that we include a long-term view of the cognitive decision-making process, as it can direct future behavior.

As our conceptual model (figure 2) illustrates, our goal is to establish whether different payment solutions result in different degrees of post-purchase cognitive dissonance and if the cognitive dissonance in turn, alters the consumer attitude towards the brand or the third-party payment solution company. Soutar & Sweeney (2003) found that sales staff can increase cognitive dissonance by showing artificial enthusiasm when following up a sale. We expect that there can be a difference in the level of cognitive dissonance stemming from different payment solutions, as delaying solutions (i.e., credit card, invoice, and store credit) result in payment reminders. In a long-term perspective, we expect that payment reminders can increase the cognitive dissonance, as it is reminding the consumer of both the purchase and that the consumer has activated a down-payment situation that needs to be settled.

Brand attitudes

Brand attitudes are key to understanding consumer behavior. Schiffman et al. (2012, p. 233) defines attitudes as “*a learned predisposition to behave in a consistently favorable or unfavorable way with respect to a given object*”, where the object in a consumer behavior context refers to marketing- or consumption concepts including (but not limited to) brands, products, advertisements, and product categories. It is the overall evaluations of a brand, and the attitude includes cognitive, affective, and behavioral intentions (Olsen et al., 2014). Brand attitudes alone is rarely a goal for companies, however, the behaviors (e.g. purchase, repurchase, and word-of-mouth) that are triggered from attitudes are important (Samuelsen et al., 2010). Brand attitudes are formed as a result of all the information a person holds about the brand; it being a personal experience with the brand, word-of-mouth, and/or exposure to direct marketing (Schiffman et al., 2012; Samuelsen et al., 2010; O’Keefe, 2002). As the cognitive decision-making process can affect future consumer behavior, we are interested in whether the dissonance affects future cognitive decision-making processes through a change in consumer attitudes. Specifically, we want to see whether an attitude change affects the purchased brand,

or the third-party payment solution company. This may contribute to managerial insights for brand companies when negotiating their distribution channels.

Post-purchase cognitive dissonance

Attitudes may be formed by behavior, but this does not mean that attitudes and behavior are synonymous. Cognitive dissonance theory suggests that behavior can precede attitude formation. The essence of post-purchase cognitive dissonance is the consumer's experience of conflicting emotions about their purchase and previous attitudes, moving the consumer to change their attitudes to better conform with their purchase behavior (Schiffman et al., 2012). The construct includes both a cognitive and an emotional dimension (Sweeney et al., 2000). It has been proven in several studies that cognitive dissonance has an impact on attitude change and repurchase tendency (Cummings & Venkatesan, 1976). However, the focus of previous studies appears to have been on different product categories, variables, and settings, mostly in an offline setting (Cummings & Venkatesan, 1976). Soutar & Sweeney (2003) found that younger consumers were more likely to experience post-purchase cognitive dissonance, and the authors recommended managers to spend resources to reduce this cognitive state in order to avoid that consumers develop a negative attitude towards the brands. The authors found that sales staff can actually increase cognitive dissonance by being too pushy at the point of sale, or showing artificial enthusiasm when following up a sale (Soutar & Sweeney, 2003).

Part II hypotheses

Hypotheses presented in part II have been created to address RQ3. A common method of reducing post-purchase cognitive dissonance is engaging in risk-reducing behavior, to reduce consequences of a purchase (Mitchell & Boustani, 1993). Such behavior includes seeking affirmation information from both internal and external sources, returning the purchased goods, altering the purchase scenario, and in extreme cases even hiding the purchased goods in order not to be reminded of the purchase (Mitchell & Boustani, 1993). In the conceptual framework of Part I, we proposed to look at the post-purchase cognitive in a short-term time perspective, with respect to the cognitive decision-making process and choice of

payment option. Given that there are payment solutions where the initial investment can be postponed or spread out by intervals, we expect a lower degree of post-purchase cognitive dissonance in all payment solutions that do not require a direct cash transfer, as the perceived risk can be spread over time:

H6: In the short-term time perspective, the degree of post-purchase cognitive dissonance is lower on purchases made by payment solutions that include delaying the payment or paying by intervals;

H7: In the short-term time perspective, the degree of post-purchase cognitive dissonance is higher in purchases made by direct cash transfer (i.e., Visa).

