

ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Master Thesis Economics and Business in Marketing

Master's Thesis

A cross-market study: The effect of dual-channel management on customer satisfaction

Name student: Ricardo Blaak

Student ID number: 545159

Supervisor: M. van Crombrugge,
Assistant Professor of Marketing

Second assessor: P. Gorji
PhD Candidate

Date final version: 29.1.2021

ABSTRACT

Direct-to-Consumer approaches by manufacturers have become a rule rather than an exception. This phenomenon changed original business models and could raise competition between the manufacturer and its distributors. The objective of this study was to investigate the effects of dual-channels on end-customer satisfaction in a Business-to-Consumer context. Furthermore, we tried to explain these effects through perceived quality by customers. The concept of dual-channel management has existed for many years and several research streams contributed to our existing knowledge (e.g. streams about multichannel- and omnichannel retailing and dual distribution management). However, as far as we are aware, no study has been conducted in the field of dual-channel management which tested and explained the relationship with customer satisfaction through perceived quality. We set up an experimental setting with different channel conditions in the Netherlands and Curaçao. In addition, attention is given to control for demographic or cultural variations between the samples.

In this paper, we encountered unexpected results. Dual-channels have a positive direct and indirect effect on customer satisfaction. Based on this study, manufacturers and especially those who have no dual-channel approach yet, should consider the positive effects of channel deployment on customer satisfaction. In addition, intrinsic product- and extrinsic product quality were found to be significant predictors of customer satisfaction. However, it is critical to distinguish levels of competition, as our results apply to low levels of competition only.

ACKNOWLEDGEMENTS

With this thesis I make the last step towards completing my Master's degree in Economics and Business, Marketing at the Erasmus University in the Netherlands.

Throughout the writing process of this thesis I have received great support and comments. First, I would like to thank my supervisor, Dr. Michiel van Crombrugge. In my opinion, only he posited some real business issues to research. In addition, I thank him for his professional supervision under which I further developed myself in the academic field. I want to thank Paniz Gorji for being my second reader.

I also want to acknowledge Prof. Dr. Vardit Landsman and Prof. Dr. Stefan Stremersch who both gave the seminar 'Developing and Marketing New Products'. In this interactive course, multiple times the connection with Direct-to-Consumer approaches by manufacturers was made. I consider these conversations valuable and it directly benefited my paper.

In particular, I would like to dedicate this work to my wife Annelien. It was a special year and a lot happened to us. Thank you for never complaining during the hours I worked on my study. In addition, a special thanks goes to my parents for their wise counsel. They were always there for me with their support and encouragements. Finally, thank you to all respondents who filled in the survey in the Netherlands and Curaçao.

I hope reading this thesis will be interesting for you.

Ricardo Blaak

Rotterdam, January 2021

Table of Contents

ABSTRACT	2
ACKNOWLEDGEMENTS	3
CHAPTER 1.....	6
INTRODUCTION	6
1.1 Managerial relevance	8
1.2 Academic relevance	8
1.3 Research question	9
1.4 Thesis structure	10
CHAPTER 2.....	11
LITERATURE REVIEW	11
2.1 Channels	11
2.2 Dual distribution.....	12
2.3 Competition from dual distribution	12
2.4 Opportunistic behaviour	14
2.5 Quality & satisfaction	15
2.6 Product quality	15
2.7 Service quality	17
2.8 Channel experiences	18
CHAPTER 3.....	20
METHODOLOGY	20
3.1 Questionnaire.....	20
3.2 Data collection.....	20
3.3 Measurements	21
3.4 Screening the data	26
3.5 Procedure	26
3.6 Analysis.....	26
3.7 Reliability.....	28
CHAPTER 4.....	29
RESULTS.....	29
4.1 Descriptive Statistics and Assumptions Check.....	29

4.2	Study 1: Linear regression	33
4.3	Study 2: Mediation analysis	36
CHAPTER 5.....		40
GENERAL DISCUSSION.....		40
5.1	Implications	42
5.2	Limitations.....	43
5.3	Further research.....	44
Bibliography		45
Appendix		51
Appendix I: Product Quality and Service Quality in-depth explained		51
Appendix II: Survey questions.....		52
Appendix III: Reliability and consistency tests		54
Appendix IV: The Assumption of Homoscedasticity: Study 1 and Study 2		55
Appendix V: The Assumption of Normality: Study 1		56
Appendix VI: Regression analysis per model		57
Appendix VII: PROCESS Output per model		60

CHAPTER 1

INTRODUCTION

With the rise of digitalisation and the advent of the online channel, business has rapidly changed in recent decades. As a result, the channel set up of firms changed significantly, especially in retail markets (Verhoef, Kannan & Inman, 2015), in which traditional brick-and-mortar players have added online channels to their distribution portfolio. At the same time, more and more manufacturers are changing their channel format into dual distribution. This refers to the situation in which firms¹ sell products to end-customers directly, as well as through their independent distributor networks (Sa Vinhas & Heide, 2015). This is not only a major change for the manufacturer and distributor, but one for the end-customer as well. This study aims to measure the effect of dual-channel management² on the satisfaction of customers.

There are three types of channel structures to consider. Tesla follows the first example: it only focuses on Direct-to-Consumer (D2C) sales, as Tesla bypasses traditional dealerships with its own sales channels; this is known as forward integration (John & Weitz, 1988). Second, Sony represents an opposite example; operating only via indirect sales channels. While Tesla operates through company-owned channels, Sony has chosen to work with distributor networks. Finally, Nike's channel set up is a combination of the previous examples. The company combines D2C approaches with its established retail network. Nike's revenue stream from D2C activities grew from 3.4 billion dollars in 2012 up to 11.8 billion dollars in 2019 (Nike, 2012; Nike, 2019). These activities included both sales via Nike's direct webshop and direct stores. The channel strategy of Nike compared to Sony is relevant in this introduction, because interestingly different firms use different channel setups. This study contrasts only the last two scenarios. It measures the difference in satisfaction of customers who purchase products from household electronics company Miele in a dual-channel environment versus a single-channel retail-only environment.

¹ For simplicity, we refer as much as possible to the brand as manufacturer and to the reseller as distributor.

² We refer mostly to dual-channels and consider dual distribution a result of dual distribution management.

Channels for D2C approaches may be offline or online. These typically include a store, flagship store and website (Neslin & Shankar, 2009; Verhoef et al., 2015). As Kozinets et al. (2002) have noted, brands have increasingly turned to physical stores that serve an enduring and engaging consumer experience to attract customers. In line with this thought, manufacturer-owned flagship stores are opened. For example, think about Nike and Apple who opened such stores on A-locations. Our empirical example, Miele, also opened such an 'experience center' and communicates that, on these locations, everything is about experiencing the brand and her products (Miele, n.d.). This store serves primarily as a branding instrument through experiences rather than as a source of revenue and profit. Corresponding, Dutta et al. (1995) mention that sales via a direct channel are less efficient than an indirect channel, since the latter has more brands and products in its portfolio to cover its costs. This may be true for stores and flagship stores because of shelf space and portfolio limitations. However, a firm can also experience advantages from direct sales. Miele also adopted a direct online channel. The manufacturer could benefit from this, as he has no limited shelf space and may also experience higher margins due to lower costs (Verhoef, Neslin & Vroomen, 2007). Additionally, since the manufacturer omits third parties, it eliminates margins of the middle man and experiences higher margins once again (Yue & Liu, 2006; Deloitte, 2015).

Having explained D2C and its possible motivations, the role of the distributor will be discussed in more detail. Besides distributing products for brands, the distributor has another important function: collecting customer data. Consequently, instead of the brand itself, distributors gain valuable insights about a brand's customer. For manufacturers, the main problem is that distributors represent multiple brands with related products (Dutta et al., 1995). Since the distributor is not distributing products for a brand exclusively, it may be a risk to depend only on them in terms of customer relationship management. This is an incentive for brands to initiate D2C approaches. In addition, according to Deloitte (2015), new digital tools empower brands to go D2C and collect customer data on their own.

There is reason to believe that D2C initiatives may affect customer satisfaction. On the one hand, brands are able to engage more directly with customers and can refine their offerings based on the collected data. Buttle and Maklan (2019) supported this. Due to customer relationship management, brands can collect customer data and may subsequently increase

customer satisfaction and loyalty with new insights. On the other hand, distributors fear that manufacturers could replace their role in the distribution network, with direct sales channels. This fear may lead to opportunistic behaviour and consequently lead to lower levels of efforts (Sa Vinhas and Heide, 2015). Indirectly, the customer may experience this in their satisfaction with delivered product and service quality. This phenomenon is why we investigate how a dual structure affects customer satisfaction.

1.1 Managerial relevance

Emerce (2018) reports a study carried out under worldwide manufacturers, which suggests that D2C is becoming a rule rather than an exception. Of the study population, 47% of manufacturers stated that they have a webshop to sell products directly to the end-customer. From a manufacturer perspective, this new revenue stream safeguards their future and thus makes them less dependent on the distributor. However, this changes the original business model and raises competition between traditional partners (Emerce, 2018). In addition, from a law perspective, we see that manufacturer involvement could turn into illegal activities as well. Manufacturers could violate the law by prescribing fixed minimum prices, imposing constraints regarding selling activities to consumers in specific areas (Maverick Advocaten, 2020). By adding commercial pressure (temporarily blocking supplies or bank accounts), the distributor's condition becomes dire.

This paper is especially relevant for managers in manufacturer firms. They should be aware that adding a direct channel in the manufacturer's interest could ultimately harm perceptions regarding the brand. In this thesis, we limit ourselves to customer satisfaction. However, the traditional view on customer satisfaction is that it influences the customer's attitude towards a brand and their future purchase intentions (Oliver, 1980; Anderson & Sullivan, 1993). Since companies benefit from satisfied customers, it is of importance to know if a dual-channel strategy really benefits the customer and with that, the manufacturer.

1.2 Academic relevance

Numerous academic studies have contributed to our knowledge about dual-channel systems. There are three main research streams to consider in this domain. First, there are contributions about dual-channels in a Business-to-Business (B2B) context. See for example the research conducted by Sa Vinhas and Heide (2015) and Sa Vinhas and Anderson (2005). Describing the causes and consequences of channel conflicts such as competition and

distributor opportunism, is considered essential. Second, another stream focuses on the omnichannel experience in a Business-to-Consumer (B2C) setting. This stream is relevant since this study focuses on consumer markets. For instance, Verhoef et al. (2015) observe the shift from multi-channel retailing towards omnichannel retailing. They argue that omnichannel retailing broadens the view on retailing. Finally, research focuses on key issues and challenges in dual-channel management such as channel conflicts with distributors and how to avoid them. Research from Neslin et al. (2006) and Neslin and Shankar (2009) contribute to this theory.

According to Neslin et al. (2006), little academic attention has been given to the distributor's perspective on dual distribution channels. It is important to obtain more knowledge about the effects of dual distribution on distributor performance. There is theoretical evidence that when a distributor experiences downstream competition, this reduces her willingness to invest in services for customers (Sa Vinhas & Heide, 2015). This damages customer satisfaction ultimately.

This research measures performance in single- and dual-channel settings along the lines of product and service quality. Furthermore, this research tests the customer satisfaction with product and service quality. Quality and satisfaction will be measured with a questionnaire shared online in a dual-channel (the Netherlands) and single-channel (Curaçao) environment. The objective is to examine whether there is a significant difference (and if so, in what direction) in perceived quality and satisfaction between the two settings. According to the author, such a cross-market comparison based on quality and satisfaction has not yet been conducted.

1.3 Research question

The goal of this Master's Thesis is to delve into the relation between dual-channel management and customer satisfaction. This research examines whether the level of customer satisfaction is higher or lower if the brand sells its products directly as well as indirectly versus only indirectly. Therefore, the main question of this research is:

What effect does dual-channel management have on product and service quality and how does this affect customer satisfaction?

The main question is answered through different sub-questions.

RQ1: In what way is it possible to measure customer satisfaction in a dual distribution structure?

RQ2: To what extent will customer satisfaction in a dual structure differ compared to a non-dual structure?

RQ3: To what extent does the number of channels used in the consumer’s purchase process influence the level of customer satisfaction?

Conceptual model

This section commences with the conceptual framework, so it is clear for the reader which variables and underlying relationships will be addressed.

