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EFFECT OF CHECKOUT STANDS' ASSORTMENT HETEROGENEITY ON IMPULSIVE PURCHASES

Susana Isabel Monginho Canelas

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ADVISORS: Rita Coelho do Vale, Ana Isabel Almeida Costa

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I. ABSTRACT

In-store consumer behavior has been comprehensively studied throughout the last decades. It is a fact that consumers are from day to day increasing their in-store decision making levels, whether through unplanned or impulsive purchases. However, it is believed that impulsive buying behavior through point-of-purchase marketing activities increases the profits of retailers on the long-run (Baumeister, 2002). It is also considered that impulsive purchases occur more frequently and are more significant at stores' checkout stands (Front – End Focus, 2014).

The overall aim of this dissertation was clarify the relationship between checkout stands' assortment heterogeneity and impulsive purchases originated at this store area. To this end, the Portuguese retailer Sonae MC kindly provided access to the necessary data to this study. Impulsive purchases are measured by this large retail company through the sales of the impulse confectionary category displayed at checkout stands. After a preliminary analysis of available data, 117 stores constituted the research sample with assortments ranging from 82 to 225 SKU's associated to sales levels of 2014 first quarter. Results of univariate statistical analysis show a positive effect of assortment heterogeneity on impulsive category purchases at grocery' stores checkout areas, as hypothesized. As assortment heterogeneity switches from a low to a high level, impulsive purchases significantly increase ($p<0.01$). A similar effect is observed at micro-category level, with increasing heterogeneity leading to higher impulse confectionary and chewing gum sales.

The present dissertation thus demonstrates valuable insights for retailers and category managers willing to increase impulsive purchases at their grocery stores' checkout stands.

II. SUMÁRIO

O comportamento do consumidor dentro de loja tem sido exaustivamente estudado durante as últimas décadas. É um facto que os consumidores estão a aumentar de dia para dia as suas decisões dentro de loja, seja através de compras não planeadas ou por impulso. No entanto, foi demonstrado que o comportamento de compra por impulso através de atividades de marketing no ponto de venda, no longo-prazo, aumenta os lucros dos retalhistas (Baumeister, 2002)

O objetivo global desta dissertação é clarificar a relação entre os expositores da zona de caixas e as compras por impulso originadas nesta mesma zona. Para este fim, o retalhista português Sonae MC, gentilmente cedeu acesso aos dados necessários para levar a cabo esta investigação. Como a nível interno desta empresa, as compras por impulso são medidas através das vendas da categoria 'doçaria de impulso' exposta nos expositores das caixas de pagamento, esta mesma denominação foi usada ao longo da dissertação. Após uma pesquisa preliminar, a amostra final inclui 117 lojas com sortidos de produto na zona de caixa que variam entre 82 e 225 SKU'sa que estão associadas vendas do primeiro trimestre de 2014.

De acordo com o previsto, os resultados da investigação univariada revelam um efeito positivo entre a heterogeneidade do sortido global da zona de caixas e as compras por impulso desta mesma zona, tal como foi proposto nas hipóteses estabelecidas. Especificamente, quando existe uma mudança do nível de heterogeneidade de médio para alto, verifica-se um aumento significativo das vendas por impulso (p<0.01). Por outro lado, um efeito direto também se verifica. Aquando de um aumento de heterogeneidade da categoria de doçaria de impulso, as vendas da mesma também aumentam. Esta constatação mostra ainda que existe um efeito direto entre esta categoria presente nos expositores de caixas de pagamento e as compras por impulso efetuadas pelos consumidores. Ainda, quando esta mesma alteração de heterogeneidade ocorre, a subcategoria de doçaria de impulso que regista um valor mais elevado de vendas é pastilhas elásticas.

A presente dissertação demonstra assim, perceções valiosas para retalhistas e gestores de categorias dispostos a aumentar as compras por impulso nas caixas de pagamento das suas lojas.

III. ACKNOWLEDGEMENTS

First of all, I would like to thank to my family, especially to my parents that have always believed and supported me to pursue my dreams. Without their support, I would have not achieved the objectives I set for myself, and more importantly, I would have not been the person I am today. Also, I would like to thank to my closest friends, particularly to Catarina Silva that supported me to easily go through this journey. I would like to thank, as well, to my colleagues Vera Barata and Liliana Ramos for sharing with me the "Call for Solutions" experience at Sonae.

I must also thank to Monika Triep and Clara Rianço from Sonae MC for having me with them as an intern during this process, allowing me to gain experience and practical knowledge and, moreover, by giving me access to the necessary information to accomplish the research objectives.

At last, but not the least, I would like to thank to my advisors, the Professors Rita Coelho do Vale and Ana Isabel Almeida Costa for their availability and patience to guide me through my Master Program' last stage. Their knowledge about the dissertation topics and valuable advices made it possible for me to conclude my academic path.

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CHAPTER 1: INTRODUCTION

This initial chapter introduces the reader to the present dissertation research topic and relevance. First, background information is provided regarding the relevance of impulsive purchases and grocery retail stores' checkout sales. Then the problem statement and specific research questions are presented, as well as the research method. Next, the academic and managerial relevance of the topic are discussed. Finally, the dissertation content is outlined.

1.1 Background

The last three decades of observation of grocery shopping behavior reveal that purchase decision making is increasingly occurring inside stores, with little planning ahead being made by consumers. It seems that shoppers are putting less and less effort on planning shopping trips, leaving their choices open up until they are facing supermarket shelves (POPAI, 2012). This type of in-store decision making leads to either unplanned or impulsive buying, where the term "impulsive buying" refers to a narrower and more specific range of phenomena than "unplanned buying" does. Importantly, "it identifies a psychologically distinctive type of behavior instead of a contemplative mode of how consumers do their choices" (Rook, 1987).This type of buying behavior is driven by three main groups of variables: dispositional, situational and sociodemographic factors (Amos et al., 2013).

Stimulating impulse buying behavior through point-of-purchase marketing activities is believed to increase the profits of retailers on the long-run (Baumeister, 2002). Consequently, both retailers and brand managers are increasingly focusing on what may trigger impulsive purchases (Bell, Corsten & Knox, 2010). The checkout area is known in the trade as a valuable hot-spot for impulse buying, since shoppers are "almost held captive in that spot" while they wait to pay for their groceries (Inman, Ferraro and Winer, 2004; Miranda, 2008). Hence, retailers have been challenged to increase checkouts' assortment size (Inman and Winer, 1998), although they cannot commit the most expensive area of the store to certain products that do not offer acceptable retail margins (Miranda, 2008).

1.2 Problem statement

Checkout sales at the main Portuguese Hypermarkets and Supermarkets have decreased in 2013, relatively to 2012 (Sonae MC' Internal Report, 2014). Given checkouts area's critical location in the store (Front-End Focus, 2010) and its power to increment sales, it seems that this space has to be more cautiously managed by national retailers (Miranda, 2008). Among

other factors, optimal product assortment management is crucial to the profitability of this area of retail stores. Without it, grocery store managers will miss the opportunity to enhance returns on items that benefit from a *push* at the point of sale. They will also miss the chance of leveraging consumers' inner conflicts about buying what is necessary against buying what is desired (Miranda, 2008). To this end, retailers must develop a better understanding of shoppers' behavior at this particular store area and learn how to manage checkout product assortment as to maximize the likelihood of impulse purchases (Inman, Ferraro and Winer, 2004).

Due to the important role of checkout stands in triggering impulsive purchase behavior, the present dissertation generally addresses how retailers can maximize this store premium space, by analyzing how product assortment can be managed to enhance impulse purchases' sales.

1.3 Aim

The specific aim of this dissertation is to understand to what extent checkout stands' assortment heterogeneity can trigger impulsive purchases, and thereby lead to increased sales and profitability at this store area. In order to address this aim, a broader research question is put forward, namely:

To what extent does product assortment heterogeneity influence impulsive purchases?

The analysis of consumers' shopping behavior is crucial to achieve a better understanding of how impulsive purchases take place. In particular, one needs to uncover how in-store stimulus influence shoppers' purchase decision making and what types of purchase result from this. Next, and with checkout stands being the main object of study, it is crucial to better understand shopping behavior at this particular store area. Literature on this topic is, however very scarce. Therefore, sources on the more general phenomena of unplanned buying, impulsive purchases and effects of assortment heterogeneity on consumer behavior were reviewed to this end, and hypotheses formulated about the potential of checkout stands' assortment heterogeneity to stimulate impulsive purchases. Importantly, such hypotheses were subsequently empirically tested with store sales data. Given retailers' power to control product assortment, knowing its effects on impulsive purchases will be a valuable asset when it comes to increase checkout stands' sales. Furthermore, this research question allows a different perspective over this profitable type of purchases, which has not been yet sufficiently tested by academics practitioners.

1.4 Scope

This dissertation was performed during an internship at Sonae MC, the Portuguese market leader in the grocery store business under the brand MCH – Modelo e Continente Hipermercados. As such, market insights, expert advice and empirical data relate exclusively to the activities of Sonae MC's stores Continente, Continente Modelo and Continente Bom Dia in Portugal (islands included). Due to the aim of the present dissertation, empirical data was compiled and studied only for the product categories typically available at the checkout areas of Sonae MC' stores, namely, impulse confectionary, salty snacks, general merchandising, health and beauty care and magazines. The time frame for data analysis was the first quarter of 2014.

1.5 Research method

The empirical part of this dissertation' starts with a descriptive analysis of secondary sales data kindly provided by Sonae MC, in order to better understand the dynamics of buying behavior at grocery stores' checkout areas. From this initial investigation, it was possible to infer some hypotheses about the relevance of the heterogeneity checkout stands' assortment to impulsive purchases. Subsequently, such hypotheses were statistically tested essentially through univariate analysis.

1.6 Managerial and academic relevance

The economic recession felt in the last years had a significant impact on consumer behavior across much of Western world. A more relevant meaning is given to restraining shopping expenses and increase savings nowadays, something which necessarily reflects negatively on the retail business (POPAI, 2012). In Portugal, the economic crises contributed greatly to a general drop in sales that affected all grocery store brands in the past three years. This drop was particularly felt in products typically bought on impulse (Sonae MC' Internal Report, 2014). From a retailers' perspective, impulsive purchases are a relevant source of profits which used to have a significant weight on their overall results (Sonae MC' Internal Report, 2014).Thus, leveraging impulsive purchases may be a strategic way to improve retailers' sales and profitability on a less than favorable economic context.

Grocery stores' checkout areas are a known hotspot for impulsive purchases (Miranda, 2008). These are, in turn, driven to a large extent by the characteristics of the product assortment on offer (Front - End Focus, 2010). Although many researchers have focused on store

management in the past (Grewal and Levy, 2007; Reinartz et al., 2011), only few have, however, paid attention to the problem of assortment management at checkout stands (Miranda, 2008; Front – End Focus, 2010). Moreover, most of what is known about impulse behavior in general is far from being readily applied to the management of store checkouts and their product assortment.

Checkout stands are crucially important to retailers' profitability (Baumeister, 2002). Yet, there is still a great need for a better understanding of shopping behavior at this store area and how such behavior can be leveraged into more and more profitable impulsive purchases. The findings of this dissertation respond to this need and will hence hopefully contribute to ameliorate the current drop observed in grocery stores' checkout sales. Importantly, they also uncover important relationships between the characteristics of the product assortment offered at checkouts and the prevalence of impulsive buying. These can valuably contribute to the development of better strategies to optimize category and store management at retail checkouts.

1.7 Dissertation outline

Chapter 2 presents a review of literature about in-store consumer behavior and, more specifically, impulsive purchases at grocery stores' checkout stands. As a result of this, three hypotheses regarding the effects of checkout stands assortment' heterogeneity on impulsive purchases are formulated. How the statistical testing of these hypotheses took place is described in Chapter 3. Chapter 4 presents and discusses the data analyses results, whereas Chapter 5 presents the global conclusions drawn from the dissertation, its limitations and future research suggestions.

CHAPTER 2: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

This chapter presents a literature review on in-store consumer behavior, impulsive purchases and grocery stores' checkout stands. It starts by describing how shoppers behave inside grocery stores, how in-store decision making occurs and what may trigger it. Next, in order to clearly define the scope of impulsive purchases, these are distinguished from generally unplanned ones. The main determinants of shoppers' impulsive buying behavior are then reviewed. Finally, relevant implications for shopping behavior at checkout stands are drawn from the literature reviewed which encourage further investigation of this phenomenon. Special attention is given here to potential effects of product assortment heterogeneity on impulsive purchases, which in turn lead to the formulation of three research hypothesis for further statistical testing.