However, when we take the long-term time perspective into consideration, we expect a change in the level of post-purchase cognitive dissonance. With a longer time-frame, the down-payment situation is activated, and consumers will receive reminders of payments that are due or overdue. This may be perceived as pushy behavior, in line with Soutar and Sweeney's (2003) finding that cognitive dissonance increases with pushy behavior and enthusiastic behavior of sales staff after the purchase. We thus propose that in a long-term situation, the degree of post-purchase cognitive dissonance in fact increases with purchases made with payment delaying options:

H8: In the long-term time perspective, the degree of post-purchase cognitive dissonance is higher on purchases made by payment solutions that include delaying the payment or paying by intervals;

H9: In the long-term time perspective, the degree of post-purchase cognitive dissonance is lower in purchases made by direct cash transfer (i.e., Visa).

Social psychologists have argued that there are three main conditions for dissonance arousals, namely effort, personal responsibility, and commitment (Geva & Goldman, 1990). According to the authors, effort represents how much resources the consumer invested in a purchase, and dissonance may arise in situations where the consumer invested highly in effort but received a low reward. Personal responsibility exists when the consumer has a free choice of purchase, and can foresee the consequences. Dissonance may even occur if the consumer met the conditions of free choice and foreseeability, yet possesses knowledge that a different choice could have been made. Commitment are decisions that "freeze" behavior, meaning that once a commitment has been made, the consumer must

continue its line of action. The commitment of a purchase is said to be high in cases where a purchase is irrevocable and in cases where the public has knowledge of it (Geva & Goldman, 1990). These three conditions often are present in an online shopping environment. Resources may for example represent time spent browsing and making a purchase decision, as well as the financial resources invested; personal responsibility exists as online shopping is a free choice and the consumer should be able to foresee any consequences through the store's information pages (e.g., return policies, shipping time, etc.); and commitment are present whenever the consumer agrees to the store's terms and conditions and confirms the purchase, or when the consumer for example unwraps the package and breaks the sealing on the products. We thus hypothesize that these conditions, closely linked to emotional elements such as regret of purchase (personal responsibility) and feelings of debt (commitment), may increase the dissonance. Post-purchase cognitive dissonance can result in consumers changing their attitudes to better conform with their purchase behavior (Schiffman et al., 2012). We thus hypothesize:

H10: Post-purchase cognitive dissonance leads to a negative attitude change within the consumer.

Furthermore, a customer who is experiencing dissonance is more likely to switch loyalty to a competing brand during the dissonance period (George & Yaoyuneyong, 2010). Building on H10, we propose that higher levels of dissonance as a result of spreading payments over time, have a negative effect on the attitude towards the purchased brand itself, even though it is third-party companies (e.g. creditors) or payment reminders that increase the level of dissonance;

H11: The negative attitude change is directed towards the purchased brand, not the third-party payment companies.

Methodology

Our data collection application was approved by the coordination board at BI Norwegian Business School. We created an experiment-based survey, where we simulated the setting of an online store. The first part of the study presented specific objectives on low-risk utilitarian clothing products, as Kaynac & Harcar (2001) found it to be the major product category for credit card usage and it thus represents a realistic scenario. It was also gender-specific, i.e., different routes for male and female respondents. The objective read;

“Imagine that you are going to a party, where the dress code is ‘summerly and colorful’, and you’re in need of something new in your wardrobe. In your bank account, you have \$1500. This money is supposed to last for the next four weeks, and should cover your housing expenses, your transportation expenses, food, social activities, and other monthly expenses (e.g., gym membership, phone subscriptions, electricity, etc.). After having browsed online for some time, you have found three items you like. Your objective is to be as financially efficient as possible, i.e., making the most out of your current month’s budget. Please note that you have the option to delay your payment to the following month”.