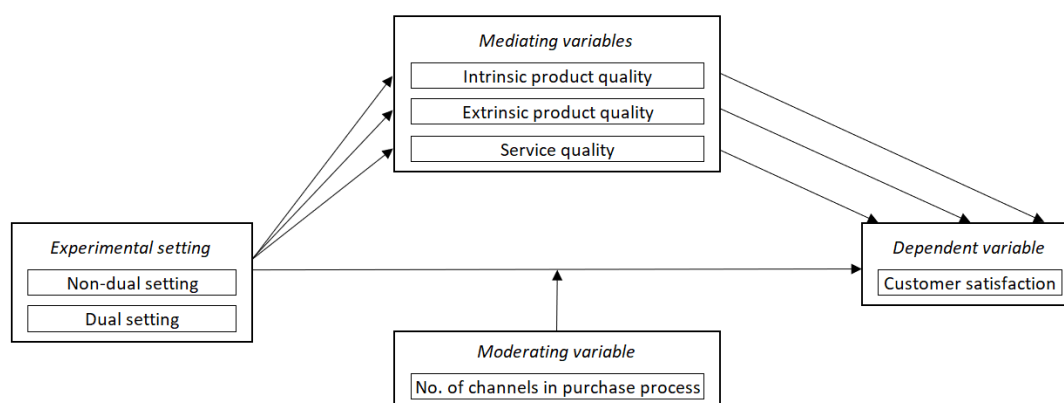


Figure 1: Conceptual model

1.4 Thesis structure

Throughout this paper the sequence of chapters is ordered as follows. In the next chapter, literature related to the sub-questions is discussed. During this literature review, hypotheses are formulated as well. Thereafter, Chapter 3 elaborates further on the methodology, data collection and the data-analysis is explained. Subsequently, the results of the analysis will be presented in Chapter 4. Using results from different statistical tests, the hypotheses will be rejected or supported. Finally, Chapter 5 compares the expected results with the actual findings, followed by limitations and recommendations for future research.

CHAPTER 2

LITERATURE REVIEW³

During the introduction of this study we emphasized on different types of distribution by manufacturers. Additionally, some motives for dual distribution were stated. We are now further interested in the concept of dual distribution and how this differs between B2C (which this study focuses on) and B2B. This chapter provides a broad understanding about relevant concepts concerning dual distribution. The following subjects will be covered: channels, dual distribution, competition in dual-channels, tensions in channels, customer satisfaction, product quality, service quality and channel experiences. With this sequence we aim to clarify the phenomenon of dual distribution and then shine a light on its effects. Subsequently we clarify that product quality and service quality can be used to derive channel performance and predict customer satisfaction.

2.1 Channels

Previous studies have mainly acknowledged three types of channels (Konus, Verhoef & Neslin, 2008; Verhoef et al., 2015): first, the traditional offline channels such as a store or a showroom. Second, the online channel appeared with the advent of the internet. Besides the well-known webshop, this disruptive development also brought additional digital channels such as mobile channels and social media platforms. The traditional direct marketing channel is considered the third type. For example, think about catalogues. Besides this ad hoc description per channel type, a more overall classification is also possible. Namely, here the distinction could be made between manufacturer-owned direct channels and indirect channels. Several studies (Sa Vinhas & Anderson, 2005; Dumrong Siri et al., 2008; Sa Vinhas & Heide, 2015) made this distinction and it is especially relevant for studies focusing on competition between manufacturer- and distributor-owned channels. Since this thesis is related to competition among channels, it is important to keep both kinds of channels in mind. Furthermore, Neslin et al. (2006, p. 96) define a channel in a multichannel context “*as contact points, or a medium through which the firm and the customer interact*”. They emphasise the term *interaction* via channels. In their opinion, the interaction between customer and brand

³ Most sections are written from a business perspective. However, the data is retrieved from customers and therefore it is desired to take into account their perspective as well. Therefore, the reader may experience a shift in point of view.

cannot appear with one-way communication (such as TV advertisements or catalogues from the previous paragraph). According to Baxendale, Macdonald and Wilson (2015), customers do have interactions: directly and indirectly. In other words, they expanded the definition of Neslin et al. (2006) because contact points with a brand are not limited to channels but can also arise from peers' Word-Of-Mouth. In line with this emerging landscape of channels, Lemon and Verhoef (2016) state that interaction between customer and firm occurs through multiple channels.

2.2 Dual distribution

As noted before, this research focuses on B2C. Frazier (1999) came up with a definition of dual distribution which fits B2C markets, i.e. *"when more than one primary channel is used to sell the same product line to the same target market"* (p. 232). This differs with dual distribution in a B2B context, where emphasis lies on the deployment of market separation when multiple firms are offering the same product to the same customer (Dutta et al. 1995; Sa Vinhas & Heide, 2015). However, in B2C markets it is broadly accepted and desired that multiple companies offer similar products to the same target group. Neslin and Shankar (2009) consider constraints on channel usage in B2C markets as dangerous for turning off the clientele. On the other hand, this way of channelling customers is accepted and applied in B2B markets. Customers can get assigned (based on their geographic location) to a distributor (Sa Vinhas & Heide, 2015). Regarding this matter, the definition by Frazier is acknowledged, but in the light of this research the term "channel" is expanded. A dual structure includes channels through which the manufacturer sells directly to end-customers and through independent distributors.

2.3 Competition from dual distribution

In the B2B research stream, some articles argue that competition from dual distribution may influence customer satisfaction positively. According to Sa Vinhas and Anderson (2005), customers could choose the channel that best fits their needs. In support, Sa Vinhas and Heide (2015) argue that an extra channel deployed by the manufacturer will increase a product's market exposure, increase its availability to customers and decrease customer search cost. Furthermore, Li, Gilbert, and Lai (2014) name the loss of monopoly power in the market for the distributor as well and the possible decrease in market prices. For businesses, higher competition leads to lower level of margins and according to Beersma et al. (2003), this may

incentivise companies to become more efficient. Moreover, they see competition as a driver behind innovation. Conversely, efficiency and innovation do benefit the final customer still. From a customer perspective, these elements plead for higher satisfaction due to competition.

However, in contrast to earlier arguments, there is also a downside of dual-channel management. Although the arguments so far pointed at a positive effect from distributor to customer (such as better prices), we think these ignore long-term negative effects. As noted before, cooperation in dual-channels is more problematic as the competitor is the partner simultaneously. For the distributor, this is an uncomfortable position to operate in.

In early research, Frazier (1999) expected inter-brand competition, forthcoming from dual-channel management, to become a major problem. He expected this to cause diminished levels of support in the direct and indirect channels. A possible reason for this could be that conflicts result in less or no coordination between channels. This is later supported by Sa Vinhas and Heide (2015). Since support activities may influence satisfaction via channel experience, it is necessary to clarify here what is meant by diminished levels of support and what the underlying reasons could be.

Sa Vinhas and Heide (2015) investigated the effects from concurrent channels. Our conceptualization drives on their finding that there is a direct effect between dual-channel management and customer satisfaction. They find proof for this, with two hypotheses. Namely, within a dual-channel setting, distributor exposure to manufacturer-owned channels leads to lower distributor performance. Similar to B2B, the context in which Sa Vinhas and Heide (2015) conducted their study, we believe that exposure occurs as well in B2C markets, as there is no market separation. Thus, we expect the same effect. Sa Vinhas and Heide (2015) posit this decrease in satisfaction along the lines of resource constraints, which limit the distributor's marketing tools. In addition, competition lowers the distributor's incentive to cooperate and coordinate marketing activities. Secondly, distributor exposure discourages the distributor from investing in the customer relationship due to concerns about being replaced by the manufacturer and losing control of their customer relationships. As a result, distributors may show opportunistic behaviour. This comes to the surface in the form of reduced willingness to cooperate with the manufacturer and this will limit channels to satisfy customer needs. Tsy, Wang and Zhang (2019) investigated opportunism and supported the

idea that tensions between manufacturer and distributor are likely to intensify if the same customer is targeted. The following hypothesis has been proposed:

H1: Dual-channel management affects customer satisfaction negatively.

2.4 Opportunistic behaviour

Forthcoming from concerns about being replaced by the manufacturer and losing control of their build-up customer relationships, distributors may show opportunistic behaviour. Williamson (1975, p. 6 in Zheng et al., 2015) defines opportunistic behaviour as “*self-interest seeking with guile*”. According to Zheng et al. (2015), distributors can behave opportunistically towards manufacturers in certain ways. They fail to meet promises and obligations, for example by withholding or distorting information. Specifically, this could lead to free-riding behaviour and quality standards (such as service level agreements) which are then not met. Kidwell, Nygaard and Silkoset (2007) have found that opportunistic behaviour in a franchisor network could lead to lowered product and service quality. Namely, the franchisee can freeride on the franchisor’s brand by cutting its own costs. Going back to Hypothesis 1, we assumed to find a direct negative effect of dual-channel management on customer satisfaction, due to resource constraints and less coordination between channels. However, the findings of Kidwell et al. (2007), suggests that the relationship between dual-channel management and customer satisfaction is not a direct effect but operates through quality. Quality was not mentioned by Sa Vinhas and Heide (2015) as a variable through which a loss in satisfaction can be explained.

The customer will probably not notice tensions between distributor and manufacturer directly, but indirectly. Such tensions may come to the surface in terms of a product and its supplementing service. Among others, Neslin and Shankar (2009) and Kidwell et al. (2007) argue that channel performance can manifest itself in terms of price, services and the product itself. From a purchase decision perspective, Dumrongsiri et al. (2008) also point out price and service quality as determining factors. It is interesting to read that differences in product quality are expressed mostly in terms of price and the physical product itself. However, the literature about product quality goes beyond the general description. Papers from this stream (such as Archer and Wesolowsky, 1996) teach us that a product includes intrinsic and extrinsic attributes.

The most important insight from this section is that we interpret Kidwell et al. (2007) and Archer and Wesolowsky (1996) as follows: a loss in customer satisfaction can also be explained through intrinsic quality, extrinsic quality and service quality. Therefore, in our route to build up the hypotheses for the mediation path we continue with an explanation about quality in general and subsequently a more in-depth explanation for the three types of quality. Afterwards, the hypotheses will be presented.

2.5 Quality & satisfaction

The vague concept of quality is often mistaken with nouns like goodness, luxury, shininess and weight (Crosby, 1979 in Parasuraman, Zeithaml & Berry, 1985). Although it is challenging to define this concept and to assign determinants, the importance of quality for manufacturers and customers is unambiguous (Parasuraman et al., 1985). Anderson and Zeithaml (1984) found proof that quality benefits companies in terms of market share and return on investment.

To further clarify the definition, Gummesson (1988) argued from a product perspective that quality is about the extent to which a product or service conforms to the requirements. This is in line with customer satisfaction which is *“the consumer’s response to the evaluation of the perceived discrepancy between prior expectations and the actual performance of the product as perceived after its consumption”* (Tse & Wilton, 1988, P.204). In other words, customer satisfaction depends, among other things, on the question whether an organisation accomplishes to deliver product and service quality as expected. In addition to customer satisfaction, dissatisfaction with product and service quality may also occur. In that case, the organisation’s quality output disconfirms the customer’s expectations. Gummesson (1998) suggested the concept of customer-perceived quality. As quality is perceived through the eye of the customer it is often considered subjective quality. This research drives on subjective quality. Since this Master’s Thesis studies the extent to which customers perceive quality as high or low, subjectivity will be involved

2.6 Product quality

In their study, Archer and Wesolowsky (1996) state that definitions of product quality refer to a higher level of abstraction and consist of a diversity of attributes. According to their explanation, these need to be distinguished in intrinsic and extrinsic product attributes. It is important to acknowledge the following items for product- and service quality. These items

are described as attributes as well. On the one hand, the physical product includes the intrinsic attributes. Customer experiences with these attributes are generated with the actual usage or consumption. In his research, Garvin (1987) manifests the eight items of product quality to compete on. The eight items are: *performance, features, reliability, conformance, durability, serviceability, aesthetics* and *image*. On the other hand, extrinsic attributes are related to the product but do not include the product itself. The extrinsic product attributes are: *price, warranty, advertising* and *brand name* (Morgan, 1984 in Archer & Wesolowsky, 1996). An explanation per item has been written in Appendix I. Finally, Devaraj et al. (2001) state that both constructs of quality are interrelated to each other. This sounds plausible because, for instance, a car owner receives services during different touchpoints in its purchase process (e.g., when the product is purchased, undergoes maintenance or fails to start).