2.1 Consumers' shopping behavior at grocery stores

The most important key to success within the retail world is simply to understand the shopper. By understanding their target audience, retailers gain the opportunity to appeal directly to them in a way that can only profit their own brand (POPAI, 2012). However, this must be a dynamic process of keeping track on shoppers' changes and ensure their most up-to-date needs are being satisfied (POPAI, 2012).

One of the structural changes with greater impact on retailers is demographics. As years go by, statistical studies reveal that the population is getting older and hence their needs are changing significantly (Kantar Worldpanel, 2010). For instance, it is forecasted that by 2048, 50% of the Portuguese population will be 50 or more years, which represents an increase of almost 15% compared to 2010. It is also forecasted that by the same time, the number of Portuguese women roughly the double that of men (Kantar Worldpanel, 2010), something which also has an important impact on retailers' assortment.

Other significant changes are more directly related to consumers' shopping behavior. In this area, the main agent of structural change is retail innovation. Recent retail solutions enable the existence of a virtual world, coexisting with the physical one, which decisively affects how the purchase decision making occurs (Deloitte Report, 2013). Indeed, before the internet, social media, smart phones and other digital technologies started to have a relevant role in consumers' lives, their decision making process was much simpler. Consumers used to consider a purchase based on influences coming from TV and printed media, sellers, family or friends, and the effective purchase was done in a brick and mortar store. Nowadays,

consumers' buying decision making is also influenced by manufacturers' websites, information available through search engines, social networks (e.g. Facebook), video networks (e.g. YouTube), blogs, e-tailers and in-store digital media. As depicted in Figure 2.1.1, the purchase decision process is no longer limited to traditional store environments, it can happen either in a physical or online store (Kantar Worldpanel, 2010).

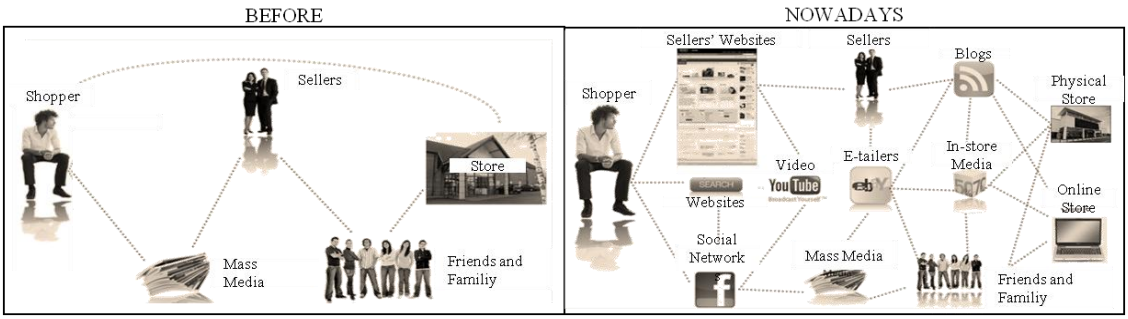

Figure 2.1.1 – Changes in influencers of consumers' decision making process (adapted from Kantar Worldpanel, 2010).

In view of the recent important changes observed in consumers' shopping behavior worldwide, a framework for more contemporary grocery store shopping behavior was developed, which is depicted in Figure 2.1.2 (POPAI, 2012).

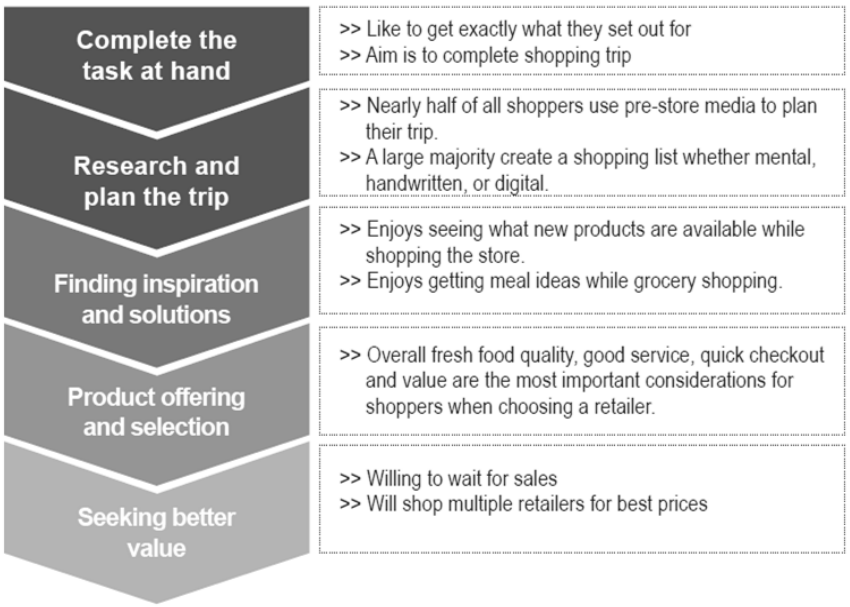

Figure 2.1.2 – Hierarchy of shoppers' new behaviors (POPAI, 2012).

The most basic shopping behavior pursues the objective of just finishing the shopping trip, having acquired every product initially sought out for. The planned shopping trip is a bit more complex, since the shopper may research offers and plan the shopping trip beforehand. Next in complexity, are shoppers who use the store as a source of cooking inspiration and meals solutions, as well as the ones expecting to find a store with a broad product assortment. Lastly, the most complex behavior belongs to the shopper that seeks for the best value within the retail offer (POPAI, 2012).

Taking into account the buying decision hierarchy depicted in figure 2.1.2 , modern grocery shoppers have been segmented into four groups by POPAI (2012) as the:

- *Time Stressed*. Representing 26% of today's shoppers, this group is composed by relatively young people who always seem to be in a hurry and who struggle with a sense of pressure from not having enough time to complete their chores. Although they preferably spend the least amount of time possible shopping and browse only a few store displays, they describe themselves as easily tempted. As a result, their shopping basket is typically the most expensive one and the second most composed of unplanned purchases.
- *Explorers*. Representing 29% of shoppers, Explorers enjoy discovering what is new in the market. They browse grocery stores in order to get inspiration for meals while shopping and view the highest number of store displays. Consequently, they have the highest level of unplanned purchases in their baskets, even though they are the segment with lowest disposable income.
- *Trip Planners*. Representing 23% of shoppers, their goal is to efficiently execute their shopping trip script. They make the fewest shopping trips per week of all segments, but are the ones spending most time browsing the stores' aisles and completing their grocery shopping. Consequently, this is also the segment with the lowest incidence of unplanned purchase and whose members can accurately predict the amount of money they will spend in each trip.
- *Bargain Hunters*. Representing 22% of the shoppers, Bargain Hunters show a high willingness to shop in multiple stores to look for the lowest product price. These are also typically the least satisfied shoppers, whose store trips cover the least number of aisles and are the shortest in duration. They are the least likely to shop for unplanned items and the value of their shopping baskets is the lowest of all segments.

Looking at the Portuguese grocery shoppers, the most frequent behavior is best value seeking as they often conduct an active searching behavior while striving to find the best current deals (Kantar Worldpanel, 2010). This behavior is also reflected in the fact that the frequency of grocery shopping trips in Portugal has increased in the last two years, while its volume and value has actually decreased in the same period (Kantar Worldpanel, 2013). Other studies have also shown that the Portuguese household buys relatively more grocery items in supermarkets than in other retail formats, such as hypermarkets or traditional grocery stores. Nevertheless, it is typically in hypermarkets that highest purchase value per shopping trip occur (Nielsen, 2008).

2.1.1 In-store decision making process

In-store decision making in grocery stores has climbed from 70% of shopping baskets in 1995 to 76% in 2012 (POPAI, 2012). This increase was mainly due to retail management evolution (POPAI, 2012; Wood, 2005), which began much earlier with the self-service concept and the simultaneous application of in-store marketing tactics (Stern, 1962). Later on, wider assortments attractively displayed and more pleasant store environments and broader services begun to be broadly used (Wood, 2005). These factors all together allowed consumers to spend less time and effort planning their shopping trips, which, in turn, made room for more in-store purchase decisions (Wood, 2005). Furthermore, the usage of in-store stimuli to trigger unrecognized needs and desires or memories for forgotten needs, led some shoppers to use them as cues for which groceries they actually needed to buy (Inman, Winer and Ferraro, 2009). Others, despite entering the store with an intention to buy only a certain set of goods, frequently end up buying unintended items after facing these in-store stimuli. However, it has been proposed that certain contextual factors can drive this figure as high as 93% (Inman, Winer and Ferraro, 2009).

As highlighted in the previous sub-section, one of the most relevant changes in grocery shopping behavior concerns how consumers' increasingly make purchase decisions inside the store. To understand this change and its implications, it is useful to describe how consumers typically grow through the process of making a purchase decision, as depicted in Figure 2.1.1.1 (Solomon, 2011). This usually starts with the recognition of an existing need and the consequent search for information on how this need can best be fulfilled. Next, several product alternatives are selected and evaluated. The consumer then pursues the best perceived alternative, and once found, an effective purchase will usually take place. At the post-

purchase stage, the consumer finally evaluates the acquired product by comparing it to its original need and determining his/her level of purchase satisfaction.

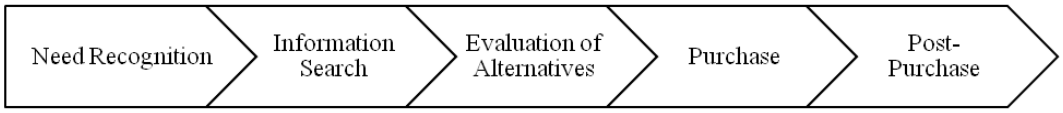

Figure 2.1.1.1 – Consumers' decision making process (Solomon, 2011).

Although consumers may be exposed to and interact with retailers' offers at many points of their decision making processes (Grewal and Levy, 2007), actual purchase decisions are very often triggered only when consumers actually view the products in the store (POPAI, 2012).
Consequently, Inman and colleagues (2004) proposed and tested a specific model of how in-store decision making is carried out by shoppers. As depicted in Figure 2.1.1.2, this process starts when shoppers are exposed to the store' product categories and displays. However, they also need to be willing to process the in-store stimuli, otherwise exposure by itself is not enough to effectively influence in-store decision making. Once these two major influencers are aligned, the shopper processes the in-store stimuli and recalls the existence of a need. This then increases the shopper' likelihood of purchasing the product category he/she was exposed to. In case the shopper has previously planned to buy the product category (e.g., due to the existence of shopping list), he/she becomes less likely to engage in in-store decision making, pursing just the planned purchases.
Focusing on the product categories with the highest levels of in-store decision making, the first place goes to non-essential goods (90%) followed by candy and gums (89%), magazines and newspapers (89%), shaving supplies (84%), toys (77%) and batteries (76%) (POPAI, 1995).These categories are classified as having the highest in-store decision making as, very often, they benefit from special displays and the most visible store locations (checkout stands, store entrance, among others) (Inman, Winer and Ferraro, 2009).