The three choices presented were real pieces of clothing from an online department store, and were priced accurately at respectively \$70 (Mango), \$130 (Hilfiger), and \$240 (Lauren Ralph Lauren) for women, and at \$70 (Blend), \$140 (Morris), and \$220 (Eton) for men. After selecting one item, the respondents were asked to choose a payment option to finance their purchase. The order of the payment options was randomized and included Visa, MasterCard, Invoice option from Klarna Faktura (i.e., pay in 30 days, invoice fee \$0), and down payment via Store Account from Klarna Konto (i.e., \$2 month/36 months). To establish which decision-making system the respondents used, we used Kahneman’s (2011) measurements of the level of automatic, effort, and attention. The respondents ranked how automatic their payment decision was, how much effort they put into making the payment decision, and their level of attention in making the payment decision on 5-point Likert scales.

The shopping journey was then repeated for LED Smart TV’s, because hedonic products have been proven to have a higher risk level (Kaplan et al.1974; Kushwaha & Shankar, 2013). This part was not gender-specific, i.e., both male and female respondents received the same objective and the same products. The objective was identical to the previous, except the initial budget was increased from \$1500 to \$2000. The three options were taken from an online electronic warehouse store, and the prices were accurately set to \$850 (LG), \$1200 (Samsung), and \$1800 (Sony). The respondents’ journey that followed was identical to the previous shopping journey, with choosing from the randomized payment options and rating their level of automatic, effort, and attention on a 5-point Likert scale.

An important part of determining what cognitive decision-making system was used during the payment method decisions, is the risk involved. To determine the perceived risk levels of each payment method, we used a self-reported scale between 0-100 where the participant could indicate their perceived risk level of each payment option. All payment options were visible and therefore subjects evaluated their relative risk levels.

For those respondents who had chosen the debit payment option (i.e., Visa) for both shopping journeys, the survey routed directly to a test of their cognitive dissonance level and a measure of brand attitude. We used the 22-item scale test based on Sweeney et al. (2000, pp. 380), which have proved high in reliability and validity in many previous studies (Graff et al., 2012). The test consists of three dimensions measuring the emotional (“a person’s psychological discomfort subsequent to the purchase decision”), wisdom of purchase (“a person’s recognition after the purchase has been made that they may not have needed the product or may not have selected the appropriate one”), and concern over the deal (“a person’s recognition after the purchase has been made that they may have been influenced against their own beliefs by sales staff”). These items were measured on a 7-item Likert scale. In order to measure brand attitude, the respondents were asked to rate their satisfaction with the brand, and their satisfaction with the payment solution company on 7-item Likert scales.

For respondents who in either one or both shopping journeys had chosen a payment option that allowed for delaying payment (i.e., MasterCard, Invoice, Store Account), the survey was routed into a new descriptive scenario. The scenario presented that the respondents were to imagine that it had been four weeks since their purchase, and the objective was to further reflect on the purchase decision. We created two different payment reminders; one from Klarna (Invoice/Store Account), and one from MasterCard. The Klarna payment demand letter referred to the respondent’s outstanding balance, with a request for prompt payment to avoid debt collection fees. For MasterCard, the credit payment demand letter also referred to an outstanding balance and a request for prompt payment to avoid further interest costs. To make it realistic, we added purchase reference numbers that were to be included in the payment, as well as contact information to customer service centers. All respondents in this descriptive scenario had to confirm that they had read the

payment demand letters and that they accepted the conditions. After the payment reminder letters, the respondents were routed to the 22-item scale to measure cognitive dissonance (Sweeney et al., 2000), and finally asked to rate their satisfaction with the brand and the payment solution company on 7-item Likert scales to measure brand attitude.