Literature points out that dual-channel management and distributor opportunism can affect some of the aforementioned items of product quality. According to Zeng et al. (2015), it could be that manufacturers, who are seeking more economic benefits, increase the number of outlet channels. Even though competing *prices* (with distributors) may be positive for the customer, we think the negative effect applies for a broader set of items. Trada and Goyal (2017) argue that such a pricing strategy is perceived unfair by a distributor, provoking him to express opportunism. This, in turn, negatively affects items as *advertising* and *brand name*. In addition, competition between dual-channels limits the distributor's marketing tools and their incentive to coordinate marketing activities (Sa Vinhas and Heide, 2015; Trady and Goyal, 2017). In this thesis, this is classified under the item *advertising*. Furthermore, the *brand name* is also affected through distributor opportunism. Kidwell et al. (2007) suggest that a lack of contribution to brand performance by the franchisee (in this context: a distributor) hurts the customer's overall brand perception. This is also related to intrinsic product quality. Namely, through opportunistic behaviour performance that deviates from chain standards. From a customer's perspective, this will harm the consistent *image* a brand carries (Zeng et al., 2015). The following hypotheses have been proposed for the mediation through intrinsic and extrinsic product quality:

H2: Dual-channel management causes a loss in intrinsic product quality.

H3: Dual-channel management causes a loss in extrinsic product quality.

H4: Dual-channel management causes, via intrinsic product quality, a loss in customer satisfaction.

H5: Dual-channel management causes, via extrinsic product quality, a loss in customer satisfaction.

2.7 Service quality

Parasuraman et al. (1985) argued that expected quality strongly influences the way that customers perceive the quality of the service. Something similar was mentioned in section 2.5: “*quality is about the extent to which a product or service conforms the requirements*”. This implies that a customer has expectations indeed. Parasuraman et al. (1985) continue to state that the quality of the service represents a factor of the magnitude and direction of the gap between expected and perceived service. Similar to product quality, when service meets expectations, quality is generated. In order to further specify service quality, Parasuraman, Zeithaml and Berry (1988) came up with five attributes of service quality. Archer and Wesolowsky (1996) used the attributes to conceptualize service quality for measurement as well. The attributes are: *tangibles*, *reliability*, *responsiveness*, *assurance* and *empathy*. An explanation per item has been written in Appendix I.

It was also found that dual-channel management and distributor opportunism negatively affects these items of service quality. Kidwell et al. (2007) suggest that distributor opportunism leads to lowered levels of support for items *tangibles* and *responsiveness*. For instance, it was taken into account how physical elements of a service were managed. Additionally, it was studied how direct and indirect channels handled complaints and solved problems. The following hypotheses have been proposed for the mediation through service quality:

H6: Dual-channel management causes a loss in service quality.

H7: Dual-channel management causes, via service quality, a loss in customer satisfaction.

2.8 Channel experiences

In B2C markets, customers are not bound to choose only one channel in their purchase process. Namely, a mix is allowed as there is no market separation. Among others, Neslin et al. (2006) and Lemon and Verhoef (2016) state that customers form experiences throughout their journey among different channels and in different purchase phases. Subsequently, they propose that customers evaluate previous channel experiences and this will ultimately give feedback to present opinions and preferences towards a brand. According to Lemon and Verhoef (2016), such attitudes and perceptions can be assessed by firms with customer satisfaction. In this paper, differences in satisfaction across different channel structures (thus single- and dual-structure) are studied. To do so, this literature review is based on papers from multichannel and omnichannel streams. Consequently, this gives rise to the question whether such multichannel outcomes will sustain in omnichannel circumstances. Specifically, retail has changed significantly in the last twenty years. For instance, the birth of the Internet enabled firms to set up an extra online channel besides their physical stores. Firms who did this had, according to Neslin et al. (2006), a multi-channel structure. With the rise of mobile devices (such as tablets and phones) and social media channels, a wide range of online channels emerged. It then became important to provide a seamless experience through online and offline channels. This represented the beginning of the omnichannel experience (Neslin & Shankar, 2009; Brynjolfsson et al., 2013; Lemon & Verhoef, 2016). Omnichannels do have an ordering of touchpoints which form the total brand experience and they interact mutually. Multichannels operate independently and thus provide a different experience per channel.

Theoretically, an omnichannel structure may thus sound promising. However, the degree of integration in practise is debated in the literature. Namely, channels would often be managed separately with low integration (Verhoef, 2012 in Payne, Peltier, Barger, 2017). Supporting such an assertion, Ailawadi and Faris (2017) state that forming a widely supported omnichannel is not easy to achieve. It is even harder for brands to do this across multiple independent organisations. The multichannel research stream teaches that cross-channel integration is beneficial for customers and that satisfaction is enhanced if a seamless experience between channels is provided (Montoya-Weiss, Voss & Grewal 2003; Cao & Li, 2015). From an omnichannel perspective, Sorkun, Huseyinoglu and Börühan (2020) found

similar results: when a brand is capable of offering an omnichannel experience, customer satisfaction would be affected positively. This argumentation represents the direct link between the number of channels and customer satisfaction. There is also argumentation for the interaction effect. That is, why the existence of a dual-channel aggravates the already negative effect of the number of channels on customer satisfaction. The negative effect in dual-channels is expected to be bigger as competition discourages distributors to cooperate with their manufacturer (Sa Vinhas and Heide, 2015). Thus, we recognize 1) the general omnichannel issue where distributors do not cooperate with other distributors and 2) the dual-channel issue where distributor and manufacturer do not combine forces. This gives reason to test the moderating role of channel usage on the effect between dual-channel management and customer satisfaction. This results in the following hypothesis.

H8: The negative effect of dual-channel management on customer satisfaction is higher the more channels are used in the purchase process.

CHAPTER 3

METHODOLOGY⁴

This chapter describes the research design that is applied in this study. Additionally, this chapter exists to inform the readers how information has been retrieved and, subsequently, to answer the research questions. A quantitative study is conducted to collect desired data. This chapter elaborates further on the questionnaire, data collection, measurements, analyses and procedure.

3.1 Questionnaire

Concepts that were discussed during the literature review were translated into questions and incorporated into the format afterwards. In the previous chapter, the function of these constructs in the model was explained. The operationalization of the constructs will be discussed in Section 3.3. During the design phase of the survey, assistance was provided by two Master's students that are also studying Business and Economics. With their help, we could assess validity per questionnaire item. Moreover, consistency in word-use and scale setup was enhanced. The questionnaire can be divided into four subjects: customer satisfaction, product quality, service quality and a control section. Section 3.3 elaborates more on the control variables that were added to the questionnaire. See Appendix II for the survey questions.

3.2 Data collection

The data collection is done among owners of Miele washing machines. Miele is especially known as a manufacturer of household appliances. The brand sells its product in more than 100 countries directly or indirectly (Miele, n.d.). In this case, two different experimental conditions were distinguished. In the Netherlands, Miele operates in a *dual-channel* structure whereas in Curaçao the company only sells via indirect channels to customers. A major advantage of this experimental setting is that differences in *customer satisfaction* can be assigned to different channel structures. Any possible sample differences were taken into account with control variables, however, these can also be used as proof that both samples are not significantly different on key variables. Section 3.3 elaborates further on this. In this research, Curaçao serves as the control group for the Netherlands. Both samples consist of

⁴ For readability, variables are written in italics.

Miele customers who purchased a washing machine, regardless of *channel type* in which the purchase occurred. Regarding sample size, we followed the rule of thumb that 10 respondents per variable is appropriate for Linear Regression (VanVoorhis & Morgan, 2007; Field, 2013, p. 313). Since this model houses fifteen variables, N=150 is an absolute minimum. Ideally, the number of respondents turns out to be higher because this gives more power to discover small effects. Additionally, the questionnaire incorporates multiple scales. In an attempt to test whether multiple-item scales measure internally the same and therefore are appropriate to form one scale, Cronbach's Alphas are calculated. A minimal outcome between 0.6-0.7 is desired in order to state that the reliability of data is acceptable.

3.3 Measurements

Focal variable. In this international marketing study, channel structure is considered a condition which is set by nature and without interference of the researcher. This study is considered survey research within a natural experiment. In the sample group from Curaçao, channel structure is considered single-channel (non-dual-channel). Subsequently, the sample group from the Netherlands belongs to a dual-channel structure.

Dependent variable. In order to measure *customer satisfaction* we base our research on Ali, Dey and Filieri (2015) and Grigoroudis and Siskos (2010, p.23). Both papers used an interval scale. The proposition to measure satisfaction on a 0-10 rating scale is used, which has been described by Grigoroudis and Siskos (2010, p.23). *Customer satisfaction* is questioned with the following item: *Give on a 0-10 scale your satisfaction level with the company Miele?*

Moderating variable. We base our measurement regarding the *number of channels* used in the purchase process on Thornton and White (2001). They investigated specifically the usage of financial distribution channels with an interval scale. This study adopts their approach, however, the original scale is extended from 4-Point into a 6-Point interval scale. This variable is questioned with the following item: *Please count the number of channels through which you gathered information and made the actual purchase.* The response scale is listed as follows: 1=1&2, 2=3&4, 3=5&6, 4=7&8 5=9&10, 6=11 or more.

Mediating variables. The model houses three mediating variables and each of these is measured with multiple items. In this study, product quality was divided into two variables, *intrinsic product-* and *extrinsic product quality*. Subsequently, *service quality* is measured as

one single construct. To measure the construct *intrinsic product quality* our research is based on Garvin (1987) and Ahire and Golhar (1996). The first developed an 8-Item scale. From that scale we adopted the items *performance, features, reliability, conformance, durability, serviceability and aesthetics*. Note that we removed the item *image* from the original scale as it does not fit in the context. Ahire and Golhar (1996) recommended using their 7-Point Likert scale, which was specifically developed for measuring the items above. The response scale is listed as follows: *1=very poor, 2=poor, 3=fair, 4=good, 5=very good, 6=excellent, 7=exceptional*. Prior to measuring *extrinsic product quality* we based this investigation on the 4-Item scale by Morgan (1984, in Archer & Wesolowsky, 1996). In the questionnaire, Miele customers were asked to review their experience with regard to the items *price, warranty, advertising, brand name*. Note that we removed the item *advertising* from the original scale. This would conflict with the direct effect that, among other things, drives on resource constraints. These limit the distributor's marketing tools such as advertising (Sa Vinhas and Heide, 2015). We adopted the measurement scale developed by Ahire and Golhar (1996) for *extrinsic product quality*, as was done for *intrinsic product quality*. Note that there is no measurement scale developed for testing these items. Therefore, we adopt it again. Since this decision is not research-based, the internal consistency will be assessed with a Cronbach's Alpha. If the outcome is not satisfactory, it will be discussed in the limitations. We adopt the 32-Item scale by Parasuraman, Zeithaml and Berry (1988) to measure *service quality*. We brought the 32-Item scale back to a 5-Item scale. In the questionnaire, Miele customers were asked to review their experience with regard to the items *tangibles, reliabilities, responsiveness, assurance, empathy*. Devaraj et al. (2001) recommend using a 7-point Likert scale. We adopt this approach and use the 7-point scale, described by Ahire and Golhar (1996), for this variable as well. The written out statements per variable can be seen in Table 1, p. 25.

In order to support the assertion that samples from Curaçao and the Netherlands are comparable, this paragraph elaborates further on similarities between them. As an independent country, Curaçao is part of the Kingdom of the Netherlands. Furthermore, Dutch is a spoken language in both countries. Therefore, the questionnaire will be conducted in Dutch, in order to avoid interpretation problems. Additionally, Curaçao and the Netherlands have a shared history which began in the Dutch colonialist period. Afterwards, a lot of Dutch

citizens moved to Curaçao. It is hard to quantify this, but according to the CBS or Centraal Bureau voor Statistiek (2019), migration between both countries is in balance. Per year, migration is estimated to be 3.500 habitants coming from the Netherlands and Curaçao vice versa. Although this has not been officially recognized, circa 20.000 Dutch citizens live in Curaçao. This is a significant part of the total population of 160.000 people. Additionally, between 130.000 and 150.000 Antilleans (this number includes Arubans and Curaçaoans) live in the Netherlands, according to Trouw (2003). These numbers show how both countries are interrelated and to what extent both cultures interact with each other. With a mix of control variables added to these similarities, we intend to bridge both samples to make comparisons in the analysis part. When controlling for similarities on multiple key dimensions, we can actually show that samples are equal.

Control variables. As noted, the objective of this study is to assign differences in perceived quality and satisfaction to different channel structures in markets where a different distribution system is used (in this case, The Netherlands and Curaçao). This study accounts for alternative explanations as well by including the four control variables *age*, *household size*, *household income* and *channel type* to the model. We think these demographic control variables are important for the research model. Besides these, we added three more extrinsic control variables which are: *individualism*, *collectivism* and *power distance*. Although these three variables are not expected to have a direct effect on *customer satisfaction*, prior literature points out that these cultural factors may influence people's response style (Hemert et al., 2002; Johnson et al., 2005; Beuthner et al., 2018). Therefore, we address these variables separately. Please note that written out statements per control variable with corresponding response scales are provided in Appendix II.