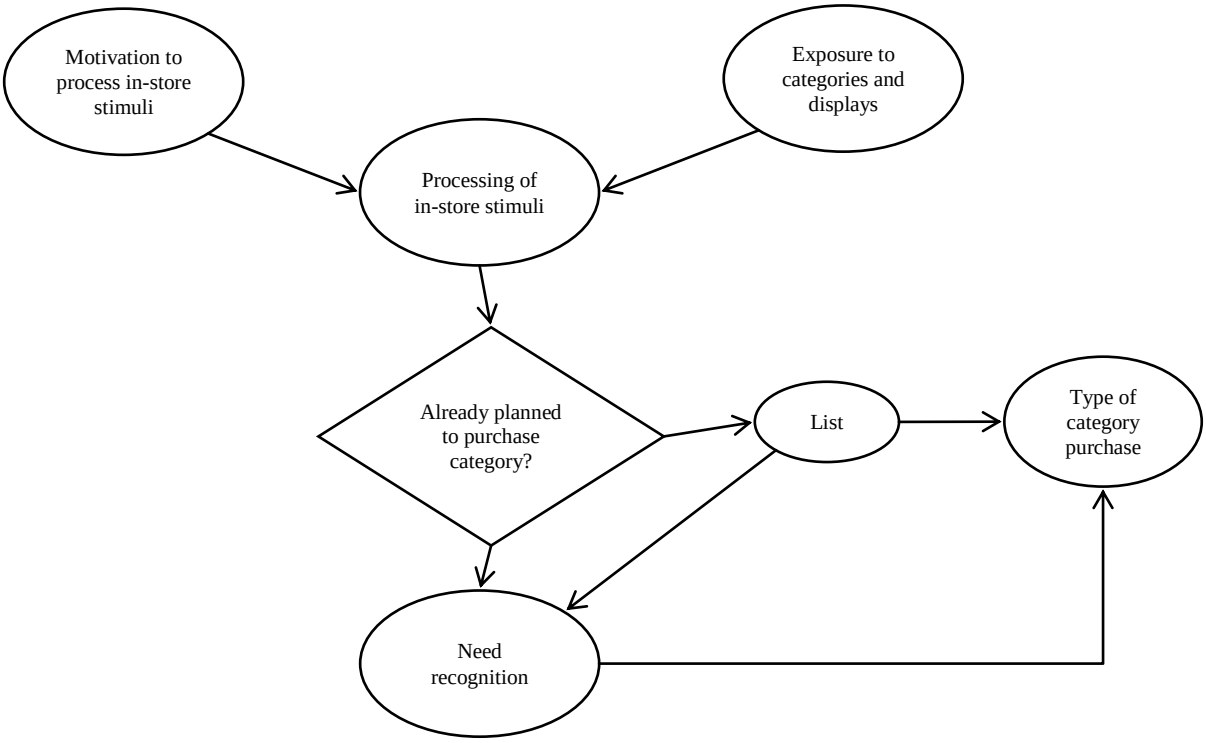

Figure 2.1.1.2 – Model of in-store decision making (adapted from Inman, Ferraro and Winer, 2004).

Concluding, being that in-store decision making has become a very common behavior in grocery shopping, retailers need to be more attentive to and understand better this phenomenon. The use of in-store stimuli to effectively trigger unplanned purchases can bring massive monetary benefits not only to retail brands, but also to manufacturers, which will benefit from this last marketing push at the final stages of purchase decisions (Inman, Winer and Ferraro, 2009).

2.1.2 Drivers of in-store decision-making

In-store decision making is a relevant topic for retailers and product manufacturers seeking not only to reach consumers better, but also to build brand equity and stimulate consumption (Grocery Marketing Association, 2007). Therefore, both players currently spend several billion dollars each year on in-store advertising materials (Inman, Ferraro and Winer, 2004), with in-store marketing budgets being forecasted a compound annual growth rate of more than 20% (Grocery Marketing Association, 2007). Nevertheless, there are other factors involved in the process of stimulating in-store decision making, such as understanding every factor driving the extent to which consumers engage in unplanned purchases (Inman, Winer and Ferraro, 2009).

When a stimulus encountered during the shopping trip triggers shopper unrecognized or forgotten needs, in-store decision making is likely to occur. Consequently, once the shopper goes forward with the purchase, he/she incurs in what is called "unplanned purchase" (Kollat and Willett, 1967; Wood, 2005; Bell et al., 2011).

Being that unplanned purchases considered merely the result of effective in-store decision making, Inman and colleagues (2009) proposed several stable and transitory factors enhancing a stimulus' ability to trigger unplanned purchases (Figure 2.1.2.1). These can be grouped into three classes: *category characteristics*, *customer characteristics* and *customer activities*.

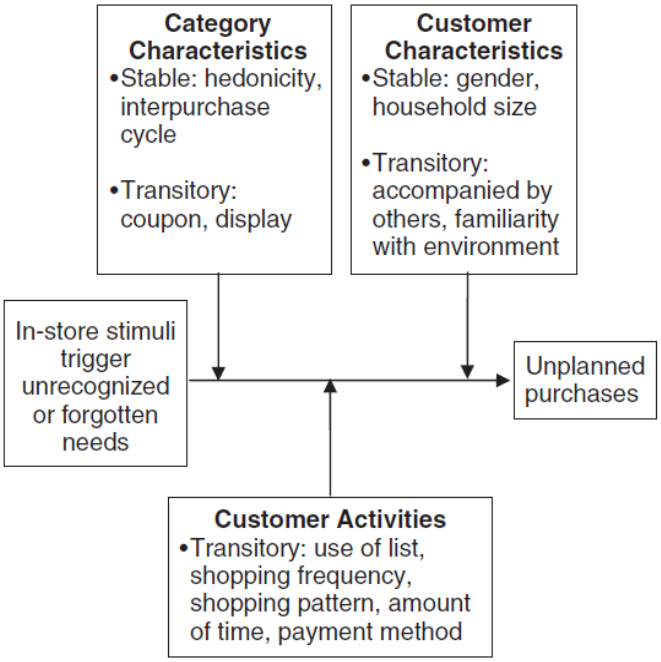

Figure 2.1.2.1 – Factors influencing the extent to which in-store stimuli trigger in-store decision making (Inman, Winer and Ferraro, 2009).

The most relevant category characteristic influencing in-store decision making is hedonicity. Hedonic products generate positive affect in consumers, which may in turn trigger impulsive purchases. Examples of typically hedonic grocery items are ice-cream, chocolate and confectionary, among other (Hui et al., 2013).The more hedonic a grocery item, the more susceptible to in-store decision making it becomes (Shiv and Fedorikhan, 1999). The inverse situation is verified with the product' purchase frequency. Products bought more frequently (e.g. bread, water, butter) generate a greater recognized need and therefore become more

accessible in the consumers' memory. So the less regular the purchase cycle is, the more susceptible the product is to be bought as the result of an in-store purchase decision (Stern, 1962).

Other characteristics having an influence on in-store decision making are coupons and in-store displays. Displays draw more attention to the product or category and thus prompt in-store decision making (Youn and Faber, 2000). Coupons, on the other hand, negatively influence in-store decision making. Consumers intending to use coupons during a shopping trip typically decide many of their purchases before entering the store (e.g. while making a shopping list), which reduces the level of in-store decision making (POPAI, 2012).

Regarding consumers' intrinsic aspects, there are four that may increase (or restrain) in-store need recognition: gender, household size, store familiarity and shopping companionship (Inman, Winer and Ferraro, 2009). Although gender does not seem to directly affect in-store decision making, female shoppers do engage more often in this type of behavior than males. Since women better recognize the household needs, they end up on average, doing the household shopping more frequently than men (Inman, Ferraro and Winer, 2004). On the other hand, it appears that the larger the household size, the more difficult and complex is the planning of grocery shopping trips. This should increase the chances for bigger households to increase in-store decision making **(**Bell, Corsten, & Knox, 2011).

Meanwhile, as consumers shop repeatedly at the same store, they become more familiar with its layout. This allows them to conduct more focused shopping trips, with less aisle browsing, and to routinize their shopping behavior to a high degree. As a result, the extent to which the consumer will notice store cues decreases with increased store familiarity. On a less familiar shopping environment, unplanned purchases are more likely to occur (POPAI, 2012). A last customer characteristic influencing in-store decision making is shopping companionship. Accompanied shoppers spend more time inside grocery stores and hence engage more in in-store decision making than solo shoppers. Moreover it is known that the presence of others (family and/or fiends) while shopping maximizes need recognition, since the needs of all members of the shopping party may become acknowledged and accommodated by the shopper (Miranda, 2008).

Exposure and affective response are at the heart of in-store decision making. However, consumers might use specific strategies to inhibit these actions, reducing the level of in-store decision making. The most frequent strategy is planning the shopping trip before going to the store by creating a shopping a list. Although consumers use shopping lists mainly as a

memory aid, these may also have an inhibitory or self-regulatory effect, as it helps consumers prevent unplanned purchases (Baumeister, 2002).

Other consumer activities with a restraining effect on unplanned purchases are the number of store aisles browsed per shopping trip and the shopping frequency (Inman, Winer and Ferraro, 2009; POPAI, 2012). The more aisles the shopper passes through, the more in-store stimulus (e.g. in-store displays) he/she is exposed to and, therefore, the higher the probability of making unplanned purchases (POPAI, 2012). On the other hand, an increase of shopping frequency decreases the number of items needed on a given trip, and this is likely to put the consumer in a mind-set of buying only the items needed. Therefore, unplanned purchases are less likely to occur to more frequent shoppers (Inman, Winer and Ferraro, 2009).

Purchases originated from in-store decision making are also less likely to occur in short shopping trips. The shorter the stay inside the store, the more limited the exposure to the point-of-purchase promotional stimuli and the more focused on planned purchases shoppers would be (Beatty and Ferrell, 1998). The last customer activity having an impact on in-store decision making is the method of payment. Paying the groceries with cash decreases the likelihood of unplanned purchases, while paying with credit card increases it. The payment with credit card allows for a delay between the products acquisition and the actual payment, which makes possible the unplanned purchase of unnecessary or more expensive items (Rook and Fisher, 1995).

2.2 Shoppers' unplanned and impulsive purchases

Once in-store decision making is successfully triggered by retailers and, consequently, the shopper pursues on a purchase, it can be either of two major types: unplanned or impulsive (Rook, 1987). However, as the concept of in-store decision-making evolves, the existence of different types of purchases has been proposed (Stern, 1962; Kollat and Willett, 1967; POPAI, 2012).

Stern (1962) initially suggested that every type of purchase that may occur from in-store decision making is impulsive. Thus, this author proposed four broad classifications of impulsive buying:

1. Pure impulsive buying - the truly impulsive purchases that break consumers' regular buying pattern;
2. Reminder buying - purchases done when the consumer is inside the store and upon seeing the product, advertisement or other information about it, remembers that the stock at home is low or over;

3. Suggestion buying - purchases occurring when the consumer has no prior knowledge about the product and visualizes a need for it;
4. Planned buying - refers to the most frequent and significant type of purchases, the ones occurring when the consumer has the intention to buy some specific products.

Following closely Stern's (1962) classification, another relevant, more operational definition of unplanned purchases was suggested by Kollat and Willett (1967). Purchase type was here defined as the result of a comparison between consumers' purchase intention prior to entering the store and the effective purchase he or she makes. An impulsive purchase was defined as the selection of an item (product class, specific product and brand) only when the shopper is inside the store and no prior purchase intention existed nor recognized need (Kollat and Willett, 1967).

The most up to date classification of the different types of shopping buying behavior has been proposed by POPAI (2012). Based on the results from pre- and post-shopping consumer' interviews, they suggest four general categories of unplanned grocery store purchases:

1. Specifically Planned - purchases occurring exactly as planned by the consumer before entering the store (considering the product and its brand);
2. Generally Planned - purchases occurring when the consumer buys the planned product, but not the planned brand;
3. Unplanned- purchases that were not planned at all by the consumer before entering the store;
4. Substitutes - purchased items that differed on the product or brand that was previously planned.

Among all the research that has been conducted throughout the past decades, findings suggest that although impulsive buying behavior can be categorized as unplanned, unplanned buying cannot always be categorized as the result of impulsive purchases (Kollat and Willet, 1969). The logic behind this distinction lies in the fact that an unplanned purchase may occur simply because a consumer has a need for the product, but failed to place the item on a structured shopping list. Unplanned purchases do not necessarily have to be accompanied by a powerful urge or strong positive feelings usually associated with an impulse buy (Amos et al., 2013), they may simply result from remembering an intended purchase.

Therefore, for the purpose of this dissertation, the approach proposed by Rook (1987) will be pursued, with unplanned purchases being defined as mindful shopping choices made inside

the store, whereas impulsive purchases refer to a shopping choice made, also inside the store, but based on a shopping impulse or sudden urge felt by the consumer.

2.2.1 Impulsive buying

Much of human activity is driven by impulses that are biochemically and psychologically stimulated, with impulsiveness being considered both a basic human trait and a general consumer characteristic (Rook and Fisher, 1995). Once a psychological impulse is triggered inside a store, shoppers' feel obliged to incur in a purchase. This mechanism starts with a visual confrontation with the product (or promotional stimulus), which generates a sudden and spontaneous urge to purchase it. Sometimes this urge is so intense that it leads the shopper to high levels of excitement, where they feel the "product is empowered with own will, demanding their attention" (e.g. the product "talks" and "looks" at the consumer) (Rook, 1987). Pursuing on this impulse is very often made without awareness of potentially negative consequences (e.g. financial problems, disappointment with the product purchased) (Rook, 1987).