The next step for all respondents, regardless of payment option, was a national financial capability study created by FINRA Investor Education Foundation in consultation with the U.S. Department of Treasury and former president George W. Bush's Advisory Council on Financial Literacy. The capability study consisted of five financial questions that were included to measure multiple behavioral aspects on how the respondents manage resources and how they make financial decisions.

The final part of the survey was to collect demographics (age), and a measurement of impulsiveness trait. This is of interest as George & Yaoyuneyong (2010) conducted research where they hypothesized that the level of cognitive dissonance prior to impulse shopping would be higher with individuals who had a higher impulsiveness trait, than what would occur after a planned purchase; and also that individuals with lower impulsiveness trait would experience a lower degree of cognitive dissonance. Their findings contradicted this, as their data showed that individuals with higher impulsiveness trait (impulse buyers) experienced rather low levels of cognitive dissonance, than planned buyers; and non-impulsive individuals would experience significantly higher levels of cognitive dissonance when making an impulse purchase. By including this measurement, we can control for the impulsiveness personality trait. We use the Likert scale developed by Rook & Fischer (1995), which is a nine-item buying impulsiveness scale. However, we modified it to an online environment, slightly changing the wording in the items to an online setting instead of a physical store setting to better fit our research.

Results

In total, we had 128 respondents. After data cleaning, we had 117 valid responses. Respondents were varying in age, from 18 to 65 years old, where the majority of respondents were students between 18-34 years old. Geographically, our sample mainly consisted of Norwegians, but also included respondents from the Netherlands, USA, and UK.

H1 proposes that the cognitive decision-making process take place in System 1 in an online retail setting if the relative investment is perceived as low. We started with recoding the three string variables into the cognitive system measure (i.e., how automatic the payment decision was, how much effort was put into the payment decision, and the level of attention) into numerical variables. We further reversed the automatic system variable to match the two other variables (i.e., effort and attention), the reasoning being that the question in the survey regarding how automatic the payment was inverted. All variables taken as is, a one-way between subject's ANOVA was conducted to compare the effect of the three clothing choices (IV) on system measure (DV) in the cheapest option, medium option and expensive offer conditions. There was no significant effect of clothing choices on the cognitive decision-making system at the $p < .05$ level for the three conditions [$F(2, 109) = 1.313, p = 0.273$].

As we only had six respondents who chose the most expensive clothing option, we wanted to improve validity by removing these respondents and reducing the conditions to two (i.e., cheap and medium option). We ran another ANOVA. However, there was still no significant effect of clothing choices on the cognitive decision-making system at the $p < .05$ level for the two conditions [$F(1, 104) = 0.809, p = 0.371$]. This indicates that there is no difference between the conditions, meaning that the price level within the category did not affect the cognitive decision-making process. An explanation could be that the price range in the category was too narrow. We thus reject H1, as we did not find significant proof on $\alpha = 0.05$ -level that the cognitive decision-making process takes place in System 1 in an online retail setting if the relative investment is perceived as low.

H2 set out to test whether increased risk stemming from relative high investments changes the cognitive decision-making process from System 1 to System 2. The respondents were faced with a similar purchase situation as in H1, but with a higher monetary investment in a different category (i.e., TV). The same procedure was followed to recode and reverse the string variables of the cognitive system measure into numerical variables. A one-way between subject's ANOVA was conducted to compare the effect of the three TV choices (IV) on cognitive system measure (DV), in the cheap, medium and expensive option conditions. There was no significant

effect of higher investment levels on the cognitive decision-making system at the $p < .05$ level for the three conditions [$F(2, 101) = 0.894, p = 0.412$].