Age and household size. These are often used in market research and give a clear cross-section of customer segments. Devaraj et al. (2001) used the demographic factor age in a similar research. They measured *age* in years on a ratio scale which has also been adopted. In addition, our research is based on Prasad and Aryasri (2009) and Anyanwyu (2014) for measuring *household size*. They recommend measuring household size on a five-point scale.

Household income. As noted before, Devaraj et al. (2001) examined, customer satisfaction with product and service quality, among other things. In their study, the economic factor *household income* was also included as a control variable. This study considers the *household*

income to be essential to further compare samples. We adopted the 5-Point scale of Devaraj et al (2001) for this and please note that we extended the scale with an extra option, so: *6=I prefer not to answer*. As respondents may be less willing to answer questions regarding income, this 6-Point scale fits better with the context.

Channel type. The channel type refers to whether a purchase was made in an online or offline channel. It is essential to incorporate channel choice as control variable. Namely, Neslin et al. (2006) argue that consumers may have different perceptions and preferences to different channel types. Ultimately, this may influence customer satisfaction. In this case, direct and indirect channels offer products online and offline. Channel type is measured on a nominal scale. This is based on Xu and Jackson (2019). Note that the original response options were limited so that *1=buy in-store* and *2=buy online*.

Response styles. The cultural factors used in this study as control variables are derived from Hofstede's cultural dimensions (2001) and provide a better understanding of the effect of cross-cultural values on consumer behaviour. Specifically, the variables *individualism*, *collectivism* and *power distance* were selected. The reason for selecting these is the alleged effect on response styles (Johnson et al., 2015; Beuther et al. 2018; Hemert et al., 2002). This means that cultural origin influences research outcomes via different response styles. Respondents with an acquiescent response style (ARS) are expected to answer mid-point when in doubt about a question. According to Johnson et al. (2005), high *individualism* lowers ARS. This is supported from another angle, as Beuthner et al. (2018) claimed that high *collectivism* strengthens ARS. According to Hemert et al. (2002) and Hofstede (2001), high *power distance* empowers ARS as well, forthcoming from citizens who then behave submissive and are seeking conformity. With regard to the construct operationalization, we derived one item each for *individualism* and *collectivism* from a 32-Item scale developed by Singelis et al. (1995). With respect to *power distance*, we adopted one item from a 5-Item scale developed by Köning et al. (2007). Note that we turned these three items from questions into statements. Subsequently, we aligned the response scales with each other and changed the original 9-point Likert scale to a 7-point scale. Since it was used earlier, this scale format would fit better in the context of this study. According to Dawes (2008), 7-point scales are the most commonly used ones in research. Furthermore, scales with more points would show lower scores once rescaled.

Table 1. Overview constructs with items and measurement scales

Construct/item	Scale/Source
<i>Experimental setting</i> No dual-channel vs. dual-channel	2-Point scale, nominal
<i>Customer satisfaction</i> Self-reported level of (dis)satisfaction	11-Point scale, interval Grigoroudis and Siskos (2010)
<i>Number of channels</i> Self-reported no. of channels visited	6-Point scale, interval Thornton and White, 2001
<i>Intrinsic product quality</i> The performance of the product when operating. The extra features of the product. Reliability and staying away from product failure . The quality with respect to other brands. The durability of the product. The serviceability of the product. The degree to what the product is stylishly.	7-Point Likert scale ($\alpha = 0.92$) Ahire and Golhar, 1996, Garvin, 1987
<i>Extrinsic product quality</i> The degree to what you got value for money. The obtained warranty with the purchase. The degree to what Miele stands for quality.	7-Point Likert scale Ahire and Golhar, 1996 Morgan, 1984 (in Archer & Wesolowsky, 1996)
<i>Service quality</i> The professional appearance of service personnel. The ability to perform the promised service. Responsiveness of service personnel. The knowledge and courtesy of employees. The degree to what individualized care is given.	7-Point Likert scale ($\alpha = 0.94$) Devaraj et al., 2001 Parasuraman et al., 1998
<i>Age</i> Self-reported age	Ratio scale Devaraj et al., 2001
<i>Household size</i> Self-reported number of people within household	5-Point scale Prasad and Aryasri, 2009 and Anyanwyu, 2014
<i>Household income</i> Self-selected household income out of multiple intervals	6-Point scale Devaraj et al., 2001
<i>Channel type</i> Channel type were purchase was made	2-Point scale, nominal Yu and Jackson, 2019
<i>Individualism</i> It annoys me when other people perform better than I do.	7-Point Likert scale Singelis et al., 1995 and Dawes 2008
<i>Collectivism</i> Usually I sacrifice my self-interest for the benefit of my group.	7-Point Likert scale Singelis et al., 1995 and Dawes 2008
<i>Power distance</i> I would stimulate one of my employees to criticize the way I run the business.	7-Point Likert scale Köning et al., 2007 and Dawes 2008

3.4 Screening the data

The desired number of 150 respondents was reached, but we screened the data before bringing it into analysis. Three responses were removed because the surveys were incomplete or displayed abnormal values. In order to detect outliers, we computed Z-scores and searched for values below -3 and above 3. For the items *performance (intrinsic product quality)*, *tangibles (service quality)* and for the variables *customer satisfaction*, *number of channels* and *household income* we found outliers and treated them as missing values.

3.5 Procedure

The survey starts with a question about the respondent's country of origin. Subsequently, the respondent was surveyed about the *number of channels* used in the purchase process. A brief explanation about our definition of 'purchase process' was given here as well. To diminish response biases, the dependent variable was surveyed before the quality variables (intrinsic, extrinsic and service). Afterwards, control questions were asked. Questions with regard to *age*, *household size*, *household income* and *channel type* usually feel logical for respondents. This is in contrast with the cultural control questions. Therefore, an extra comment was made to emphasize the respondent's complete response. Finally, randomisation was applied between the three blocks of quality as well as for the items within. Furthermore, the cultural statements were randomised to avert biases from a specific question ordering.

3.6 Analysis

Study 1: Linear Regression

We applied a simple Linear Regression to test the effect of dual-channel availability on customer satisfaction. We took into account the interaction between the moderator *number of channels* and focal variable *dual-channel* as well. We present 4 models: one base model with the main effect, one model extended with the moderating variable, one model with demographic control variables and one full model with cultural variables.

1. $CustomerSatisfaction_i = \beta_0 + \beta_1 DualChannel^5 + \beta_2 NumberOfChannels + \epsilon_i$
2. $CustomerSatisfaction_i = \beta_0 + \beta_1 DualChannel + \beta_2 NumberOfChannels + \beta_3 DualChannel * NumberOfChannels + \epsilon_i$

⁵ Dual-channel is a dummy variable that indicates that dual-channel = 1, 0 if non-dual-channel.

3. $CustomerSatisfaction_i = \beta_0 + \beta_1 DualChannel + \beta_2 NumberOfChannels + \beta_3 DualChannel * NumberOfChannels + \beta_4 Age + \beta_5 HouseholdSize + \beta_6 HouseholdIncome + \beta_7 OnlineChannelType^6 + \epsilon_i$
4. $CustomerSatisfaction_i = \beta_0 + \beta_1 DualChannel + \beta_2 NumberOfChannels + \beta_3 DualChannel * NumberOfChannels + \beta_4 Age + \beta_5 HouseholdSize + \beta_6 HouseholdIncome + \beta_7 OnlineChannelType + \beta_8 Individualism + \beta_9 Collectivism + \beta_{10} PowerDistance + \epsilon_i$

Study 2: Bootstrap

Besides the Linear Regression, this study also searches for mediating effects through *intrinsic product-*, *extrinsic product-* and *service quality*. For this, we made use of the PROCESS Macro version 3.4 by Hayes (2012). As was proposed in the literature review, these mediators correlate mutually and therefore it is necessary to test them independently from each other. Again, we build on three models by including more and more variables. All three models were run in SPSS with PROCESS mediation model 4 and the Confidence Interval was set to 95%, based on 5000 samples. According to Field (2013, p. 416), we are able to meet mediation effects if zero falls outside the 95% bootstrap Confidence Interval for indirect effects.

1. $CustomerSatisfaction = \beta_0 + \beta_1 DualChannel + \beta_2 IntrinsicProductQuality + \beta_3 ExtrinsicProductQuality + \beta_4 ServiceQuality + \epsilon_i$
2. $CustomerSatisfaction = \beta_0 + \beta_1 DualChannel + \beta_2 IntrinsicProductQuality + \beta_3 ExtrinsicProductQuality + \beta_4 ServiceQuality + \beta_5 Age + \beta_6 HouseholdSize + \beta_7 OnlineChannelType + \epsilon_i$
3. $CustomerSatisfaction = \beta_0 + \beta_1 DualChannel + \beta_2 IntrinsicProductQuality + \beta_3 ExtrinsicProductQuality + \beta_4 ServiceQuality + \beta_5 Age + \beta_6 HouseholdSize + \beta_7 OnlineChannelType + \beta_8 Individualism + \beta_9 Collectivism + \beta_{10} PowerDistance + \epsilon_i$

⁶ Online channel type is a dummy variable that indicates that online channel = 1, 0 if channel is offline.

3.7 Reliability

The mediating variables in Study 2 are measured with multi-item scales. Scale scores were created by taking together item scores and computing them on average. Before we proceeded to analysis, the internal consistency was investigated. The scales *intrinsic product quality* (7 items; $\alpha = .973$) and *service quality*⁷ (5 items; $\alpha = .935$) were found to perform excellently. Additionally, *extrinsic product quality* (3 items; $\alpha = 0.842$) was good too. With Cronbach's Alpha testing we determined good and excellent scores, which in their turn indicate very good internal reliability. That is, that all questions measure the variable in a reliable manner. Additional results of reliability testing will be presented in Appendix III.

⁷ Note that we get for item appearance (from service quality) an item removal $\alpha = .944$. This is more than the overall scale reliability. However, as the overall reliability was already very high we did not delete this item.

CHAPTER 4

RESULTS

In this chapter, all earlier proposed hypotheses will be included. We start by looking at descriptive statistics and checking assumption. Subsequently we move on by testing the main effect and moderating effect in Study 1. Study 2 reports the results of the mediation effect. Both studies conclude with determining whether the hypotheses are supported or rejected.

4.1 Descriptive Statistics and Assumptions Check

The descriptive statistics are summarized in Table 2. Some variables are highlighted here. The experimental setting brings forth two groups of consumers from dual and non-dual-channels. After screening the data, N = 116 belongs to the dual sample and N = 31 to non-dual. Although the magnitude of the non-dual control group is considerably smaller, the sample size is great enough to run statistical analyses on the data (Cohen, Manion & Morrison, 2007).

Table 2. Descriptive Statistics for the full model.

Variable	Descriptive Statistics		
	Mean/ Percentage	SD	Scale item
Customer satisfaction	8.3	1.45	
Number of channels	1.8	1.14	
Intrinsic product quality	4.5	1.15	5=very good
Extrinsic product quality	4.4	1.17	4=good
Service quality	4.1	1.12	4=good
Age	46.7	13.74	
Household size	3.7	1.67	
Household income	3.3	1.09	3=€35.000 - €54.999
Individualism	3.1	1.47	3=partly not agree
Collectivism	4.4	1.37	4=not agree or disagree
Power distance	4.2	1.58	4=not agree or disagree
Dual-channel	78.9%		
Non-dual-channel	21.1%		
Online channel type	15.6%		
Offline channel type	84.4%		

Note. For dual-channel and online channel type N=147.

Section 3.3 provides additional scale information.

Among the entire sample, the purchase occurred in an *online channel* for 84% of respondents. We noted that for non-dual conditions, 100% is purchased through offline channels and in dual conditions, 80%. In the sample, *Age* ranged from 20 to 80 with a mean of 47. Afterwards, respondents indicated their *household income* from less than €15.000 to more than €75.000. The mean household income was between €35.000 - €54.999. The *household size* varied from 1 to 9 and is four people on average.

Table 3 summarizes Independent Samples *t*-Test results. It turns out that both samples exhibit high degrees of similarity. Especially the demographic control variables (in this case *age*, *household size* and *household income*) are significantly equal to each other. This suggests that customers from both samples are demographically similar. In addition, a significant difference ($t(145)=5.333, p < .001^8$) was found for *channel type*, as expected. Namely, this correlates with the experimental setting, it depends on the channels that are available. If a market has one less channel, the customer's channel choice is directly affected. Furthermore, taking cultural differences into account, we take note of *individualism* being significantly the same, $t(145)=.513, p = .609$. Other cultural variables that show significant differences, will especially be controlled during the regression analyses This is all done to attribute differences in customer satisfaction to the experimental setting only.