A complementary perspective developed by Hirschman and Holbrook (1982) defends that once the shopper faces a buying stimulus, he/she develops multisensory images (tastes, sounds, scents, tactile impressions and visual images) and fantasies about product, and feels emotional arousal (e.g. joy, jealously, fear, range, rapture). This psychological reaction is considered a hedonic response, where products are viewed by shoppers as "subjective symbols" instead of "objective entities". Consequently, most of the impulsive purchases are accomplished with a focus on what the product represents for the shopper, instead on its' tangible features (Hirschman and Holbrook, 1982). According to this approach, products can be characterized by its' ability to create hedonic responses. For instance, – as it was referred in section 2.1.2 – products typically considered as hedonic are ice-cream, chocolate and confectionary. Moreover, among retailers, there are products specifically considered as impulsive and therefore object of impulsive purchases. These products are chewing gum, chocolates, drops, gums and candies, belonging to the confectionary category displayed at grocery stores' checkout stands (Sonae MC' internal information).

However, as Rook and Fisher (1995) explain, some consumers are more impulsive buyers than others. The most impulsive ones are more likely to act on whim and to respond affirmatively and immediately to their buying impulses. In extreme cases, impulsive behavior is almost entirely stimulus driven and an impulse buying is translated directly into an

immediate action. Moreover, impulse buyers are likely to experience buying impulses more frequently and strongly than less impulsive consumers (Vohs and Faber, 2007).

For retail decision making purposes, this impulsive behavior considered as a consumer trait (Rook and Fisher, 1995) should receive increased attention, since "in the long-run it may lead to higher profits for manufacturers and retailers" (Baumeister, 2002).

2.2.2 Drivers of impulsive purchases

Since it is believed that among purchases resulting from in-store decision making (unplanned and impulsive), impulsive purchases are the ones having a heavier impact on retailers' profits (Baumeister, 2002), this section will present the factors influencing this type of purchases. The factors retailers can manipulate in order to trigger in-store decision making were discussed in section 2.1.2. Nevertheless, prompting in-store decision making may not necessarily always lead consumers to incur in impulsive purchases (Kollat and Willett, 1969).

Throughout the past decades, academics have been studying impulsive purchases, proposing several factors that influence their occurrence. These are money and time available to spend on the impulse purchase, consumers' age, the purpose of the shopping trip and consumers' own buying impulsiveness trait (Stern, 1962; Bellenger et al., 1978; Rook and Fisher, 1995).

Amos and colleagues (2013) conducted a meta-analysis of the determinants of impulsive buying, where all the factors previously proved to have an influence on impulsive purchases were aggregated and further tested (Figure 2.2.2.1). They divided these factors into three categories: dispositional, situational and demographic factors. The dispositional category includes consumers' "chronic characteristics that reside with the individual" and do not differ much across situations (Amos et al., 2013). These are the consumers' Impulsive Buying Trait (Rook and Fisher, 1995) and psychographic traits as personality and lifestyle (Sharma et al., 2010). Still dispositional motivational forces, like consumers' need for touch and shopping enjoyment where shown by Sharma and colleagues (2010) to have an influence on impulsive purchases.

On the other hand, consumers' external factors influencing the impulsive purchases' likelihood are encompassed by the situational category. Such factors are not under consumers' control and may be a marketing stimulus, a specific store product assortment or shopping' time and/or financial constraint (Amos et al., 2013; Rook and Fisher, 1995). In addition, affective states (e.g. mood) and hedonic purchasing motives (hedonic vs. utilitarian involvement) were also shown to have an impact on impulsive purchases (Figure 2.2.2.1) (Vohs and Faber, 2007). Regarding consumers demographic factors, it was also proposed that

gender (Vohs and Faber, 2007), age, ethnicity and income (Sharma et al., 2010) all have an influence on shoppers' impulsive buying behavior.

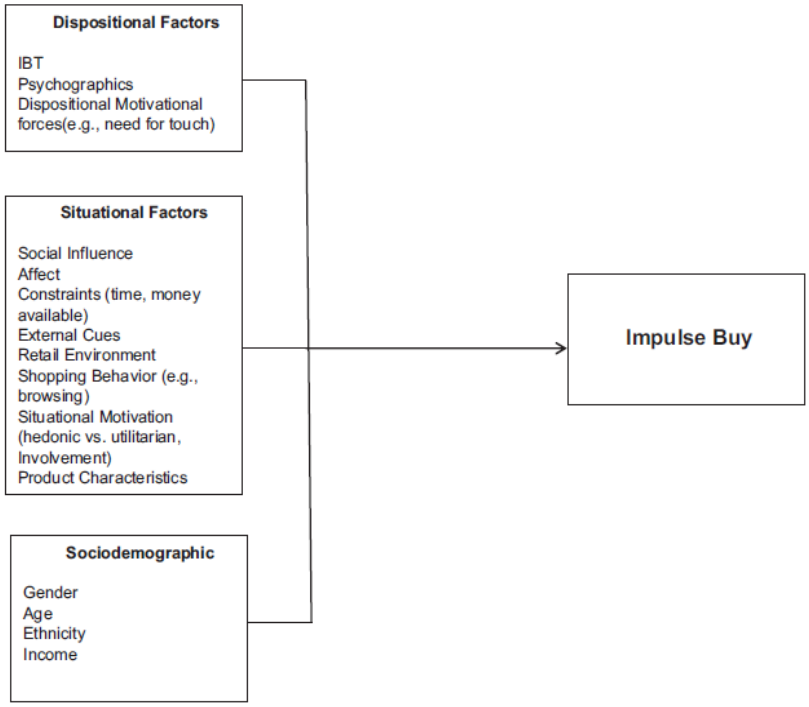

Figure 2.2.2.1 – Antecedents of impulse buying (Amos et al., 2009).

Comparing these factors with the ones presented in section 2.1.2 – Drivers of in-store decision making – an overlap among determinant factors is noticeable. This situation can be explained by the fact of impulsive purchases being a possible outcome of in-store decision making (Rook, 1987). Hence, if a specific factor triggers in-store decision making it may also trigger an impulsive purchase. However, Amos and colleagues (2013) empirically tested the factors proposed by them in order to discover which have a stronger association with the occurrence of impulsive purchases. Results indicated that externalities (situational factors) and individual traits (dispositional factors) have the greatest influence. Among the individual traits, IBT (Impulsive Buying Trait) appeared as the principal factor driving impulse buying.

Other factors with a positive influence on impulsive purchases are consumers' thrill and variety seeking, shopping enjoyment and tendency to make quick decisions. On the other hand, factors proven to inhibit this behavior were shoppers' price consciousness, self-control and monitoring. Regarding situational factors, Amos and colleagues' (2013) meta-analytical results revealed that social influence is the most relevant factor triggering impulsive purchases, followed by affect (either negative or positive). Also products hedonically purchased (e.g. confectionary) and strategically placed in attractive displays can further drive

shoppers' impulse shopping behavior. Lastly, sociodemographic factors were proven to be least related to impulse buying. Nevertheless, Amos and colleagues (2013) pointed out the need for additional research in order to understand the moderating effects of sociodemographic factors on impulsive purchases.

2.3 Consumer behavior at grocery stores' checkout stands

Several studies have so far investigated consumers' grocery shopping habits and, particularly, their impulsive purchases (Stern, 1962; POPAI, 2012; Rook and Fisher, 1995; Amos et al., 2013). Their findings, as well as retail management practice, reveal that this type of purchase often takes place while consumers are queuing to pay at checkout areas, implying that this store area is a "significant source of impulse sales" (Front - End Focus, 2003). This finding is aligned with several factors previously identified as determinants of impulsive buying behavior (Amos et al., 2013). Firstly, checkout stands are considered to be an attractive and special type of display, since it obtains 100% of shoppers' attention (Front - End Focus, 2003; Miranda, 2008). In fact, a Front-End-Focus association' study (2014) revealed that 84% of the shoppers interviewed agreed with the statement "looking at products at the checkout counter gives you something to do while waiting in line" (Front - End Focus, 2014). Furthermore, assortments at this store area are frequently dominated by hedonic products, such as chocolate, confectionary, chewing gum, among others, with hedonic characteristics (Hui et al., 2013). In addition, situational factors having an impact on impulse buying behavior likelihood, are not regularly under shoppers' control (Amos et al., 2013). Hence, retail managers have a good chance to enhance their customers' impulse buying behavior through the store environment, particularly by how to manage checkout areas (Amos et al., 2013).

Retail managers should hence focus on factors under their direct control, like checkout stands (Front - End Focus, 2003) and the type of products displayed on it (Amos et al., 2013), to maximize the chance of impulsive purchases.

2.3.1 Characteristics of checkout stands

The characteristics of checkout stands and the dynamics of buying behavior at checkout areas are still poorly understood by academics (Inman et al., 2004). Still, its relevance in explaining shopping behavior is recognized amongst both the academic and retailing community (Inman et al., 2004; Miranda, 2008; Novick, 2011). This store area was considered by Novick (2011) as a "micro-economic model of the store", having enough power to be an "engine for growth". He further states that checkout stands' lanes and end caps are equivalent to gondola

aisles and end displays, but having a much higher volume of traffic (Novick, 2011). Since checkout lanes are the only store location which every single shopper visits, it becomes a critical place to maximize customers' satisfaction, and as explained in the previous section, becoming an important source of impulsive purchases (Front - End Focus, 2003).

Yet, retailers are facing a changing landscape at checkout store areas. A growing number of product categories are available at this location and consumers are changing the way they shop. Meanwhile, new technology is changing the payment process itself (e.g., self-checkouts) (Front-End Focus, 2010). In addition, interdepartmental rivalry inside retailing companies regarding checkout stands' traditional categories, appears to have become an obstacle to the implementation of new point-of-purchase marketing strategies (Novick, 2011). In view of this state of affairs, the Front-End-Focus association (2014) studied and proposed several measures to counteract it. The first step must, however, come from retailing managers themselves. They need to recognize the value of checkout areas to store sales and profits, since on average this location alone generates $5.5 billion in sales and represents 1.6% of the store overall profit (Front - End Focus, 2014). Moreover, checkout stands have 34% gross margin, whereas the whole store only has 25% (Front - End Focus, 2014).

Checkout store areas are generally larger than many other retail categories/departments, so they should be managed as a unique department with its own category manager (Front - End Focus, 2014). In addition, retailers are more and more relinquishing the management of this strategically important area of the store to branded confectionery manufacturers, their suppliers and distributors. As a consequence of this vendor-driven checkout model, retailers have been seeing their checkout stands with over spacing of limited inventory and significantly undeveloped planograms, resulting in a lost opportunity to increase sales and profits. In order to invert the underuse of checkouts, a stronger and larger control of this store area is thus advisable (Novick, 2011). Checkout managers should focus on maximizing checkout stands' total revenue, including both profit from sales and placement fees. The majority of checkout stands' profits are driven by selling the product (87,8%) and not product placement fees (12,2%) (Front - End Focus, 2014).

As for product assortment at checkout stands, it typically entails consumer products sub-divided in convenience goods, shopping goods and specialty items according to their main shopping motive. Convenience items typically have a low unit price. Not being greatly affected by consumer trends, they are also purchased with the least amount of concern on performance (e.g. tissues). Shopping items are products that shoppers usually would consider purchasing without spending much time and effort in comparing its' quality, price and style

(e.g. chewing gums). On the other hand, specialty items are the ones about which consumers demonstrate higher willingness to process attribute information (e.g. premium chocolate) (Miranda, 2008). The specific categories being displayed at grocery stores' front-end are impulse confectionary, salty snacks, health and beauty care, general merchandising and magazines (Sonae MC Internal Report, 2014). Particularly for the impulse confectionary category, it is suggested that the most profitable solution for checkout stands is mixing its sub-categories (chocolates, chewing gums, and drops, gums and candies) and producers at the same checkout display, in order to provide more options to shoppers (Mondeléz International, 2014; Sonae MC' Internal Report, 2014). Yet, according to a Front-End Focus association survey across US, 63% of the interviewees revealed that they buy chewing gums from checkout stands at least once a month, making the sub-category the top selling one (Front-End Focus, 2014).

The Front-End Focus association (2014) suggests a set of practices regarding checkout stands assortment in order to generate higher sales. First, the right amount of products to carry at the store front-end should be between 301 and 350, as this leads to a total checkout sales increase (Front-End Focus, 2014). The impulse confectionery category should occupy at least 51% of the checkout stand, since these are mainly impulse driven and consumers are expected to buy them essentially at this store area (Front-End Focus, 2014). As most of general merchandising and health and beauty care products are need driven and located elsewhere in the store, retailers should only display a few key items of these categories, occupying up to only 15% of checkout stands space - otherwise the overall area' sales will start decreasing (Front-End Focus, 2014). On the other hand, retailers should allocate 30% to 33% of checkout stand space to magazines carrying only the top selling titles (Front-End Focus, 2014). Finally, the entire product categories typically displayed at this store area (impulse confectionery, salty snacks, health and beauty care, general merchandising and magazines) should be present in all checkout stands (Sonae MC' Internal Report, 2014; Front-End Focus, 2014). According to a Font-End-Focus association survey, only 14% of consumers pick a checkout based on the products displayed there and only 27% pick an item from a checkout display and then go to another one to pay for their purchases (Front-End Focus, 2014).