This finding was somewhat surprising, as we expected to see a difference in the cognitive decision-making process between price levels within the two categories (i.e., clothes and TV). To further investigate, we decided to see if there was a difference in system thinking between categories, by comparing the cognitive system measure variables in H1 (low investment, clothes) and H2 (high investment, TV). We made no distinction within the categories in price level. A repeated measures ANOVA was conducted. We found a significant difference between the two groups on a 95%-confidence level ($p = 0.00$). The estimate of the actual difference between the groups was 0.490, meaning that respondents who purchased a TV were operating less automatic, with a higher level of effort and attention with regards to payment choice. There is thus proof that consumers tend to operate closer to System 2 when purchasing in a category with higher investments. However, H2 is rejected as we did not find significant proof that increased risk stemming from relative high investments changes the cognitive decision-making process from System 1 to System 2, although the pattern in the data indicates that there is a shift towards System 2 processing when choosing a payment solution for higher investment purchases.

In H3, we wanted to test if risk is perceived low with payment solutions that include delaying or paying by intervals. We ran a one-sample t-test, with perceived risk of each payment option as DVs. All variables were significant ($p = 0.00$ for all payment options). In comparing means on a range from 1 – 100, we saw that debit, credit card and invoice were considered to be close to each other in terms of perceived risk, with means respectively 24.14, 30.65, and 36.95. Perceived risk of store credit had a higher mean, with 54.00. Based on the results of the t-test, we wanted to see if there were significant differences between groups in terms of the perceived risk of each payment method. An ANOVA with a Bonferroni-correction was applied, as we had more than two groups. The ANOVA was significant, [$F(3, 368) = 16.475, p = 0.00$]. Findings showed that credit card was significantly different from store credit ($p = 0.00$), but not significantly different from debit and invoice ($p = 1.00$ for both). Store credit is significantly different from invoice and debit ($p = 0.001$; $p = 0.00$). Lastly, invoice was significantly different from debit

($p = 0.041$). There is no significant evidence that credit card is perceived as riskier than debit card, however store credit and invoice are perceived as riskier options compared to debit payment. Thus, we partially reject H3, as store credit and invoice are found to be perceived as higher risk options compared to debit and credit card. However, we cannot fully reject this hypothesis as credit card is perceived to have equally low risk as debit.

H4 proposes that consumers who choose delaying payment options, perceive the risk of payment delaying options as lower than consumers who choose debit payment options. We tested this hypothesis for both categories. For clothes, we conducted a MANOVA, to check if there were differences between groups. We had four DVs, the perceived risk of each payment method. The respondents' chosen payment method for clothes served as IV. The pairwise comparison shows that mean scores for debit were significantly different between delaying payment and debit payment ($p = 0.036$). Mean scores for all other payment options (i.e., invoice, store credit, credit card), were not significantly different between delaying payment and debit payment ($p = 0.487$; $p = 0.226$; $p = 0.783$). To interpret these effects further, we conducted a binary logistic regression analysis, as we had an indication that the amount of risk could predict whether delaying payment options were chosen.

For the binary logistic regression analysis, the full model allows us to predict with 61.3% accuracy, an improvement from the naïve model (55.9%). Consumers who perceive debit payment to have higher risk, are more likely to use payment delaying options ($B = 0.015$; $p = 0.039$). Other insignificant findings show that consumers who perceive credit card payment to have higher risk, are less likely to use delaying payment options ($B = - 0.003$; $p = 0.653$). The same pattern is found for consumers who perceive invoice to have higher risk, as they also are less likely to use delaying payment options ($B = - 0.010$; $p = 0.216$). Consumers who perceive store credit to be riskier, are interestingly more likely to use delaying payment options ($B = 0.011$; $p = 0.164$). The Nagelkerke R Square shows that 10.3% of the variance in the DV is explained by the IVs, and indicates a rather weak relationship. However, the full model improved after adding the explanatory variables.

For the TV category, none of the results were significant. However, the beta for debit shows a similar pattern, where consumers who perceive debit payment to have higher risk, is more likely to use payment delaying options ($B = 0.014$; $p = 0.131$). This could indicate that the product category and price do not affect this relationship.

Based on these analyses, we reject H4 as there is no significant proof that consumers who choose delaying payment options, perceive the risk of payment delaying options as lower than consumers who choose debit payment option.