Table 3. Independent-Samples *t*-Test for moderator and control variables.

Variable	Independent Samples Test		
	Levene's Test	t(df)	Sig. (2-tailed)
Number of channels	Variances not equal	-6.088 (144)	< .001
Age	Variances equal	.300 (145)	.765
Household size	Variances equal	-.300 (141)	.765
Household income	Variances equal	.228 (104)	.820
Online channel type	Variances not equal	5.333 (145)	< .001
Individualism	Variances equal	.513 (145)	.609
Collectivism	Variances equal	-3.420 (145)	< .001
Power distance	Variances equal	4.732 (145)	< .001

⁸ Unless indicated otherwise we assume a 95% Confidence Interval in the remainder of this paper.

For Study 1 and 2 several assumptions were tested. Since bootstrapping is a regression-based method, we consider the same basic requirements for study 2. First, we cover the assumption of linear relationships. The Pearson correlations between focal and dependent variables of both studies are summarized in Table 4. All correlations are significant ($p < .01$). Therefore, we conclude that the first assumption was met.

Table 4. Pearson Correlation Matrix for dependent, moderator and control variable(s).

Variable	Pearson Correlation					
	1	2	3	4	5	6
(1) Dual-channel	1					
(2) Customer satisfaction	.487***	1				
(3) Number of channels	-.548***	-.570***	1			
(4) Intrinsic product quality	.444***	.760***	-.486***	1		
(5) Extrinsic product quality	.390***	.744***	-.486***	.897***	1	
(6) Service quality	.496***	.653***	-.507***	.768***	.780***	1

Note. *** $p < .01$ (2-tailed).

The second assumption tested is independence. This was done by applying the Durbin-Watson test. This tests serial correlations between errors. The results are presented in Table 5 and it turns out that all values are close to $d=2$. This means that the errors are not correlated (Field, 2013, p. 311).

Table 5. Durbin-Watson Test

Variable	Durbin-Watson
	d
Customer satisfaction	1.907
Number of channels	1.804
Intrinsic product quality	1.741
Extrinsic product quality	1.682
Service quality	1.685

Note. Predictor: dual-channel

Subsequently, the assumption of homoscedasticity was tested. The given dependent variables were confronted with the focal variable *dual-channel* in scatterplots. These have

been provided in Appendix IV. It is the case that errors stayed consistent along the fit line for each scatterplot. This means that we found homoscedasticity.

Finally, the assumption of normality was considered for Study 1. This was not done for Study 2, as the bootstrap method does not make assumptions about the distribution of the data. Based on a Shapiro-Wilk test and corresponding plots (see Appendix V), we conclude that both variables do not follow a normal distribution ($W_{\text{number of channels}}=.709$, $p < .001$; $W_{\text{customersatisfaction}}=.902$, $p < .001$). Thus, the assumption of normality has been violated. We accept this and will reflect on this in the limitations.

4.2 Study 1: Linear regression

In this section, the relationship for the main effect between a *dual-channel* and *customer satisfaction* will be tested. Afterwards, we explore whether this main effect is moderated by the *number of channels* used in the purchase process. Since the conceptual model houses different types of variables, we estimate multiple model variations to show the robustness of our results. Four regression analyses were performed: each being different in model specification. Table 6 summarises the output of these regressions. In addition, the adjusted R² has been provided per model and indicates the proportion of variance, which is explained by the dependent variable.

Table 6. Coefficients, Standard errors and significance levels for model 1, 2, 3 & 4.

	Model 1 (main)	Model 2 (Interaction)	Model 3 (control)	Model 4 (full control)
DV: Customer satisfaction	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
Intercept	8.571*** (.372)	8.280*** (.538)	6.856*** (.843)	6.652*** (.951)
Dual-channel	.873*** (.285)	1.252** (.582)	1.528** (.626)	1.527** (.640)
Number of channels	-.557*** (.102)	-.460*** (.165)	-.295* (.173)	-.229 (.187)
Number of channels X Dual-channel		-.157 (.210)	.047 (.226)	.001 (.241)
Age			.013* (.008)	.012 (.008)
Household size			.004 (.065)	.013 (.066)
Household income			.067 (.106)	.026 (.109)
Online channel type			-.877*** (.332)	-.865** (.332)
Individualism				-.087 (.078)
Collectivism				.007 (.086)
Power distance				.124 (.085)
Adjusted R ²	.358	.356	.440	.439

Note. Betas are provided unstandardized
 Abbreviation: DV = dependent variable
 * $p < .10$, ** $p < .05$, *** $p < .01$

Model 1 represents the base regression with the dummy variable *dual-channel* (versus *non-dual-channel*) and *number of channels* used in a purchase process. *Model 2* extends *model 1* with the interaction between the moderator *number of channels* and focal variable *dual-channel*. *Model 3* adds an extra set of variables to control for slight variances in demographics

that could affect previous model outcomes, but these do not stand out. Finally, *model 4* presents the full model, extended with the cultural control variables. As both samples showed significant differences on the variables *collectivism* and *power distance*, we use *model 4* to control for the differences between our samples aside from the difference in channel management. Further analysis demonstrates, however, that cultural control variables (in *model 4*) do not have any significant effect on the dependent variable. Or have any other significant effect on the model, for that matter. The adjusted R^2 shows that cultural variables can be considered not good enough to enlarge the proportion of variance in the dependent variable that can be explained by *model 3*. This model will therefore form the basis for further interpretation.

Based on table 6, *dual-channel management* has a significantly positive effect on *customer satisfaction* ($\beta = 1.528, p < .05$) and this result is robust across all variations. Since we can find a positive effect between dual-channel management and customer satisfaction, hypothesis 1 for the main effect is rejected. *Number of channels* is shown to have a negative main effect, but is not consistently significant. After adding control variables, *model 3* reports a marginally significantly negative effect of the *number of channels* used on *customer satisfaction* ($\beta = -.295, p < .10$). The alleged interaction between *dual-channel management* and the *number of channels* used in the customer's purchase process does not appear either. Taking model 3 as a basis, there is a slightly positive effect ($\beta = .047, p = .835$), but this outcome is far from reliable. First, because of its level of significance and second, because of a lack of robustness across model specifications. Therefore, Hypothesis 8 is rejected.

Outside of the conceptual model, other interesting findings came up. Specifically, control variable online *channel type* appeared to have a significantly negative effect on customer satisfaction ($\beta = -.877, p < .001$). In other words, buying a washing machine offline in a store would increase a customer's satisfaction with .877 versus buying it offline. This sounds plausible, because customers may have more physical interaction with, for instance, store employees. Through these interactions, higher degrees of quality were probably perceived, ultimately benefiting *customer satisfaction* in offline channels. Section 4.3 delves further into this relationship between quality and customer satisfaction. In addition to the previous finding, control variable *age* was found to have a slightly positive and marginally significant

effect on customer satisfaction ($\beta = .013, p < .10$). In model 4, the significance level of age decreases ($\beta = .012, p = .125$). We did not find a reason to point out this inconsistent effect.

This section concludes with Table 7, which assesses whether specific hypotheses are supported or rejected.

Table 7. Supported or Rejected hypotheses Study 1

#	<i>Hypothesis</i>	<i>Supported or Rejected</i>
H1	Dual-channel management affects customer satisfaction negatively.	According to Table 6, model 3 Supported / Rejected
H8	The negative effect of dual-channel management on customer satisfaction is higher the more channels are used in the purchase process.	According to Table 6, model 3 Supported / Rejected <i>No significant moderation was found.</i>

4.3 Study 2: Mediation analysis

The aim of the mediation analysis is to assess the mediating role of *intrinsic product-*, *extrinsic product-* and *service quality* in dual-channels and to test whether customers experience lower satisfaction, via a loss in perceived quality. In order to test the hypotheses designed for this study, we estimated multiple models: similar to Study 1. We present three models: one base model with no control variables, one model with demographic variables and one full one with cultural variables. Note that we did not include control variable *household income*, as the sample size would then decrease from N=141 to N=103. This can be explained by N=38 who preferred not to answer this question.

In *Model 2*, the indirect effect of *dual-channels* through quality on *customer satisfaction* was positive ($\beta = 1.805, p < .01$). When controlling for cultural variables, the total effect decreased ($\beta = 1.688, p < .01$). Since cultural variables influenced the total effect, we consider *Model 3* with full control to be optimal for further interpretations. The three mediation paths are discussed consecutively. For additional output, see Appendix VII.

Table 8. Model 3 with full control, coefficients for outcome variables: *intrinsic product-*, *extrinsic product-* and *service quality*.

Dependent variable:	α -path		
	Intrinsic product quality	Extrinsic product quality	Service quality
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
Intercept	3.109*** (.608)	3.124*** (.617)	3.172*** (.547)
Dual-channel	1.286*** (.234)	1.207*** (.237)	1.401*** (.211)
Age	-.001 (.007)	-.002 (.007)	-.003 (.006)
Household size	-.118** (.054)	-.136** (.055)	-.108** (.049)
Online channel type	-.342 (.245)	-.308 (.248)	-.506** (.221)
Individualism	-.003 (.059)	.048 (.060)	-.030 (.054)
Collectivism	.111* (.065)	.128* (.067)	.043 (.059)
Power distance	.113* (.060)	.080 (.061)	.115** (.054)

Note. * $p < .10$, ** $p < .05$, *** $p < .01$

Concerning the α -path, the output in Table 8 shows us that *dual-channel* significantly positively predicts *intrinsic product quality* ($\beta = 1.286, p < .001$), *extrinsic product quality* ($\beta = 1.207, p < .001$) and *service quality* ($\beta = 1.401, p < .001$). This means that a *dual-channel* benefits quality. Furthermore, *household size* was found to have a significantly negative effect

on all three mediators. In other words, the more people a household consist of, the more negatively quality is perceived. Moreover, *online channel* significantly negatively predicts *service quality* ($\beta = - .506, p < .05$): an online purchase will decrease service quality with $-.506$. This relates to Study 1, which also showed that buying online has a direct negative effect on customer satisfaction. We note that *collectivism* and *power distance* exhibit some marginally significantly positive effects on the product quality mediators. Finally, *power distance* significantly positively predicts service quality ($\beta = .155, p < .05$). Thus, people who score high on *power distance* will better perceive *service quality*.

Table 9. Model 3 with full control, coefficients for outcome variable customer satisfaction

b-path	
Dependent variable:	Customer satisfaction
	Coefficient (SE)
Intercept	2.540*** (.613)
Dual-channel	.515** (.243)
Intrinsic product quality	.468*** (.157)
Extrinsic product quality	.394** (.161)
Service quality	.068 (.122)
Age	.007 (.006)
Household size	.093* (.049)
Online channel type	-.304 (.223)
Individualism	.005 (.054)
Collectivism	.039 (.059)
Power distance	.072 (.055)

Note. * $p < .10$, ** $p < .05$, *** $p < .01$

Concerning the *b-path*, the output in Table 9 shows us that *intrinsic product* and *extrinsic product quality* predict *customer satisfaction* significantly well (with respectively, $\beta = .468, p < .01$ and $\beta = .394, p < .05$). Both positive beta coefficients tell us that product quality benefits customer satisfaction in a dual-channel context. The analysis did not show a significant effect of *service quality* on *customer satisfaction* ($\beta = .068, p = .578$). In this case, it is interesting to see that dual-channel management is a significantly positive predictor of *service quality*. However, a service appears not to be the appropriate instrument to push this effect through and to increase customer satisfaction in dual-channels. Finally, *household size* slightly influences customer satisfaction in a slightly positive way ($\beta = .093, p < .10$). Thus, the bigger the household, the more satisfaction it experiences.

Table 10: Bootstrap Confidence Intervals for Indirect Effects from Dual Channels on Customer Satisfaction

DV: Customer satisfaction	Model 3 (Full control)		
	Indirect effects	Boot LLCI	Boot ULCI
Total	1.173	.696	1.762
Intrinsic product quality	.602	.230	1.087
Extrinsic product quality	.475	.075	1.003
Service quality	.096	-.234	.455
Total effect of dual-channels on CSAT			1.688***
Direct effect of dual-channels on CSAT			.515**

Note. Abbreviation: CSAT = customer satisfaction
 Red mark = no mediation
 * $p < .10$, ** $p < .05$, *** $p < .01$

Concerning the *c*-path, Table 10 shows us that the direct effect of *dual-channel on customer satisfaction* is significantly positive ($\beta = .515, p < .05$). However, when including the mediators it becomes clear that perceived quality plays a critical role in getting a better understanding of customer satisfaction. The total effect is positively increased ($\beta = 1.688$) and significance has risen ($p < .01$)

Concerning the mediation, Table 10 shows a significantly positive, indirect effect of *dual-channels on customer satisfaction* through intrinsic product quality, $\beta = .602, CI [.230, 1.087]$. Furthermore, another significantly positive indirect effect was found from *dual-channels on customer satisfaction* via *extrinsic product quality*, $\beta = .475, CI [.075, 1.003]$. It also points out that this analysis did not encounter a significant indirect effect ($\beta = .0957$) through service quality, since $CI [-.234, .455]$ includes 0. This all taken together, we were able to explain $\beta = 1.173$ via indirect effects from the total effect $\beta = 1.688$. Which means that after this mediation analysis, $\beta = .515$ remains unexplained.