Nevertheless, retailers are aware that an inappropriate mix of items displayed at checkout stands may compromise their opportunity to earn better returns on products having a push at the point of sale (Miranda, 2008). To commit the most expensive area of the store to certain products that do not offer attractive retail margins, or to non-grocery products that may

require high decision making involvement from consumers, may turn out to be very prejudicial (Miranda, 2008).

After selecting the products to display, retailers have to allocate checkout stands' space to each of them. Space allocation should be done considering manufacturers' market share, product' sales potential and the attention given by shoppers to different checkout stands' areas (Mondeléz International, 2014). In order to optimize the checkout stands' space, maximize profitability and increase customers' shopping basket, there are further recommendations retailers should follow. The space allocated to impulse confectionary category should be on the hottest and hot areas of checkout stands (Figure 2.3.1.1), since these are the areas shoppers give more attention while they are cueing to pay their groceries (Front-End Focus, 2014; Mondeléz International, 2014). Hence, to the general merchandising, health and beauty care and magazines categories should be given the warm and colder areas of checkout stands (Figure 2.3.1.1) (Front-End Focus, 2014; Mondeléz International, 2014).

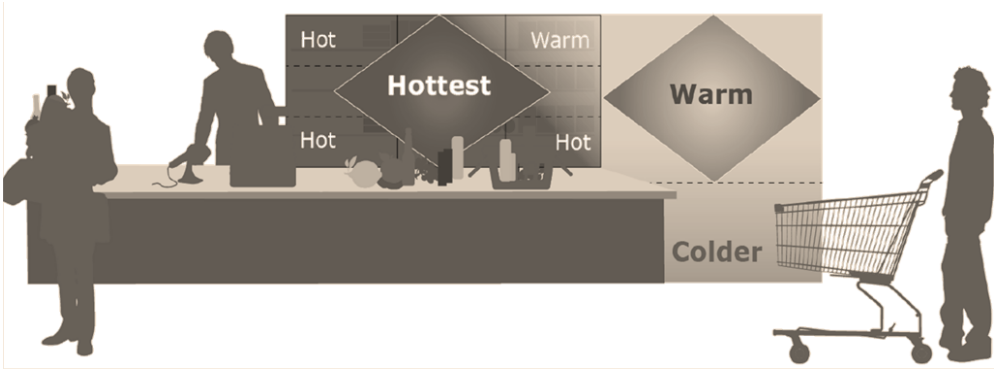

Figure 2.3.1.1 – Attention given by shoppers to the different checkout stands' areas (Mondeléz International, 2014).

Eye-Tracking studies revealed that shoppers indeed spend time looking at all areas of the checkout stand end cap. However, the left end cap is the one getting the most viewing time by consumers, as well as the three or four top tiers (Appendix 1; Front-End Focus, 2014). Left to the customer in the checkout stand, the most time is spent viewing the items displayed before the belt (Appendix 2; Front-End Focus, 2014). Reading secondary displays on checkout lanes, it was discovered that they distract shoppers from the checkout stand, reducing its viewing time from 21.94 to 10.6 seconds (Appendix 3; Front-End Focus, 2014). As it is further revealed, more is not always better when it comes to checkout displays. Secondary displays at checkouts reduce the total checkout sales from 19% to 41% (Front-End Focus, 2014).

As consumer behavior changes across different geographical regions and store locations, the Front-End-Focus association (2014) recommends retailers to conduct research on shoppers' behavior in their particular checkout stands' store area. This research should use Eye Tracking techniques to specifically gain insights on checkout lane hot spots. Complementary, video mining should also be used to study conversion rates from checkout stands' traffic into checkout stands' buyers.

Regarding conversion rates, it was discovered through Video Mining that 10% of checkout stands traffic is converted into shoppers and, in turn, 94% of them are converted into buyers (Appendix 4). Hence, converting more of the checkouts traffic into shoppers can drive greater incremental sales (Front-End Focus, 2014). As depicted in Table 2.3.1.1, a simulation of a 1% increase in shopper conversion resulted into an annual checkout stands' positive net change of $560.21M (Front-End Focus, 2014).

Table 2.3.1.1 – Frond-end growth opportunity: what if analysis (Adapted from Front - End Focus, 2014).

Shopper Metrics/Week/Store	Current Scenario	Traffic to shopper conversion increased by 1%	Net change
Front-end traffic to shopper conversion	10%	11%	1%
Shopper conversion	94%	94%	-
Shoppers	1,763	1,946	183
Buyers	1,665	1,837	172
Weekly sales	$2,849.39	$3,144.55	$295.16
Annual front-end sales	$148,168.28	$163,516.39	$15,348.11
		Nationwide annual category sales increase	**$560.21M**

A last management strategy proposed by Front-End-Focus association (2014) is benchmarking. Retailers should take advantage of the growth opportunity by adopting the best practices of top performing competitors on checkout stands (Front-End Focus, 2014).

2.3.2 Assortment heterogeneity at checkout stands

Assortment composition is a key issue under retail and category managers' responsibility (Koelemeijer and Oppewal, 1999). It is the most relevant element of retailing strategy (Simonson, 199), not only because it allows retail stores to achieve differentiation, but also to satisfy shoppers' needs better than competitors (Kotler, 1997). Another key role of assortment

is in fact, shaping customer wants (Simonson, 1999). Once consumers are inside the store, retailers can influence their purchase intentions through assortment and aisle management (Simonson, 1999; Oppewal and Koelemeijer, 2005). In the specific case of checkout stands, the items displayed provide enough cues for shoppers to buy them on impulse (Miranda, 2008). For instance, displaying hedonic products may lead shoppers to incur on impulsive purchases (Hui et al., 2013).

The top categories purchased at the checkout stands are predominantly hedonic and low-involvement products that spark an immediate need and desire for fulfillment. These products are mainly chewing gums, mints, other confectionery and magazines (Miranda, 2008). However, despite that a significant number of products displayed at checkout stands are hedonic and thus generate impulsive purchases, another products typically displayed there have different purchase potential. It is possible that some products at checkout stands generate the appropriate cues to remind shoppers of their intention to purchase it before entering the store – reminder items (Miranda, 2008). Some of these products belong to health and beauty care categories, or even general merchandising (Miranda, 2008; Front-End Focus, 2003).

A key assortment characteristic to trigger impulsive purchases at checkout stands is variety (Front-End Focus, 2014). As referred in section 2.2.2, consumers' variety seeking is a driver of impulsive purchases. Consequently, retailers must provide a certain level of assortment heterogeneity at checkout stands in order to boost impulsive purchases (Amos et al., 2013; Front-End Focus, 2014). To support retailers in defining a heterogeneity level for their assortments, insight is needed into the influence of assortment composition on consumers' variety perception. Additional insights are needed about the appropriate measures of assortment variety (Herpen and Pieters, 2002). Since products can be viewed as "bundles of attributes", the variety of an assortment can be conceptualized through a product-based perspective (Bettman et al., 1998). This product-based approach was further developed by Hoch and colleagues (1999). Their model examines the degree of dissimilarity between product pairs in the assortment, stating that the more dissimilar the products are, the more variety there is in the assortment (Hoch et al., 1999). Still, Herpen and Pieters (2002) defend that an attribute-based approach is more adequate to predict consumers' perceptions of assortment variety, as it treats assortment as whole and not in pairs of products (Herpen and Pieters, 2002).

Tests on the attribute-based model of Herpen and Pieters (2002) and the product-based model of Hoch and colleagues (1999) showed that the product-based model correlated more with assortment size than the attribute-based model. This means that, in terms of variety

measurement, the attribute-based approach is preferable (Herpen and Pieters, 2002). For instance, Boatwright and Nunes (2001) showed through a study across several food categories that the number of different brands and flavors available influence sales significantly. A more recent study (Boyd and Bahn, 2009) showed that consumers indeed prefer high-variety assortments but merely during times of high risk, once they desire decision-making certainty through information processing. As presented in Figure 2.3.2.1, more heterogenic assortments provide consumers with a decision-making benefit (Boyd and Bahn, 2009).

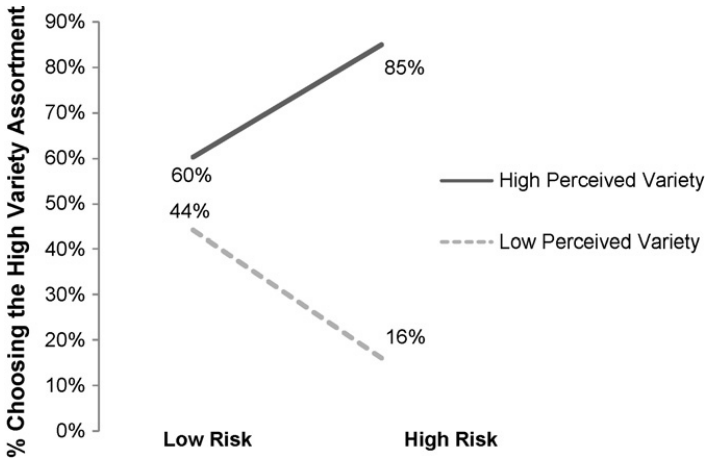

Figure 2.3.2.1 – Variety assortment preferences under low and high risk (Boyd and Bahn, 2009).

Consumers' choice among assortments has been described as a hierarchical process that begins with the choice of a grocery store (because of its assortment), followed by a specific product choice within the previously selected store (Kahn and Lehman, 1991). However, consumers do not look to an assortment as just a set of offers. Due to their uncertainty about future preferences, they evaluate an assortment in terms of flexibility for future choices. Accordingly, the utility of an assortment (from which only one item will be selected) equals the utility of the maximum items within the assortment (Kahn and Lehman, 1991). Hence, by increasing assortment' heterogeneity levels at their checkout stands, grocery retailers can benefit from increasing their impulsive purchases (Front - End Focus, 2014).

2.4 Conclusion and conceptual framework

Figure 2.4.1 summarizes what is known about impulsive purchases at grocery store's checkout stands. As shoppers carry out their product choices inside a grocery store, two major types of purchases may occur - unplanned and impulsive purchases (Rook, 1987). The unplanned purchases may occur as a result of a previously recognized need (before the

consumer entered the store), or the decision making process only occurred when the shopper was exposed to an in-store stimulus. Impulsive purchases also occur when the shopper is exposed to an in-store stimulus, but they happen when consumers experience a sudden urge to buy a product, with little or no deliberation (Rook, 1987). This last type of purchase is the most profitable for retailers and occurs most often at checkout stands (Inman, Ferraro and Winer, 2004; Miranda, 2008). In addition, it was discovered that the main driver of impulsive purchases at checkout stands under retailers control is assortment heterogeneity (Front - End Focus, 2014). It is therefore relevant to study how assortment heterogeneity influences checkouts' impulsive purchases and how can retailers manage it.

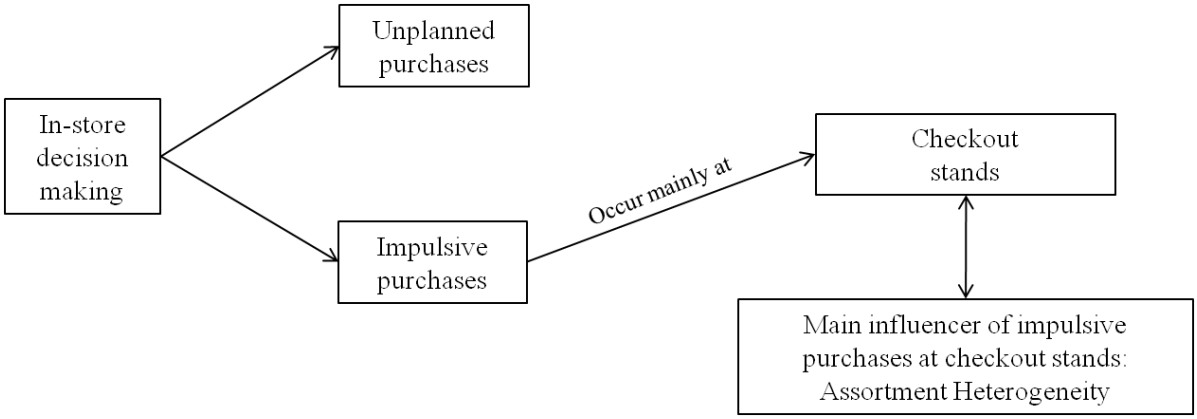

Figure 2.4.1 – Conceptual framework

2.5 Research hypotheses

During the last three decades, the increasing incidence of consumers' in-store decision making has been beneficial to retailers (POPAI, 2012). Through in-store stimuli, retailers have been leading consumers to recognize needs or feel impulses to buy a certain product triggering, in turn, unplanned or impulsive purchases (Inman, Winer and Ferraro, 2009). However, it is believed that in the long-run, a focus on boosting impulsive purchases is more profitable rather than unplanned ones (Baumeister, 2002). Further investigation on the topic revealed that impulsive purchases typically occur and are more frequent at checkout stands (Front - End Focus, 2003). Such finding indicates that, in order to more effectively enhance impulsive purchases, there must be a focus on this phenomena occurring at checkouts' store area (Front - End Focus, 2003; Miranda, 2008).