H5A proposes that due to lower risk, subjects operating in System 1 are more likely to choose delaying payment options in a short-term time perspective than subjects operating in System 2. As mentioned in the literature review, the risk factor is based on our idea that in a situation where payment delaying solutions are offered, it can give a perception of lower risk.

First, we recoded the payment option variables from string variables to numerical variables, and then further into a binary variable (1 = payment delay option ; 0 = no payment delay option). A binary logistic regression analysis both for clothes and TV was then conducted, with cognitive system measure (i.e., automatic, effort, attention) as IV's, and delaying or not delaying payment as DV. For clothes, the full model allows us to predict with 63.4% accuracy, an improvement from the naïve model (53.6%). Interestingly we found indications that subjects leaning towards operating in System 2 were more likely to choose delaying payment options in a short-term time perspective ($B = 0.497$; $p = 0.055$). The finding is very close to being significant on a 95% confidence interval. The $\exp(B) = 1.644$, indicating that an increase of 1 in the cognitive system measurement ratio, results in a 64.4% increase in the odds of choosing delaying payment options.

Similar and significant results were found for TV, where the full model predicted with 73.1% accuracy whether subjects chose delaying payments or not. This was a slight improvement from the naïve model (70.2%). Findings showed that subjects leaning towards operating in System 2 were more likely to choose delaying payment options in a short-term time perspective ($B = 0.640$; $p = 0.022$), with $\exp(B) =$

1.897. An increase of 1 in the cognitive system measurement ratio results in an 89.7% increase in the odds of choosing delaying payment options.

We thus reject H5A, as we found no significant proof that subjects operating in System 1 are more likely to choose delaying payment options in a short-term time perspective than subjects operating in System 2, due to lower risk.

H5B is the alternate hypothesis to H5A and proposes that due to lower risk, subjects operating in System 2 are more likely to choose delaying payment options in a short-term time perspective than subjects operating in System 1. We use the results from the analysis in H5A, and accept H5B as we found significant evidence that subjects leaning towards operating in System 2 for TV purchases were more likely to choose delaying payment options in a short-term time perspective ($B = 0.640$; $p = 0.022$), with $\exp(B) = 1.897$, which means that an increase of 1 in the cognitive system measurement ratio results in an 89.7% increase in the odds of choosing delaying payment options. For clothes, subjects leaning towards operating in System 2 were also more likely to choose delaying payment options ($B = 0.497$; $p = 0.055$), which is an acceptable significance level. The $\exp(B) = 1.644$, which indicates that an increasing of 1 in the cognitive system measurement ratio, results in a 64.4% increase in the odds of choosing delaying payment options.

For H6 and H7, we used a short-term time perspective. The proposed hypotheses were that the degree of post-purchase cognitive dissonance is lower on purchases made by payment solutions that include delaying the payment or paying by intervals; and that the degree of post-purchase cognitive dissonance is higher in purchases made by direct cash transfer (i.e., Visa). We ran descriptive statistics which calculated the means for the short-term and long-term cognitive dissonance levels. In the short-term, debit payments had a lower level of cognitive dissonance (minimum = 1.05 ; maximum = 4.50) than delaying payment options (minimum = 1.00 ; maximum = 5.95). We conducted an ANOVA to compare the means of the short-term and the long-term cognitive dissonance levels. The ANOVA was insignificant ($p = 0.07$), which could be explained by the small number of participants in the short-term perspective group ($N = 15$). Based on the insignificant ANOVA and the pattern in the descriptive statistics, we reject H6 and H7 as we have not found significant proof that in the short-term, the degree of post-purchase

cognitive dissonance is lower on purchases made by payment solutions that include delaying the payment or paying by intervals; and the degree of post-purchase cognitive dissonance is higher on purchases made by direct cash transfer (i.e., Visa).