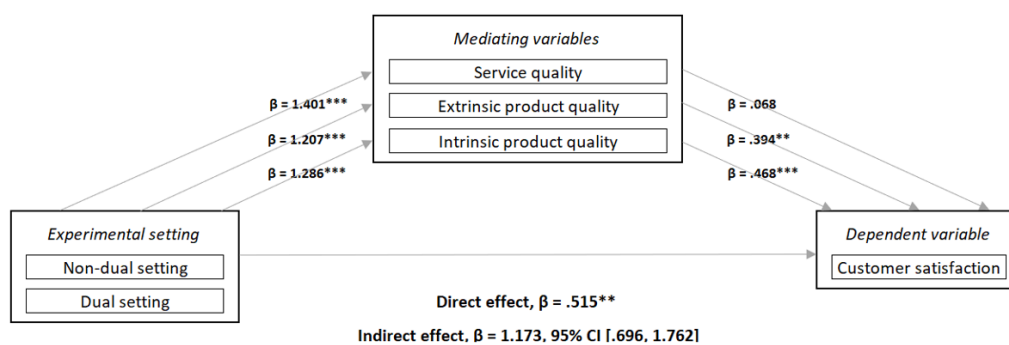


Figure 2. Model summarisation for study 2, full control.

* $p < .10$, ** $p < .05$, *** $p < .01$

This section concludes with Table 11, which assesses whether specific hypotheses are supported or rejected.

Table 11. Supported or Rejected hypotheses for Study 2.

#	<i>Hypothesis</i>	<i>Supported or Rejected</i>
H2	Dual-channel management causes a loss in intrinsic product quality.	According to Table 8 Supported / Rejected
H3	Dual-channel management causes a loss in extrinsic product quality.	According to Table 8 Supported / Rejected
H4	Dual-channel management causes, via intrinsic product quality, a loss in customer satisfaction.	According to Table 10 Supported / Rejected
H5	Dual-channel management causes, via extrinsic product quality, a loss in customer satisfaction.	According to Table 10 Supported / Rejected
H6	Dual-channel management causes a loss in service quality.	According to Table 8 Supported / Rejected
H7	Dual-channel management causes, via service quality, a loss in customer satisfaction.	According to Table 10 Supported / Rejected <i>No significant mediation was found through service quality.</i>

CHAPTER 5

GENERAL DISCUSSION

More and more consumers are confronted with D2C approaches from manufacturers. Therefore, it has become essential to know how customers react on this phenomenon. The objective of this study was to find proof for our alleged proposition that *dual-channel* management by the manufacturer lowers *customer satisfaction* ultimately. This paper presents interesting and at the same time unexpected findings about the effects of dual-channels on customer satisfaction. Consequently, the customer's perceived quality in terms of *intrinsic product-*, *extrinsic product-* and *service quality* was tested for Miele customers, to see if these constructs are significant predictors of *customer satisfaction*. This chapter will answer the main research question "*What effect does dual-channel management have on product and service quality and how does this affect customer satisfaction⁹?*". This will be done by answering the sub-questions.

Sub-question 1. By conducting a study within an experimental setup we were able to measure *customer satisfaction* in both dual and non-dual-channels. Throughout this paper it was considered vital to obtain goodness of comparability among multiple samples. This is, in fact, supported by model-free results in section 3.3 and Independent Samples *t*-Test results for the control variables *age*, *household size*, *household income* and *individualism*. Another interesting finding was that the results from Study 1 indicated that cultural variables had no effect on model outcomes (see Table 6, p. 33). In addition, results from Study 2 (see Table 8, p. 36) suggest that *intrinsic product-* and *extrinsic product quality* have been affected only with some marginally significant effects from *collectivism* and *power distance*, whereas the mediator *service quality* was significantly affected by *power distance*. However, this must have had no impact on the other results. *Service quality* was already not significant before controlling for cultural variables. Therefore, we conclude that later conclusions can be definitively attributed to differences in channel setup.

Sub-question 2. The baseline of this study was that dual-channel management causes tensions between distributor and manufacturer, which ultimately lowers satisfaction for customers in

⁹ Overall customer satisfaction in the market with non-dual conditions is meant. No distinction was made between direct or indirect channels.

dual-channel markets compared to non-dual markets (Sa Vinhas and Heide, 2015; Kidwell et al., 2007). Contrary to what was expected, we found a significantly positive effect from *dual-channel* on *customer satisfaction*, directly as well as indirectly, through the two types of product quality. Although no mediation occurred for *service quality*, this was still significantly affected by dual-channels in a positive direction. At this point, it is explainable why the results are not going in a negative direction. Firstly, albeit Miele is selling products directly, there was no indication of actual tensions prior to and during this research. For Kidwell et al. (2007), this was the case in the form of free riding behavior by the manufacturer. This is in line with Sa Vinhas and Heide (2015), who state an inverted-U relationship for dual-channels, meaning that at high levels of competition, customer satisfaction will decrease. On the other hand, low levels of competition (what we assumed for Miele) will increase customer outcomes. We believe the latter drives on the principle of functioning market forces and that competition benefits the common good. This was also supported by earlier statements from Beersma et al. (2003), Sa Vinhas and Anderson (2005) and Li et al. (2014). Hypotheses 2, 3, 4, 5, 6 and 7 were rejected. This certainly does not mean that the conceptualization was useless. We find that at low levels of competition, *dual-channels* have positive effects on *customer satisfaction*. This suggests that the inverted-U relationship exist, however, we did not study high levels of competition. In addition, we presented quality scales with excellent Cronbach's Alphas. These are crucial in explaining the relationship between dual-channels and customer satisfaction. Section 5.1 leaves some last notes about how to apply a similar conceptualization in dual-channel management research.

Sub-question 3. We did not find a moderation effect for *numbers of channels* used in a purchase process on the relationship between *dual-channels* and *customer satisfaction* (H8). However, the direct effect of *number of channels* on *customer satisfaction* was found to be significantly negative (see Table 6, p. 33). A negative effect is in line with earlier statements regarding different channel experiences through customer journeys (Montoya-Weiss et al., 2003; Cao & Li, 2015 & Sorkun et al., 2020). These suggest that there is a double-directional relationship between channel integration and customer satisfaction. Here, the negative effect indicates that channel integration is not good enough and that no seamless experience was offered. This means that the brand gains no synergy effects, which otherwise could have amplified customer satisfaction (Herhausen et al., 2015).

5.1 Implications

Academic Implications

This research is an addition to the existing knowledge about dual-channels and their side-effects. As far as we are aware, no study has been conducted in the field of dual-channel management which tested and explained the relationship with customer satisfaction through perceived quality. Contrary to Kidwell et al. (2007), for example, scientists should adopt customer's perceived quality in their conceptualization. Especially those who are studying channel performance and possibly its effect on customer outcomes. By researching this, it is possible to form an answer to what effect channel tensions have on end-customers. Scientists can adopt our experimental development under the condition that three market characteristics have been assessed first. Namely, it is crucial to find out whether high or low levels of competition exist. Answering these questions earlier could have changed our direction of conceptualization. The following questions are based on prior research.

1. Is the manufacturer's distribution strategy dual or non-dual?
2. What is the level of distribution intensity? (Frazier and Lassar, 1996)
3. What are the cannibalization effects? (Herhausen et al., 2015)

Under distribution intensity we consider the number of existing distribution channels. Additionally, the third question comes from Herhausen et al. (2015) and was asked in an online-offline channel integration context, but we apply this to the entire distribution setup. Contrary to Sa Vinhas and Heide (2015) and this study, it will be possible to be more precise in expected results and to elaborate further on a single direction of the *dual-channel* effect.

Managerial Implications

The results of this study especially have implications for managers of firms that represent a manufacturer. Namely, this study assumed tensions between channels, which should represent high levels of competition. However, it turned out that low level competition may occur as well. Therefore, managers should consider that at low levels of competition, customers will benefit from dual-channels. At high levels of competition, managers should consider the various articles presented, which discuss the negative effects of dual-channels on customer satisfaction. Lately, we saw manufacturers choose distribution along many channels. However, it turned out that success is guaranteed to a certain degree. Meaning, when a firm deploys too many distribution channels, high competition will be the results,

which ultimately could lower customer satisfaction. Nevertheless, due to a fear of limited brand exposure and a potential loss of sales, it is likely that firms will stay in this field of tensions (Frazier and Lassar, 1996). Therefore, firms need to keep competition in dual-channel channels on a low level. What could help are the three questions listed above. Especially the rate of cannibalization matters here. When a decrease in channel turnover can be addressed to for example a new channel deployed by the manufacturer, this might indicate high competition leading to lowered levels of support.

5.2 Limitations

We aware that our research has limitations. Despite these limitations, we believe that the overall theory regarding higher satisfaction at low levels of competition can be adopted in a broader sense. When it comes to specific results from this empirical study, however, we must be cautious for constraints. First, limitations apply for sample (size). Earlier results showed that a respondent's *age* was 47 years on average but varied from 20 to 80 years. Furthermore, the *household income* was on average between €35.000 - €54.999. This could actually vary from less than €15.000 to more than €75.000. Caution should be taken when extending these results to other studies where respondents, on average, are aged differently or fall outside the mean income interval. In order to avoid this limitation, equal samples need to be obtained for *age* and *household income*. A larger sample in future research could contribute to this. Second, the empirical part of this study focused on Miele customers and the experimental setting is a result of Miele's distribution strategy. This will be different from other brands, which it is why it is wise to take into account that Miele has dual and non-dual-channels and competition between these channels was considered to be low. Third, control variable online channel type (versus offline) was found to be a significantly negative predictor of customer satisfaction. In this study, 84% of the customers bought their product offline. Other studies gaining higher percentages of online purchases could get skewed research outcomes compared to ours. Fourth, the assumption of normality was violated in Study 1. For both *customer satisfaction* and *number of channels* it applies that the distribution of sample means is not normal. This means that one of the assumptions in the regression was not satisfied.

5.3 Further research

Scientists should consider our finding about higher customer satisfaction at low level competition to be a starting point. However, to put this theory into practice more, future work should focus on how to assess whether low or high competition occurs in dual-channels. Preferably, results from such studies would form a list of characteristics which in turn represent different levels of competition. Second, in response to a logical business-question, it would be interesting to get a better understanding about what a firm's equilibrium in channel deployment is. From such research it is expected to obtain knowledge about when the marginal effect of dual-channels on customer satisfaction starts to evolve negatively. In other words, what are the antecedents for low level compared to high level competition in dual-channels?

Bibliography

Articles

- Ahire, S. L., & Golhar, D. Y. (1996). Quality management in large vs small firms. *Journal of small business management*, 34(2), 1-13.
- Ailawadi, K. L., & Farris, P. W. (2017). Managing multi-and omni-channel distribution: metrics and research directions. *Journal of retailing*, 93(1), 120-135.
- Ali, F., Dey, B. L., & Filieri, R. (2015). An assessment of service quality and resulting customer satisfaction in Pakistan International Airlines. *International Journal of Quality & Reliability Management*, 32(5), 486-502.
- Anderson, C. R., & Zeithaml, C. P. (1984). Stage of the Product Life Cycle, Business Strategy, and Business Performance. *Academy of Management Journal*, 27(1), 5–24.
- Anderson, E. W., & Sullivan, M. W. (1993). The antecedents and consequences of customer satisfaction for firms. *Marketing science*, 12(2), 125-143.
- Anyanwu, J. C. (2014). Marital status, household size and poverty in Nigeria: evidence from the 2009/2010 survey data. *African Development Review*, 26(1), 118-137.
- Archer, N. P., & Wesolowsky, G. O. (1996). Consumer response to service and product quality: A study of motor vehicle owners. *Journal of Operations Management*, 14(2), 103–118.
- Baxendale, S., Macdonald, E. K., & Wilson, H. N. (2015). The Impact of Different Touchpoints on Brand Consideration. *Journal of Retailing*, 91(2), 235–253.
- Beersma, b., Hollenbeck, J. R., Humphrey, S. E., Moon, H., Conlon, D. E., & Ilgen, D. R. (2003). Cooperation, Competition, and Team Performance: Toward a Contingency Approach. *Academy of Management Journal*, 46(5), 572–590.
- Beuthner, C., Friedrich, M., Herbes, C., & Ramme, I. (2018). Examining survey response styles in cross-cultural marketing research: A comparison between Mexican and South Korean respondents. *International Journal of Market Research*, 60(3), 257-267.
- Cao, L., & Li, L. (2018). Determinants of Retailers' Cross-channel Integration: An Innovation Diffusion Perspective on Omni-channel Retailing. *Journal of Interactive Marketing*, 44, 1-16.
- Chen, K. Y., Kaya, M., & Özer, Ö. (2008). Dual sales channel management with service competition. *Manufacturing & Service Operations Management*, 10(4), 654-675.