There are several factors influencing grocery impulsive purchases. Some are consumers' financial situation, shopping enjoyment and variety seeking as well as store assortment. Nevertheless, only the last one is under retailers' direct control (Amos et al., 2013). Thus, with the focus on checkout stands as being the main source of impulsive purchases, retailers must be more careful regarding their checkout stands' assortment (Front - End Focus, 2003). Among the assortment characteristics, the most relevant at checkout stands is heterogeneity. At this store area, heterogeneity is a key assortment characteristic given its main role on triggering impulsive purchases (Front - End Focus, 2014). But retailers have another reason to increase their checkout stands' assortment heterogeneity. The fact checkout stands are, by definition, the store area where unplanned, and most of the impulsive purchases happen, reveals that consumers generally do not have very well defined preferences for products typically displayed there (Front - End Focus, 2014). Thus, besides being variety seeking an impulsive purchase driver, it has been stated that under choice uncertainty' conditions, consumers prefer and value assortments giving them a higher decision-making flexibility (Kahn and Lehman, 1991; Boyd and Bahn, 2009). Based on this, the following initial hypothesis is derived:

> **H0:** The higher the overall level of heterogeneity of product assortment, in terms of SKU's, at grocery stores' checkout stands, the higher the level of impulsive purchases occurring.

After deciding on the heterogeneity level of their checkout stands' assortment, retailers have to specifically decide which product categories should be displayed there (Front - End Focus, 2014). The most common and recommended categories are impulse confectionary, salty snacks, general merchandising, health and beauty care and magazines (Miranda, 2008; Front - End Focus, 2014). However, the focus should be on impulse confectionary. As its own denomination states and its hedonic characteristics demonstrate, this category is the one generating and being target of the most impulsive purchases at checkouts (Hui et al., 2013; Front - End Focus, 2014; Mondeléz International, 2014). Still applying the variety seeking theory stated before, there is an interest in identifying how the heterogeneity level among this category influence impulsive purchases, meaning its own sales. The following hypothesis is thus formulated:

H1: The higher the overall level of heterogeneity in terms of SKU's in the impulse confectionary category at checkout stands, the higher the level of impulsive purchases occurring.

Finally, according to the Front-End-Focus association research (2014), the most commonly purchased sub-category at checkout stands is chewing gums. Thus, it is relevant to analyze whether this still occurs when there is an increase in the overall heterogeneity of impulse confectionary items. Therefore, the last hypothesis being put forward is:

H2: The higher the overall level of heterogeneity in terms of SKU's in the impulse confectionary category at checkout stands, the higher the level of chewing gums sales occurring.

These hypotheses will be tested according with the research methodology described in the next chapter. Results and final conclusions will be presented in chapters 4 and 5, respectively.

CHAPTER 3: METHODOLOGY

This chapter presents the methodology employed in the analysis of data and the statistical testing of the research hypotheses put forward in Chapter 2. It is organized into three subsections: research approach, population and sample and data analysis.

3.1 Research approach

There are three types of research approaches, namely exploratory, descriptive and explanatory approaches (Saunders, 2007). Exploratory research is typically conducted by scanning published information, interviewing experts or organizing focus groups with key stakeholder informants, that is, by conducting primarily qualitative research (Saunders, 2007). Its main goals are to generate new insights and clarify understandings about a given problem that remains largely unresolved. This type of approach aims to provide preliminary answers to a particular research problem, not definite conclusions about it. Descriptive research, on the other hand, entails the elaboration of a detailed, largely quantitative profile of events, people or situations at a given time (Saunders, 2007). To this end, it is crucial to have a clear picture (if not yet a theory) about the phenomena under study prior data collection and analysis. The aim is not to experimentally study cause-effect phenomenon, but rather to establish significant relationships and associations between variables. Descriptive approaches are expected to draw conclusions about a given research problem from the analysis of the available data, which is often of a quantitative nature (Saunders, 2007). Lastly, explanatory research attempts to establish some causal relationships among variables, by resorting to experimental designs and quantitative data analysis (Saunders, 2007). Its main goal is to test whether specific factors lead to, or significantly influence certain phenomenon by manipulating them experimentally.

As stated in Chapter 1, the main goal of this dissertation is to better understand the extent to which the heterogeneity of product assortments available at checkout stands might drive impulsive buying. To this end, a descriptive research approach was hence employed, where secondary data about product assortment and checkout stands' characteristics, as well as retail sales data of checkout product categories (including impulse items) was analyzed and some research hypotheses tested.

3.2 Population and sample

The statistical population of interest for this dissertation was defined as:

- *Product assortments*[1] *on sale at checkout stands of grocery stores in Portugal during the first quarter of 2014.*

This dissertation was performed during an internship carried out in the first semester of 2014 at Sonae MC, the Portuguese market leader in the grocery store business under the brand MCH – Modelo e Continente Hipermercados. As such, the market insights, expert advice and empirical data reported here relate exclusively to the activities of Sonae MC's stores Continente, Continente Modelo and Continente Bom Dia/Bonjour in Portugal. Given that this retail group is the national market leader, their stores were considered to be sufficiently representative of the population under study.

Initial investigation at Sonae MC revealed that of the 260 national grocery stores of the group, only 155 have checkout stand equipment.

Stores are grouped into clusters according to their checkout stands equipment version. Each cluster is relatively homogeneous in terms of checkout product assortment and its spatial organization in the checkout stand (aka *planogram*) (Figure 3.2.1). Exceptions are related to minor modifications or adjustments in the stands' equipment, introduced due to the wear and tear of original equipment, and which do not warrant a re-classification of stores into other or new clusters (Sonae MC internal information, 2014). In view of this, stores with adapted checkout stands equipment were excluded from further analysis. Other stores were also excluded according with the following criteria:

- Stores closed or inaugurated during the first quarter of 2014;
- Stores without sales of impulse confectionary category at the period under analysis (without sales of impulse confectionary would not be possible to measure impulsive purchases levels).

[1] Typically composed by items of the impulse confectionary, salty snacks, general merchandising, health and beauty care and magazine categories, as described in Chapter 2.

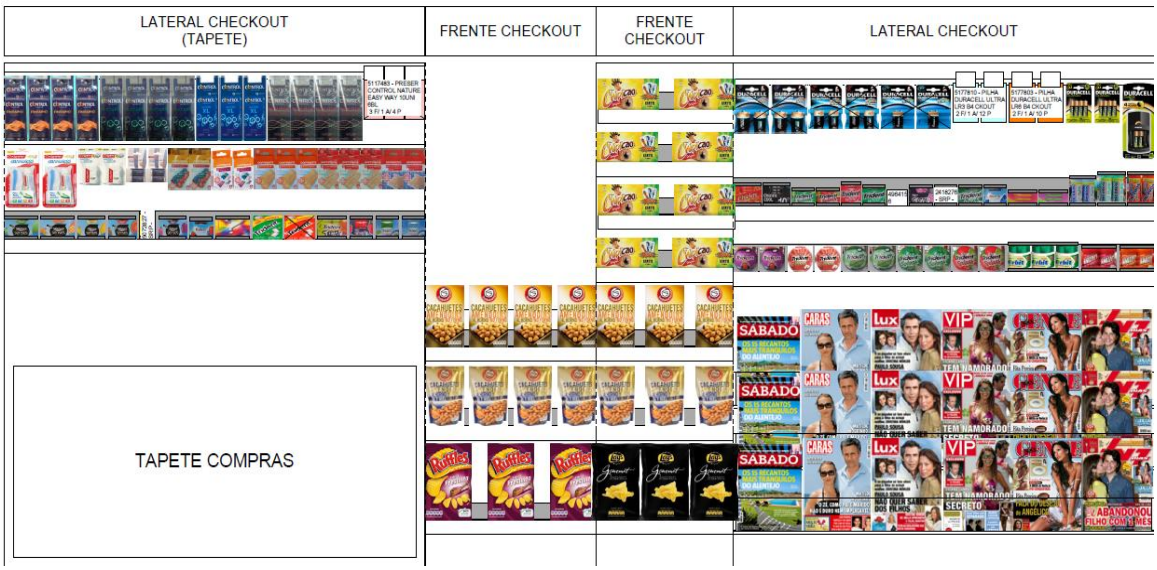

Figure 3.2.1 – Example of a planogram for a checkout stand at Sonae MC large grocery store (Sonae MC' Internal Information, 2014)

The research time frame specifically refers to the first quarter of 2014, due to structural changes at checkout stands during December of 2013. Sonae MC defined a new assortment and space allocation for their checkout stands and the impact of these alterations – in terms of checkout stands sales – could only be measured for a significant period through the first quarter of 2014. Thus, the research sample is cross-sectional instead of longitudinal which has important implications for the type of statistical analysis employed.

3.3 Data collection

The data collection process started with the understanding of how the sample stores were classified inside the company. As described in the previous section, the company groups stores containing checkout stands equipment into 21 clusters. However, with the stores exclusion also described in the previous section, only 16 clusters were analyzed.

Clusters are composed by stores having the same checkout stand equipment version. In turn, each checkout stand equipment version can be attributed to stores belonging to a specific dimension range. Hence, larger stores enable larger equipment versions which are able to carry out a larger quantity of products. Logically, larger stores also have more checkouts than smaller ones. Thus, as a result a single cluster may include stores with different amounts of checkouts.

Adding up to the number of checkouts per stores, it was also important to collect information regarding the checkout stands assortment. Following the stores sample organization per

clusters, the type and number of planograms implemented per store are also affected by the store size and number of checkouts, which in turn determines the size and heterogeneity of existing product assortment, both at checkout and store level. The number of single checkout planograms implemented per store varies thus from 1 (smaller sized) to 5 (larger sized) stores, with single planograms being repeated up to eight times in larger stores.

The impulse confectionary subcategory on sale at checkouts of sampled stores was further divided into five sub-categories: (1) chocolates, (2) chewing gums with sugar, (3) chewing gums without sugar, (4) gums, drops and candies, and (5) other impulse confectionary products. In order to simplify the statistical analysis, sub-categories (2) and (3) were merged under a general subcategory of chewing gums. The size of sampled stores affects the heterogeneity of checkout product assortment also indirectly, by having a direct positive relationship with the proportion of impulse confectionary items represented in each planogram (relatively to the other product categories represented). That is, large stores have a larger proportion of such items on sale at the checkout than smaller ones.

Despite the sampled stores differences within the same cluster (e.g. dimension, number of checkouts), the stores' checkout stands assortment is exactly the same, once the stands equipment is exactly the same as well. Therefore, only one store by cluster was analyzed in order to extract from planograms a list of assortment SKU's.

To complement the research, further data regarding the sampled stores' geographical location across the country (e.g. North, South center) was collected.

3.4 Data analysis

All the data previously gathered was merged into the same data set and organized in an intuitive way: by store. It is possible to know every detail about the sampled stores, from its geographical location within Portugal until how many magazines this store have at checkout stands, or much chocolates they sold at this same store area on the first quarter of 2014. However, it is also possible to get aggregated sales and number of SKU's by store or by category. For instance, this compiled data set enables to get information from how much are the checkout stands' impulsive sales (considering that Sonae MC consider the sales of impulse confectionary category as consumers' impulsive purchases) of a specific store or in the sample total, during the first quarter of 2014. Regarding SKU's, the same file also allows the viewer to consult how many SKU's a store has at their checkout stands (considering all the categories displayed there), therefore checking its assortment' heterogeneity level. It even

allows checking the number of SKU's a category displayed at checkout stands has, assessing the heterogeneity level of the category.