H8 and H9 took a long-term perspective. They proposed that the degree of post-purchase cognitive dissonance is higher on purchases made by payment solutions that include delaying the payment or paying by intervals; and that the degree of post-purchase cognitive dissonance is lower on purchases made by direct cash transfer (i.e. Visa). To further investigate the results from the ANOVA conducted for H6 and H7, we ran a binary logistic regression with the cognitive dissonance level as the IV, and the decision to delay or not to delay the payment option as the DV. The effect of cognitive dissonance is not significant ($p = 0.077$) on the decision to delay payment. However, the results from the descriptive statistics in H6 and H7 shows the pattern, which is also confirmed by the binary logistic regression. The long-term cognitive dissonance is higher with payment delaying options. The Exp(B) shows that for every 1 increase in the level of cognitive dissonance, the odds of choosing payment delaying options increases by 66.9%. This effect in the binary logistic regression implies a correlation between the cognitive dissonance level and the payment method, meaning that delaying payment options are highly related to an increased cognitive dissonance level. Despite indications that the post-purchase cognitive dissonance is higher for a subject who chose a delaying payment option, we have to reject H8 and H9 as $p = 0.077 > 0.05$.

H10 proposed that post-purchase cognitive dissonance leads to a negative attitude change within the consumer. A linear regression analysis was conducted, where the attitude towards the brand served as DV. In order to get a more comprehensive understanding of the construct, we used multiple IV's: the cognitive dissonance levels, respondents age and gender, the impulsiveness personality trait, and their level of financial literacy. All string variables were recoded into numerical values. We found that post-purchase cognitive dissonance leads to a negative attitude change towards the brand ($B = -0.496$; $p = 0.00$). We also found that male respondents were more satisfied with the brand than female respondents ($B = 0.806$; $p = 0.015$). We also found that respondents scoring high on impulsiveness were more satisfied with the brand than those who did not score to be impulsive ($B = 0.664$; $p = 0.047$), which is in line with the findings of George & Yaoyuneyong

(2010). We tested whether age and financial literacy capabilities had an impact on the satisfaction with the brand, but both were not significant ($p_{\text{age}} = 0.087$; $p_{\text{financial literacy}} = 0.364$). We thus do not reject H10, as we found significant proof that post-purchase cognitive dissonance leads to a negative attitude change within the consumer.

Finally, H11 proposed that the negative attitude change is directed towards the purchased brand, not the third-party payment companies. A similar linear regression was conducted for H11, with the attitude towards the payment solution company served as the DV. Aside from the negative attitude change towards the brand, post-purchase cognitive dissonance also leads to a negative attitude change towards the payment solution company ($B = -0.329$; $p = 0.044$). However, the effect is smaller towards the payment solution company than towards the brand. We further found that male respondents were a lot more satisfied with the payment solution company than female respondents ($B = 1.267$; $p = 0.03$). We thus accept H11, as the negative attitude change was weaker towards the third-party payment solution, than towards the purchased brand.

Discussion

To discuss our overall findings, we will reflect on our three initial research questions. Our first two research questions were focused on a short-term time perspective, and were set to find whether there is a relationship between the cognitive decision-making process systems used (i.e., System 1 or System 2), and the chosen payment solutions in an online retail store setting; and if perceived risk related to purchase amount and the initial financial situation of the consumer affect this proposed relationship. We were able to prove that this relationship exists across categories, as we found that consumers operating in System 2 were more likely to choose delaying payment options in a short-term time perspective. This could indicate that consumers are more conscious about their payment decision when considering payment delaying options. This corresponds with our finding that the perceived risks for some of the delaying payment options were higher than the perceived risk of debit. Another explanation could be that the given budget restraint activated System 2, allowing for a more thorough financial evaluation. Given the strenuous budget in our scenario, it could be that those in System 2 found it more beneficial to delay the payment. The opposite is then also true, meaning that

consumers operating in System 1 are less likely to choose payment delaying options.