- Dawes J. (2008). Do Data Characteristics Change According to the Number of Scale Points Used? An Experiment Using 5-Point, 7-Point and 10-Point Scales. *International Journal of Market Research*, 50(1), 61-104.
- Devaraj, S., Matta, K. L. F., & Conlon, E. (2001). Product and Service Quality: The Antecedents of Customer Loyalty in the Automotive Industry. *Production and Operations Management*, 10(4), 424–439.
- Dumrongsiri, A., Fan, M., Jain, A., & Moinzadeh, K. (2008). A supply chain model with direct and retail channels. *European Journal of Operational Research*, 187(3), 691–718.
- Dutta, S., Bergen, M., Heide, J. B., & John, G. (1995). Understanding Dual Distribution: The Case of Reps and House Accounts. *Journal of Law, Economics and Organization*, 11(1), 189–204.
- Frazier, G. L. (1999). Organizing and Managing Channels of Distribution. *Journal of the Academy of Marketing Science*, 27(2), 226–240.
- Frazier, G. L., & Lassar, W. M. (1996). Determinants of distribution intensity. *Journal of Marketing*, 60(4), 39-51.
- Garvin, D. A. (1987). Competing on the Eight Dimensions of Quality. *Harvard Business Review*, 65(6), 101–109.
- Gummesson, E. (1988). Service Quality And Product Quality Combined. *Review of Business*, 9(3), 14–19.
- Herhausen, D., Binder, J., Schoegel, M., & Herrmann, A. (2015). Integrating bricks with clicks: retailer-level and channel-level outcomes of online–offline channel integration. *Journal of Retailing*, 91(2), 309-325.
- Hjorth-Andersen, C. (1984). The Concept of Quality and the Efficiency of Markets for Consumer Products. *Journal of Consumer Research*, 11(2), 708–718.
- John, G., & Weitz, B. A. (1988). Forward Integration into Distribution: An Empirical Test of Transaction Cost Analysis. *Journal of Law, Economics and Organization*, 4(2), 337–356.
- Johnson, T., Kulesa, P., Cho, Y. I., & Shavitt, S. (2005). The relation between culture and response styles: Evidence from 19 countries. *Journal of Cross-cultural psychology*, 36(2), 264-277.
- Kidwell, R. E., Nygaard, A., & Silkoset, R. (2007). Antecedents and effects of free riding in the franchisor–franchisee relationship. *Journal of Business Venturing*, 22(4), 522-544.
- Konuş, U., Verhoef, P. C., & Neslin, S. A. (2008). Multichannel shopper segments and their covariates. *Journal of Retailing*, 84(4), 398-413.
- Kozinets, R. V., Sherry, J. F., DeBerry-Spence, B., Duhachek, A., Nuttavuthisit, K., & Storm, D. (2002). Themed flagship brand stores in the new millennium. *Journal of Retailing*, 78(1), 17–29.

- Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of marketing*, 80(6), 69-96.
- Li, Z., Gilbert, S. M., & Lai, G. (2014). Supplier Encroachment Under Asymmetric Information. *Management Science*, 60(2), 449-462.
- Montoya-Weiss, M. M., Voss, G. B., & Grewal, D. (2003). Determinants of online channel use and overall satisfaction with a relational, multichannel service provider. *Journal of the academy of marketing Science*, 31(4), 448-458.
- Neslin, S. A., & Shankar, V. (2009). Key Issues in Multichannel Customer Management: Current Knowledge and Future Directions. *Journal of Interactive Marketing*, 23(1), 70-81.
- Neslin, S. A., Grewal, D., Leghorn, R., Shankar, V., Teerling, M. L., Thomas, J. S., & Verhoef, P. C. (2006). Challenges and Opportunities in Multichannel Customer Management. *Journal of Service Research*, 9(2), 95-112.
- Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of marketing research*, 17(4), 460-469.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. *Journal of Marketing*, 49(4), 41-50.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). Servqual: A Multiple-Item Scale For Measuring Consumer Perceptions of Service Quality. *Journal of Retailing*, 61(1), 12-40.
- Payne, E. M., Peltier, J. W., & Barger, V. A. (2017). Omni-channel marketing, integrated marketing communications and consumer engagement. *Journal of Research in Interactive Marketing*, 11(2), 185-197.
- Prasad, C. J., & Aryasri, A. R. (2009). Determinants of shopper behaviour in e-tailing: An empirical analysis. *Paradigm*, 13(1), 73-83.
- Rapp, A., Baker, T. L., Bachrach, D. G., Ogilvie, J., & Beitelspacher, L. S. (2015). Perceived customer showrooming behavior and the effect on retail salesperson self-efficacy and performance. *Journal of Retailing*, 91(2), 358-369.
- Sa Vinhas, A., & Anderson, E. (2005). How Potential Conflict Drives Channel Structure: Concurrent (Direct and Indirect) Channels. *Journal of Marketing Research*, 42(4), 507-515.
- Sa Vinhas, A., & Heide, J. B. (2015). Forms of Competition and Outcomes in Dual Distribution Channels: The Distributor's Perspective. *Marketing Science*, 34(1), 160-175.

- Singelis, T. M., Triandis, H. C., Bhawuk, D. P., & Gelfand, M. J. (1995). Horizontal and vertical dimensions of individualism and collectivism: A theoretical and measurement refinement. *Cross-cultural research*, 29(3), 240-275.
- Sorkun, M. F., Hüseyinoğlu, I. Ö. Y., & Börühan, G. (2020). Omni-channel capability and customer satisfaction: mediating roles of flexibility and operational logistics service quality. *International Journal of Retail & Distribution Management*, 48(6), 629-648.
- Thornton, J., & White, L. (2001). Customer orientations and usage of financial distribution channels. *Journal of services Marketing*, 15(3), 168-185.
- Trada, S., & Goyal, V. (2017). The dual effects of perceived unfairness on opportunism in channel relationships. *Industrial Marketing Management*, 64, 135-146.
- Tse, D. K., & Wilton, P. C. (1988). Models of consumer satisfaction formation: An extension. *Journal of marketing research*, 25(2), 204-212.
- Tse, S. Y., Wang, D. T., & Zhang, T. J. (2019). The effects of distributor relationship commitment and relationship exploration on opportunism: The moderating roles of exchange uncertainties and network factors. *Industrial Marketing Management*, 83, 301-313.
- Van Hemert, D. A., Van de Vijver, F. J., Poortinga, Y. H., & Georgas, J. (2002). Structural and functional equivalence of the Eysenck Personality Questionnaire within and between countries. *Personality and Individual Differences*, 33(8), 1229-1249.
- VanVoorhis, C. W., & Morgan, B. L. (2007). Understanding power and rules of thumb for determining sample sizes. *Tutorials in quantitative methods for psychology*, 3(2), 43-50.
- Verhoef, P. C., Kannan, P. K., & Inman, J. J. (2015). From multi-channel retailing to omni-channel retailing: introduction to the special issue on multi-channel retailing. *Journal of retailing*, 91(2), 174-181.
- Verhoef, P. C., Neslin, S. A., & Vroomen, B. (2007). Multichannel customer management: Understanding the research-shopper phenomenon. *International Journal of Research in Marketing*, 24(2), 129-148.
- Xu, X., & Jackson, J. E. (2019). Examining customer channel selection intention in the omni-channel retail environment. *International Journal of Production Economics*, 208, 434-445.
- Yue, X., & Liu, J. (2006). Demand forecast sharing in a dual-channel supply chain. *European Journal of Operational Research*, 174(1), 646-667.
- Zeithaml, V. A. (1988). Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence. *Journal of Marketing*, 52(3), 2-22.

Zeng, F., Chen, Y., Dong, M. C., & Zheng, J. (2015). Understanding distributor opportunism in a horizontal network. *Industrial Marketing Management*, 46, 171-182.

Books

Brynjolfsson, E., Hu, Y. J., & Rahman, M. S. (2013). *Competing in the age of omnichannel retailing* (pp. 1-7). Cambridge: MIT.

Buttle, F., & Maklan, S. (2019). *Customer Relationship Management* (4th ed.). Abingdon, United Kingdom: Routledge.

Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Sage Publications.

Grigoroudis, E., & Siskos, Y. (2009). *Customer satisfaction evaluation: Methods for measuring and implementing service quality*. Springer Science & Business Media.

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Sage publications.

Lavrakas, P. J. (2008). *Encyclopedia of survey research methods*. Sage Publications.

Internet websites

Hayes, A. F. (2012). PROCESS: A Versatile Computational Tool for Observed Variable Mediation, Moderation, and Conditional Process Modeling. Retrieved 15 December 2020, from <http://www.afhayes.com/public/process2012.pdf>

Redactie Binnenland. (2003, September 11). Waar wonen die lastige Antillianen? Trouw. Retrieved 15 December 2020, from <https://www.trouw.nl>

Nike. (2012, June 28). NIKE, Inc. Reports Fiscal 2012 Fourth Quarter and Full Year Results. Retrieved 15 December 2020, from <https://news.nike.com/news/nike-inc-reports-fiscal-2012-fourth-quarter-and-full-year-results>

Emerce. (2018, October 8). Helft van de groothandelaren voelt zich bedreigd door directe verkoop leveranciers. Retrieved 15 December 2020, from <https://www.emerce.nl/wire/2020888>

Nike. (2019, June 27). NIKE, Inc. Reports Fiscal 2019 Fourth Quarter and Full Year Results. Retrieved 15 December 2020, <https://news.nike.com/news/nike-inc-reports-fiscal-2019-fourth-quarter-and-full-year-results>

Maverick Advocaten. (2020, April 21). Verkoopbeperkingen, distributie en mededinging: wat is mogelijk en wat niet? Retrieved 15 December 2020, from <https://www.maverick-law.com/nl/blogs/verkoopbeperkingen-distributie-en-mededinging-wat-is-mogelijk-en-wat-niet-.html>

Miele. (n.d.). Experience Center in Vianen. Retrieved 15 December 2020, from <https://www.miele.nl/c/miele-experience-center-vianen-310.htm>

Miele. (n.d.). Gegevens & feiten. Retrieved 15 December 2020, from <https://www.miele.nl/m/gegevens-en-feiten-323.htm>

World Bank. (n.d.). World Bank Open Data | Data. Retrieved 15 December 2020, from <https://data.worldbank.org/>

Rapports

Centraal Bureau voor Statistiek. (2019). *Groei en grijzer*. Retrieved from <https://kennisopenbaarbestuur.nl/media/256486/2019st27-bevolkingsprognose-caribisch-nederland.pdf>

Deloitte. (2015). *Going digital, Going direct*. Retrieved from <https://www.deloitte.com/ca/en/pages/consumer-business/articles/going-digital-going-direct.html>

Appendix

Appendix I: Product Quality and Service Quality in-depth explained

Intrinsic product quality

Based on Garvin (1987), intrinsic product quality can be divided into eight attributes. These were also adopted by Archer and Wesolowsky (1996). Starting with *performance*, which refers to a product's characteristics when it is operative. Second, *features* are considered additions which provide the end-user extra functionalities. Third, *reliability* indicates the possibility of product failure in a certain period or the mean time until the first failure occurred. Fourth, *conformance* looks at the extent to which the product elements meet established market standards, the questionnaire will put this into comparison with other related brands. Fifth, *durability* of a product points out the quantity of usage for the time period in which product performance remains unchanged. Sixth, *serviceability* does not refer to an initial service but to the ease with which product failures can be restored. Seventh, *aesthetics* of a product is related to how a product looks, feels, sounds, tastes or smells. This particular assessment may sound subjective, however, there are patterns in consumer rankings, note for example, that "the thinner, the better" applies to smartphones. Finally, *image* considers information asymmetry between buyer and supplier.