In order to proceed with the hypotheses testing, the previously collected information was classified into dependent, independent and control variables, according with the hypothesis under testing.

Dependent variables

In order to test H0, where it is proposed that a higher level of assortment heterogeneity, in terms of SKU's, leads to a higher level of impulsive purchases, it was used as dependent variable the sales of impulse confectionary at checkout stands (Table 3.3.1). This variable was considered to be a measure of impulsive purchases at checkout stands, since Sonae MC classifies the impulse confectionary products displayed at checkout stands as hedonic and, therefore, always bought under impulse.

The same dependent variable was used to test whether there is a direct relationship between the heterogeneity of impulse confectionary category and its own sales at checkout stands, meaning impulsive purchases (H1) (Table 3.3.1).

A different dependent variable was used to test H2. As it is proposed in section 2.5 – Research Hypotheses – hypothesis number two puts forward that higher levels of heterogeneity at impulse confectionary category leads to higher levels of chewing gums sales at checkout stands. Thus, the depended variable used to test this hypothesis was the sales of chewing gums at checkout stands (Table 3.3.1).

Independent variables

The independent variables used in the statistical analysis were constructed through an initial compilation of the overall products displayed at checkout stands for every store under analysis. Next, duplicated SKU's among the same store' checkout stands were deleted. Afterwards, it was possible to attribute to every category displayed at checkout stands a unique number of SKU's as well as for every sampled store.

These continuous variables were recoded into categorical ones. The first variable being recoded was the total number of SKU's at checkout stands (all categories included). Thus, based on three percentiles, the stores were grouped into three categories: high, medium or low checkout stands' assortment heterogeneity. The other variable being recoded was the number of impulse confectionary SKU's at checkout stands. Again, based on three percentiles, the

stores were grouped into three categories: high, medium or low impulse confectionary' heterogeneity.

The variable checkout stands assortment heterogeneity per store was used to test H0, whereas the heterogeneity of impulse confectionary category was used to test H1 and H2 (Table 3.3.1). To conduct multivariate linear regression analysis, other independent variables were used. Testing the checkout stands assortment heterogeneity' effects on impulsive purchases (H0) required that the number of unique SKU's of each category on sale at checkout stands (Table 3.3.2) were defined as independent variables. On the other hand, testing the H1 required that the number of unique SKU's of each impulse confectionary sub-category on sale at checkout stands were defined as independent variables (Table 3.3.2).

Control variables

Additional information collected regarding the sample was used as control variables. Specifically these variables are: store location, store brand (Continente, Continente Modelo, Continente Bom Dia/Bonjour) and store number of checkout stands (reflecting the store dimension) (Table 3.3.1).

Using the variables previously described and with the purpose of empirically testing the hypothesis proposed on section 2.5. – Research Hypotheses – one-way analysis of variance, multivariate linear regressions, bivariate correlations and T-tests were conducted.

Table 3.3.1 – Dependent, independent and control variables for hypotheses testing through ANOVA, correlations and T-tests

Hypothesis testing	Dependent variable	Independent variable	Control variables
H0	Sales of impulse confectionary category	Stores checkout stands heterogeneity level	Stores location, brand and number of checkout stands
H1	Sales of impulse confectionary category	Weight of confectionary category on the checkout stands' overall assortment	Stores location, brand and number of checkout stands
H2	Sales of chewing gums at checkout stands	Impulse confectionary category heterogeneity level	Stores location, brand and number of checkout stands

Table 3.3.2 – Dependent, independent and control variables for hypotheses testing through regression model

Hypothesis testing	Dependent variable	Independent variables	Control variables
H0	Sales level of impulse confectionary category	# SKU's of impulse confectionary # SKU's of salty snacks # SKU's of general merchandising # SKU's of health and beauty care # SKU's of magazines	Stores location, brand and number of checkout stands
H1	Sales level of impulse confectionary category	# SKU's chocolates # SKU's chewing gums # SKU's gums, drops and candies # SKU's other impulse confectionary	Stores location, brand and number of checkout stands

CHAPTER 4: RESULTS

Applying the methodology described in the previous chapter, the hypotheses proposed on section 2.5 were statistically tested. This chapter presents the results of these tests.

4.1 Results of preliminary data analysis

Initial data analysis focused on characterizing the sample under study. To this end, frequency and distribution tests were run. Regarding the stores' geographical distribution, 63,2% of these are located in the Center of Portugal and the most represented Sonae MC' brand is Modelo Continente (72,6% of the stores) followed by Continente (24,8% of the stores). According to the stores' number of checkouts, it can be stated that the majority of the stores (59%) are considered to be of medium dimensions, whereas only 0,9% are of large dimensions. Given the focus on assortment heterogeneity, 34,2% of the stores have a high heterogeneous assortment at their checkout stands and 33,3% have it low. Inside the assortment, the impulse confectionary category follows the same distribution values of heterogeneity levels because ∑ (Salty Snacks, General Merchandising, Health and Beauty Care, Magazines) is almost always constant.

4.2 Results for checkout stands assortment heterogeneity' effects on impulsive purchases

In order to test whether a higher heterogeneity in terms of SKU's at checkout stands leads to a higher level of impulsive purchases at this store area (H0), an ANOVA was conduct on the stores assortment heterogeneity level. Table 4.2.1 present the results obtained from the descriptive statistics analysis and ANOVA test.

Concerning the stores impulsive purchases, high heterogeneity checkout stand' assortments were responsible for generating a higher levels of impulsive purchases (higher levels of impulse confectionary sales were verified for higher levels of assortment heterogeneity). The between-groups test showed that there is a statistically significant difference between groups ($F_{(2, 114)} = 5{,}931$, $P<0.01$), which means that checkout stands assortment' heterogeneity does have a significant effect on impulsive purchases, being the null hypothesis rejected. Focusing on the differences among the various levels of checkout stands assortment' heterogeneity (high, medium, low), T-tests were conducted. This analysis revealed that exists a significant difference of impulsive purchases' levels between stores with high and low heterogeneity at checkout stands ($M_{HighHet} = 19286{,}94$, $M_{LowHet} = 11086{,}13$, $t(77) = 2{,}794$, $p<0.01$), as well as between stores with high and medium heterogeneity ($M_{HighHet} = 19286{,}94$, $M_{MedHet} = 11221{,}40$, $t(76) = 2{,}552$, $p<0.01$). The same fact was not verified when stores classified as

having medium and low levels of heterogeneity were submitted to the same tests (M_{MedHet} = 11221,40 , M_{LowHet} = 11086,13, t (75) = 0,069, p<0.1) (Table 4.2.1).

Table 4.2.1 – Descriptive statistics and ANOVA results for impulsive purchases at checkout stands by type of store heterogeneity level

	Low Heterogeneity Assortment (n=39)	Medium Heterogeneity Assortment (n=38)	High Heterogeneity Assortment (n=40)	Between-groups test
Impulsive purchases	11086,13 (7157,70)	11221,40 (9926,47)	19286,94 (16908,94)	$F_{(2, 114)}$ = 5,931 p<0.01

Moreover, in order to better understand how the level of heterogeneity of each category at checkout stands could affect the level of impulsive purchases registered in each store, the following regression analysis was conducted.

$$Impulsive\ Purchases = \alpha + \beta_1 \#\ SKU's\ impulse\ confectionary + \beta_2 \#\ SKU's\ general\ merchandising + \beta_3 \#\ SKU's\ salty\ snacks + \beta_4 \#\ SKU's\ health\ and\ beauty\ care + \beta_5 \#\ SKU's\ magazines + \varepsilon_i$$

Table 4.2.2 presents the results of the linear regression conducted to understand the impact of the heterogeneity of each category present at checkout stands (number of unique SKU's by category) on the overall level of impulsive purchases.

Table 4.2.2 – Unstandardized betas and significance of the independent variables on the dependent variable

	Unstandardized Beta	Significance
Constant	2258,54	0,93
# SKU's of impulse confectionary	252,17	0,06
# SKU's of salty snacks	- 3368,72	0,16
# SKU's of general merchandising	- 403,29	0,65
# SKU's of health and beauty care	649,282	0,64
# SKU's of magazines	318,67	0,93

Results show that the most significant checkout stands category for impulsive purchases is the number of unique SKU's of impulse confectionary. An increase by one unit of the number of impulse confectionary SKU's at checkout stands is expected to generate 252% more impulsive purchases.

4.3 Results for checkout stands' impulse confectionary heterogeneity' effects on impulsive purchases

In order to test whether higher levels of heterogeneity at the impulse confectionary category leads to higher impulsive purchases (H1), an ANOVA was conducted on the impulse confectionary heterogeneity. Results revealed to be identical to the ones obtained in testing the previous hypothesis (H0) (Table 4.3.1). This occurrence is explained through the fact that the remaining categories displayed at checkout stands (salty snacks, general merchandising, health and beauty care and magazines) are held constant among the sample stores. In addition, it supports H1 by proving that the main influencer of impulsive purchases at checkout stands is the impulse confectionary itself.

Table 4.3.1 – Descriptive statistics and ANOVA results for impulsive purchases at checkout stands by type of impulse confectionary' heterogeneity level

	Low Heterogeneity Assortment (n=39)	Medium Heterogeneity Assortment (n=38)	High Heterogeneity Assortment (n=40)	Between-groups test
Impulsive purchases	11086,13 (7157,70)	11221,40 (9926,47)	19286,94 (16908,94)	$F_{(2, 114)} = 5{,}931$ $p<0.01$

Considering the T-tests conducted on the impulse confectionary heterogeneity, the results were also the same as the ones for H0 testing. This finding additionally supports the impact of the different heterogeneity levels of impulse confectionary category on impulsive purchases. A more significant difference exists between high and low levels of heterogeneity among the category ($M_{HighHet} = 19286{,}94$, $M_{LowHet} = 11086{,}13$, $t(77) = 2{,}794$, $p<0.01$). The opposite effect was noticed between medium and low levels of heterogeneity on impulse confectionary heterogeneity ($M_{MedHet} = 11221{,}40$, $M_{LowHet} = 11086{,}13$, $t(75) = 0{,}069$, $p<0.1$).

Additionally, a regression model was applied to the level of heterogeneity of impulse confectionary at checkout stands. To understand its effects on impulsive purchases by store, the regression was tested as follows:

$$\textit{Impulsive Purchases} = \alpha + \beta_1 \,\#\, \textit{SKU's chocolates} + \beta_2 \,\#\, \textit{SKU's chewing gums} + \beta_3 \,\#\, \textit{SKU's gums, drops and candies} + \beta_4 \,\#\, \textit{SKU's other impulse confectionary} + \varepsilon_i$$

Table 4.3.2 presents the results of the linear regression conducted.

Table 4.3.2 – Unstandardized betas and significance of the independent variables on the dependent variable

	Unstandardized Beta	Significance
Constant	9425,31	0,54
# SKU's chocolates	1313,28	0,08
# SKU's chewing gums	- 742,85	0,08
# SKU's gums, drops and candies	- 2236,99	0,52
# SKU's other impulse confectionary	639,76	0,20

Results reveal that the most significant impulse confectionary sub-category' heterogeneity on impulsive purchases are equally chocolates and chewing gums. Moreover, it can be inferred that an increase by one unit of the chocolates' number of SKU's at checkout stands is expected to generate 1313% more impulsive purchases.

4.4 Results for checkout stands' impulse confectionary heterogeneity' effects on chewing gums sales

Finally, to test H2, where it is proposed that the higher the level of the impulse confectionary category' heterogeneity, the higher the level of chewing gums sales an ANOVA was once again conducted. Results are presented in Table 4.4.1 and revealed that there is a statistically significant difference between groups ($F_{(2,\ 114)} = 6{,}993$, $p<0.01$), meaning that impulse confectionary heterogeneity in terms of SKU's have a significant effect on chewing gums sales (Table 4.4.1).. In order to detect differences among the various levels of impulse confectionary heterogeneity, T-tests were conducted. This analysis revealed that exists a

significant difference of chewing gums sales between stores with high and low impulse confectionary heterogeneity at checkout stands ($M_{HighHet}$ =11661,73, M_{LowHet} =6423,58, t (77) = 2,889 , p<0.001). Results also revealed a significant difference between stores with high and medium heterogeneity in the impulse confectionary category ($M_{HighHet}$ = 11661,73, M_{MedHet} = 6454,10, t (76) = 2,773 , p<0.001). The same fact was not verified when stores classified as having medium and low levels of impulse confectionary heterogeneity were submitted to the same tests. In fact the difference was not considered to be significant (M_{MedHet} = 6454,10 , M_{LowHet} = 6423,58 , t (75) = 0,029 , p<0.1).