In terms of whether perceived risk affected the proposed relationship between the cognitive decision-making system and the chosen payment solution, we could draw some general conclusions from our analysis. Consumers who perceived debit payment to be riskier were more likely to choose payment delaying options. Although insignificant, we found interesting patterns in the data with the payment delaying options. Those who perceived the risk of paying with credit card to be high, were less likely to choose delaying payment options. From these findings, we can conclude that the perceived risk has an effect on which payment option is chosen. It could indicate that consumers choose the option that they consider to be of least risk, given the circumstances. For example, if a consumer is not able to make a debit payment, he or she might choose the second-best payment option in terms of risk. However, for store credit, we found a pattern where consumers who perceived its risk to be high, were still more likely to choose delaying payment options. Our most plausible explanation for this is in cases where store credit is perceived to be of high risk, store credit will serve as the threshold. Other delaying payment options, e.g., credit card and invoice, might not be seen to be as risky, and thus they can still be evaluated as acceptable payment solutions in cases where debit payment is not an option.

Our third research question asked if post-purchase cognitive dissonance affects future cognitive decision-making processes through a change in consumer attitudes, and more specifically if the degree of post-purchase cognitive dissonance affects the consumer's attitude towards the purchased brand or the third-party payment solution company. We found that post-purchase cognitive dissonance leads to a change in consumer attitudes, namely a negative attitude towards the purchased brand as well as the third-party payment solution company. The negative effect was less towards the payment solution company. This could indicate that even though it is the payment solution company who is sending the payment reminders, the negative attitude is still directed more towards the brand. An explanation for this could be that the payment solution company is seen as a mediator between the consumer and the brand, whereas the brand is seen as responsible for convincing the consumer into a purchase. Also, the brand is more prominent in the consumer's'

life, as their products are actually seen and used. The payment solution companies' service is intangible and thus may play a more trivial role.

Furthermore, we found that male respondents were more satisfied with both the brand and the payment solution company than female respondents. This could indicate that women experience a stronger effect of the cognitive dissonance than men, which could be of interest for future research.

Managerial implications

We found indications that cognitive dissonance is higher with paying delaying options in the long-term and that the brand is more affected by the negative attitude than the payment solution company. This could be of interest to brand companies and retail stores. Brands should consider the payment methods offered by the online retailer when negotiating contract terms, as the retailer's decision may negatively affect their brand. The most optimal payment solution for the consumer should be set as the default, to minimize the risk of post-purchase cognitive dissonance and a negative attitude formation towards the brand.

Limitations and future research directions

Our study has multiple limitations, that provides opportunities for further research. Our survey was experiment-based, as we did not have resources to conduct a lab experiment. The survey methodology has limitations, the most prominent ones being that respondents might not answer honestly, as it can be uncomfortable to provide answers that could expose the respondent's unfavourable manners. Questions may also be interpreted differently amongst respondents. As we collected data using snowball sampling, it is hard to make inferences about the population based on the obtained sample. We could see that we had a fairly one-sided sample group in terms of demographic variables. The snowball methodology caused homogeneity within our samples, which could have been the cause of some of our non-significant results. Future research should overcome these limitations by using randomized sampling methods and expand the amount of subjects. Our overall sample size was acceptable; however, the sample size was considered too small in some conditions. This led to some processing limitations in our data. As an example, we could not properly test the high investment group in H1, as we only had six respondents.

Further limitations lie within the time perspective. We had the respondents to complete the survey at once. Ideally, we wanted to execute the second part of the survey at a later time, to allow for the effect of time. However, it would be hard to create a realistic scenario for the final respondent group, as they would have received their products during this time in real life. A way to overcome this, would be to conduct future research in a laboratory setting, where subjects are to complete the survey twice in a controlled environment. A within-subject's study could then create a more realistic scenario.

A final limitation to note is the one of product preference. The choice of shirts and dresses were chosen for a specific occasion, thus providing respondents with limited choice. The same went for TV, as the product specifications (resolution, dimensions, etc.) were similar between the options. This is a limitation that is difficult to overcome, but repeated experiments within various product categories and with contrasting product choices would make this direction of study more valid and reliable.

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