Table 4.4.1 – Descriptive statistics and ANOVA results for the sales level of chewing gums sales at checkout stands by type of impulse confectionary heterogeneity level

	Low Heterogeneity Imp. Confectionary (n=39)	Medium Heterogeneity Imp. Confectionary (n=38)	High Heterogeneity Imp. Confectionary (n=40)	Between-groups test
Chewing gums sales	6423,58 (4230,04)	6454,10 (4944,62)	11661,73 (10524,39)	$F_{(2, 114)}$ =6,933 p<0.01

4.5 Summary and discussion of the statistical analyses results

The previous analysis objective is to answer the proposed research question for the present dissertation:

To what extent does product assortment heterogeneity influence impulsive purchases?

Through the literature review presented on Chapter 2, it was possible to understand that product assortment heterogeneity influence impulsive purchases in general, and specifically at checkout stands (Front – End Focus, 2014). Given that, an initial hypothesis suggested that there is a positive relationship between the checkout stands' assortment heterogeneity and impulsive sales originated at this same store area. Results from the statistical analysis supported the expected result. In addition, testes conducted on H0 proven that high heterogenic assortments at checkout stands have the most significant impact on impulsive purchases. Also, there are more significant differences on impulsive purchases between checkout stands assortments of low and high heterogeneity. Relating this fact with stores dimension (measured through the number of checkouts) was possible to state that larger stores consequently have high heterogenic assortments and therefore higher levels of impulsive purchases.

Further research on impulsive purchases revealed that the products displayed at checkout stands having the most relevant influence on impulsive purchases belong to the impulse confectionary category (Hui et al., 2013). Its hedonic characteristics are known as the main influencers of impulsive purchases, thus being these products the major target of impulsive purchases at grocery stores front-end (Hui et al., 2013; Front - End Focus, 2014; Mondeléz International, 2014). According, it was suggested through H1 that high levels of impulse confectionary heterogeneity leads to higher levels of impulsive purchases. Statistical tests conducted on H1 presented equal results to the ones conducted on H0, which can be explained by the constant values verified on the remaining categories' heterogeneity (salty snacks, general merchandising, health and beauty care and magazines) across stores. Hence, the impulse confectionary heterogeneity reveals to be the main influencer of impulsive purchases at checkout stands.

Finally, the last hypothesis tested, suggesting that heterogeneity of the impulse confectionary category has a positive impact on chewing gums sales, was confirmed. Moreover, results showed that a significant difference exists between high and low heterogeneity level regarding the impulse confectionary category.

CHAPTER 5: CONCLUSIONS

5.1 Main insights

Given the psychological nature of impulsive purchases, these occur when a shopper feels a sudden urge to buy a certain product. As it leads to a quick purchase decision-making, in the long-run, this is the type of purchases more profitable for retailers. Moreover, impulsive purchases are more frequently identified at checkout stands. Being this store area identified as impulsive purchases main source, it is relevant for retailers to understand this relation. Several factors are recognized to enhance impulsive purchases, ranging from shoppers' sociodemographic conditions (e.g. age, gender, income), dispositional factors (e.g. Impulsiveness Buying Trait, psychographics) to even purchase situational aspects (e.g. social influence, time available, store environment). However, the factors retailers can more easily control are the situational ones, specifically the store environment. Applying this to the store checkout stands area, assortment appears as the critical factor when the objective is to trigger impulsive purchases. Again, given the different assortment characteristics, the one that proved having the highest impact on impulsive purchases at checkout stands is heterogeneity.

Testing the proposed hypotheses presented on section 2.5, allowed to drawn important conclusions for retail managers. First of all, checkout stands assortment heterogeneity indeed has a significant impact on impulsive purchases. Once this insight is considered valuable by retailers, different results can be achieve through the manipulation of different levels of heterogeneity at checkout stands. Given the resources needed, it would be more pertinent for retailers switching a medium heterogeneity store (217 to 223 SKU's) into a high (224 to 225 SKU's) one. The effects registered from this change reveal to have a more significant impact on impulsive purchases, rather than enlarging a low heterogeneity store (82 to 223 SKU's) into a medium (213 to 223 SKU's) one. The change from low heterogeneity (82 to 223 SKU's) to high heterogeneity (224 to 225 SKU's) also revels to have a significant impact on impulsive purchases, however not as significant as the first change stated.

Concerning heterogeneity levels among the impulse confectionary category, it was discovered that it has a similar behavior with the overall checkout heterogeneity. Hence, all the managerial considerations for the front-end assortment heterogeneity can be applied specifically to the impulse confectionary displayed at this same store area. Manipulating the heterogeneity levels of the impulse confectionary reveal to have a more significant effect on impulsive purchases, when exists a switch between a low level of heterogeneity (141 to 144 SKU's) to a high one.

Moreover, it was noticed that a single SKU increase in the impulse confectionary category generates a 252% increase in checkout stands' impulsive purchases. Also, high levels of heterogeneity among the impulse confectionary, lead to high levels of impulsive purchases. Hence, upon a heterogeneity increase on the impulse confectionary category, the category manager, may also expect a chewing gums' sales increase.

5.2 Limitations and future research

The sample of this research is only composed by stores belonging to one single retailer, Sonae MC. This sample restraint can be a limitation to the study itself, once across different retail formats and brands, different consumer impulsive behaviors through checkout stands may be verified. Another limitation related with the study sample is the stores' geographical location. As consumers' impulsive behavior may suffer several changes across retail formats, it may also occur across countries. The fact the stores under analysis are only located in Portugal (islands included), no not enable the extrapolation of accurate conclusions for retailers located out boundaries.

A last limitation concerns data availability. Among all categories displayed at checkout stands, only impulse confectionary has exclusive SKU's for this specific space. All the other categories (salty snacks, general merchandising, health and beauty care and magazines) have double implementation, meaning that their SKU's displayed at checkout stands can be found in another store area. As a consequence, this does it cannot be concluded whether the shopper picked up the product from the store shelves or checkout stands. Therefore, it is not possible to attribute a sales level for this SKU's to checkout stands. In case, Sonae MC had this information available, checkout stands' assortment heterogeneity effects could have been tested not only for these categories, but also for different types of purchases occurring at this store area (e.g. reminders).

Still, considering the information available, other assortment' characteristics effects on impulsive purchases at checkout stands can be further tested. For instance, the amount of each SKU displayed and their respective positions on the display shelves.

A more extended and accurate research on this specific topic can ultimately result in a model prediction of optimal levels of checkout stands' assortment characteristics that, not only optimize the checkout stand' space, but also maximizes impulsive purchases' levels and therefore retailers' profits.

CHAPTER 6: APPENDICES

Appendix 1 - Shoppers' time looking at checkout stand end cap (Front - End Focus, 2014)

Appendix 2 - Shoppers' time looking at checkout stand left (Front - End Focus, 2014)

Appendix 3 - Shoppers' time looking at checkout stand when a secondary display is present (Front - End Focus, 2014)

Appendix 4 - Conversion rates of front-end traffic into buyers (Front - End Focus, 2014)

CHAPTER 7: REFERENCES

1. Amos, C., Holmes, G., Kenenson, W. (2013), "A meta-analysis of consumer impulse buying", *Journal of Retailing and Consumer Services*, 21 (2014) 86-97

2. Baumeister, R. (2002), "Yielding to temptation: Self-control failure, impulsive purchasing, and consumer behavior", *Journal of Consumer Research, 28,* 670-676.

3. Beatty, S., & Ferrell, E. (1998), "Impulse buying: Modeling its precursors", *Journal of Retailing, 74(2),* 169-191.

4. Bell, D. R., Corsten, D., & Knox, G. (2010), "From point of purchase to path to purchase: How preshopping factors drive unplanned buying", *Journal of Marketing, 75*(1), 31-45.

5. Bellenger, Danny N., Dan H. Robertson, and Elizabeth C. Hirschman (1978), "Impulse Buying Varies by Product", *Journal of Advertising* Research, 18 (6), 15-18.

6. Deloitte (2013), "Global Powers of Retailing 2013"

7. Front-End Focus (2003), "Best Practice Renderings of Front-End Checkout Lanes"

8. Front-End Focus (2010), "Maximizing Checkout Performance"

9. Front-End Focus (2014), "Optimizing Checkstand Merchandising: Maximizing Shopper Interaction in a New Era of Technology"

10. Grewal, Dhruv and Michael Levy (2007), "Retailing research: Past, present, and future", *Journal of Retailing*, 83 (4, 2007) 447–464.

11. Hirschman, Elizabeth C. and Morris B. Holbrook (1982), "Hedonic Consumption: Emerging Concepts, Methods and Propositions", *Journal of Marketing*, 46, 92-101.

12. Hoch, Stephen J. and George F. Loewenstein (1991), "Time- Inconsistent Preferences and Consumer Self-Control", *Journal of Consumer Research*, 17 (March), 492-507.

13. Hui, S. K., Huang, Y., Suher, J., & Inman, J. J. (2013), "Deconstructing the "First Moment of Truth": Understanding Unplanned Consideration and Purchase Conversion Using In-Store Video Tracking", *Journal of Marketing Research, 50*(4), 445-462.

14. Inman, J. J., Winer, R. S. and Ferraro, R. (2009), "The Interplay Among Category Characteristics, Customer Characteristics, and Customer Activities on In-Store Decision Making", *Journal of Marketing*, vol. 73 (September 2009), 19-29

15. Inman, J. J., Ferraro, R. and Winer, R. S. (2004), "Where the Rubber Meets the Road: A Model of In-store Consumer Decision –Making" Working Paper, Marketing Science Institute, California Marketing

16. Kantar Worldpanel (2010), "2010 First Semester Report"

17. Kantar Worldpanel (2013), "2013 Annual Report"

18. Kollat, D. T., & Willett, R. P. (1967), "Customer impulse purchasing behavior", *Journal of Marketing Research, 4*(1), 21-31.

19. Kollat, D. T., & Willett, R. P. (1969), "Is impulse purchasing really a useful concept for marketing decisions?", *Journal of Marketing, 33*(1), 79-83.

20. Lee, Leonard and Ariely, Dan (2006), "Shopping Goals, Goal Concreteness, and Conditional Promotions", *Journal of Consumer Research*, vol. 33 (June 2006)

21. Miranda, Mario J. (2008), "Determinants of shoppers' checkout behaviour at supermarkets", *Journal of Targeting, Measurement and Analysis for Marketing*, 16**,** 312 – 321.

22. Nielsen (2008), "Anuário Food 2008"

23. Point Of Purchase Advertising International & Meyers Research Center (1995), "Measuring the In-Store Decision Making of Supermarket and Mass Merchandise Store Shoppers", *The 1995 POPAI Consumer Buying Habits Study*.

24. Point Of Purchase Advertising International (2012), "2012 Shopper Engagement Study"

25. Nancy M. Puccinelli, Ronald C. Goodstein, Dhruv Grewal, Robert Price, Priya Raghubir and David Stewart (2009), "Customer Experience Management in Retailing: Understanding the Buying Process", *Journal of Retailing*, 85 (1, 2009) 15-30.

26. Reinartz, W., Dellaert, B., Krafft, M., Kummard, V., Varadarajan, R., (2011), "Retailing Innovations in a Globalizing Retail Market Environment", *Journal of Retailing*, 87S (1, 2011) S53–S66.

27. Rook, D. (1987), "The buying impulse", *Journal of Consumer Research, 14*, 189-199.

28. Rook, D., & Fisher, R. (1995), "Normative influences on impulsive buying behavior", *Journal of Consumer Research, 22*, 305-313.

29. Saunders, M. L., P. And Thornhill, A. 2007. *Research Methods for Business Students*, Prentice Hall.

30. Sonae MC (2014), "Internal Report"

31. Stern, Hawkins (1962), "The significance of Impulse Buying Today", *Journal of Marketing*, (April), 59-62.

32. Sharma, P., Sivakumaran, B., Marshall, R., (2010). "Impulse buying and variety seeking: a trait-correlates perspective", Journal of Business Research 63(3),276–283.

33. Solomon, M (2011). "Consumer Behavior",

34. Vohs, K., & Faber, R. (2007), "Spent resources: Self-regulatory resource availability affects impulsive buying", *Journal of Consumer Research, 33*, 537-547.

35. Wood, Michael (2005), "Discretionary unplanned buying in consumer society", *Journal of Consumer Behaviour*, vol. 4, 4, 268-281