Extrinsic product quality

With the help of (Morgan, 1984 in Archer & Wesolowsky, 1996) extrinsic product quality is also measurable. The first attribute is *price*. This is the amount of money that must be paid to acquire a certain product or service. Only the retail price is visible for consumers. Since price is a relative concept, in the questionnaire it is placed into a value for money context. Second, *warranty* is a written guarantee that promises to repair or replace a product in a given period, if necessary. Third, *advertising* concerns marketing communication from a company to a specific target group and the message can be product- or brand-orientated. Finally, the *brand name* helps customers to order from and distinguish between companies. In addition, a brand name can represent quality due to associations made by customers.

Service quality

Parasuraman, Zeithaml and Berry (1988) came up with five attributes of service quality. First, *tangibles* concern the physical elements of a service (such as uniforms of service personnel) upon which customers base their quality assessment. Second, *reliability* refers to the extent to which service organisations perform without failure. Third, *responsiveness*, which expresses itself in things as service personnel's quickness and helpfulness. Fourth, *assurance* concerns to what extent an organisation positions itself as a helpful conversation partner. Finally, *empathy* refers to the organisation's manner

of paying attention to its customers. This is related to the extent to which consumers feel important and understood by their supplier.

Table 12: Items for intrinsic product-, extrinsic product- and service quality scales.

Intrinsic product quality	Extrinsic product quality	Service quality
Performance	Price	Tangibles
Features	Warranty	Reliabilities
Reliability	Advertising	Responsiveness
Conformance	Brand name	Assurance
Durability		Empathy
Serviceability		
Aesthetics		
Image		

Appendix II: Survey questions

Introduction survey: Dear reader, Thank you for your participation to this study. My name is Ricardo Blaak and currently I am writing my Master's Thesis at the Erasmus University in Rotterdam. This survey focuses on the owners of a Miele washing machine. You will be questioned about your perception towards quality and customer satisfaction. Please be as honest as possible, your opinion counts. Participating in this survey will take approximately 5 minutes. Your answers are anonymous and will not be shared outside this study.

	Variable	Question	Answer options
Block 1	Q1. Experimental setting	In which country have you purchased the Miele washing machine?	The Netherlands, Curaçao
	Q2. Number of channels	Count the number of channels through which you gathered information and made the actual purchase (information search + purchase).	1-2, 3-4, 5-6, 7-8, 9-10, 11 or more
	Q3. Customer satisfaction	Give on a 0-10 scale your satisfaction level with the company Miele?	0-10
	Q4. Intrinsic product quality	How do you rate these features on quality with respect to your washing machine?	1=very poor, 2=poor, 3=fair, 4=good, 5=very good, 6=excellent, 7=exceptional
Block 2	Performance	Performance of the product when operating.	Idem
	Features	The extra features of the product.	Idem
	Reliability	Reliability and staying away from product failure.	Idem

	Conformance	The quality with respect to other brands.	Idem
	Durability	The durability of the product.	Idem
	Serviceability	The serviceability of the product.	Idem
	Aesthetics	The degree to what the product is stylishly.	Idem
	Q5. Extrinsic product Quality	How do you rate these features on quality with respect to your washing machine?	1=very poor, 2=poor, 3=fair, 4=good, 5=very good, 6=excellent, 7=exceptional
	Price	The degree to what you got value for money.	Idem
	Warranty	The obtained warranty with the purchase.	Idem
	Brand name	The degree to what Miele stands for quality.	Idem
	Q6. Service quality	How do you assess the quality of the following service features?	1=very poor, 2=poor, 3=fair, 4=good, 5=very good, 6=excellent, 7=exceptional
	Tangibles	Professional appearance of service personnel.	Idem
	Reliabilities	The ability to perform the promised service.	Idem
	Responsiveness	Responsiveness of service personnel.	Idem
	Assurance	Knowledge and courtesy of employees.	Idem
	Empathy	The degree to what individualized care is given.	Idem
Block 3	Q7. Age	What is your age?	18-100
	Q8. Household size	How many people does your household consist of?	1-15
	Q9. Household income	In which category do you estimate the yearly income of your household? (Do you not want to answer? Select then 'I prefer not to answer'.	Less than €15.000, €15.000 - €34.999, €35.000 - €54.999, €55.000 - €74.999, Meer dan €75.000, I prefer not to answer
	Q10. Channel type	Where was your last purchase made?	Offline, Online
		Culture. Please indicate to what extent you agree with the following statements.	Certainly not agree, not agree, mostly not agree, neither agree nor disagree, mostly agree, agree, definitely agree
	Q11. Individualism	It annoys me when other people perform better than I do.	Idem
	Q12. Collectivism	Usually I sacrifice my self-interest for the benefit of my group.	Idem

Q12. Power Distance	I would stimulate one of my employees to criticize the way I run the business.	Idem
---------------------	--------------------------------------------------------------------------------	------

Appendix III: Reliability and consistency tests

Scale: Intrinsic product quality

Reliability Statistics	
Cronbach's Alpha	N of Items
.937	7

Item-Total Statistics		
	Corrected Item-Total Correlation	Corrected Item-Total Correlation
Performance	.854	.924
Features	.729	.933
Reliability	.845	.923
Conformance	.856	.922
Durability	.754	.932
Serviceability	.801	.927
Aesthetics	.751	.932

Scale: Extrinsic product quality

Reliability Statistics	
Cronbach's Alpha	N of Items
.842	3

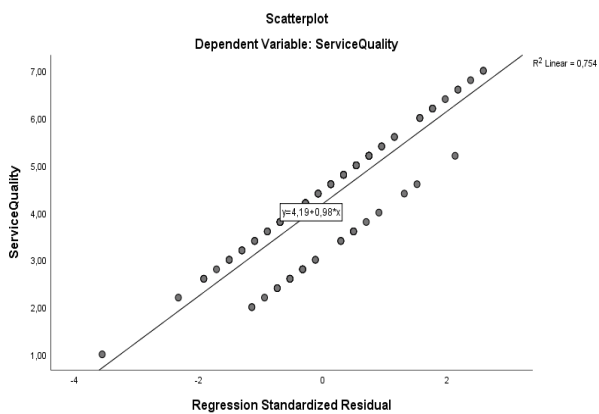
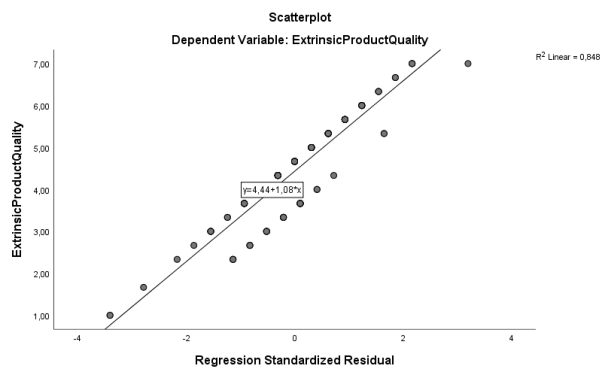
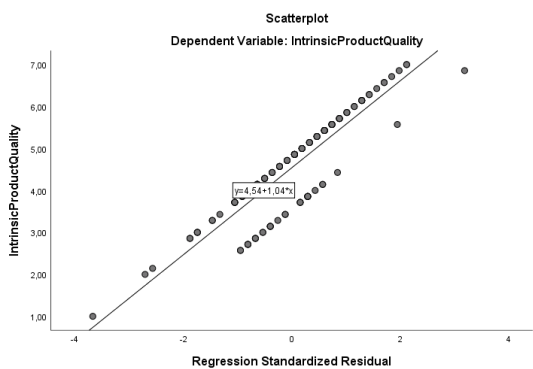
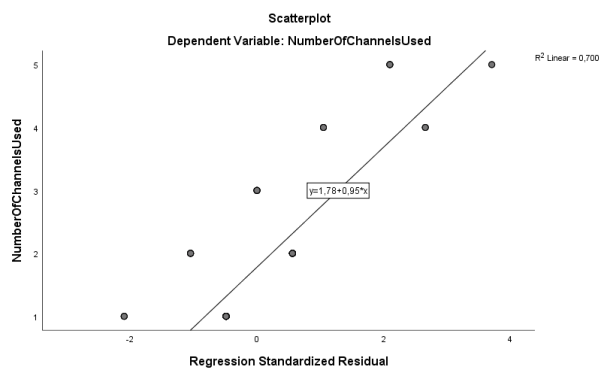
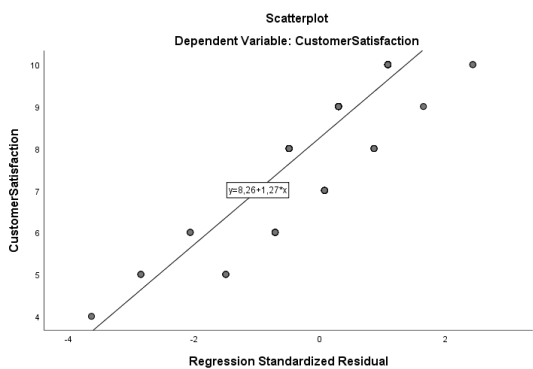
Item-Total Statistics		
	Corrected Item-Total Correlation	Corrected Item-Total Correlation
Price	.721	.768
Warranty	.689	.798
Brand name	.718	.774

Scale: Service quality

Reliability Statistics	
Cronbach's Alpha	N of Items
.935	5

Item-Total Statistics		
	Corrected Item-Total Correlation	Corrected Item-Total Correlation
Tangibles	.688	.944
Reliabilities	.874	.911
Responsiveness	.841	.917
Assurance	.870	.912
Empathy	.870	.912

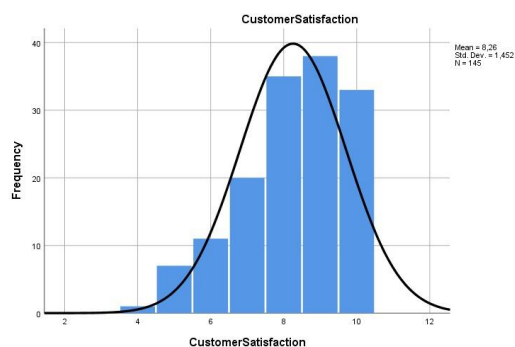
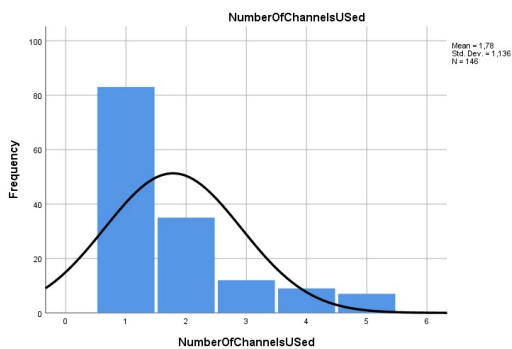
Appendix IV: The Assumption of Homoscedasticity: Study 1 and Study 2¹⁰



¹⁰ For all scatterplots the focal variable is dual-channel (versus non-dual-channel).

Appendix V: The Assumption of Normality: Study 1

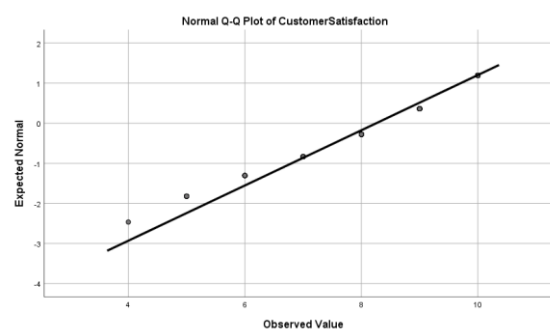
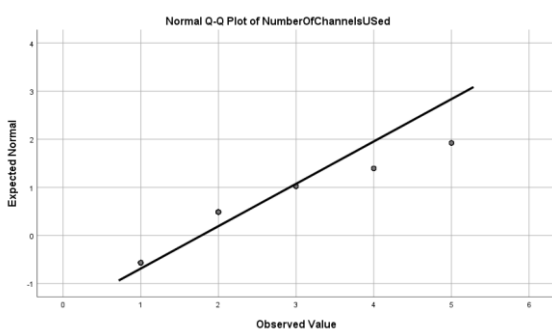
Histogram: Number of channels and customer satisfaction



Shapiro-Wilk test: Number of channels and customer satisfaction

Variable	Test of Normality		
	Shapiro-Wilk		
Variable	Statistic	df	Sig.
Number of channels	.709	146	< .001
Customer satisfaction	.902	145	< .001

Normal Q-Q plots: Number of channels and customer satisfaction



Appendix VI: Regression analysis per model

Model 1 output

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the estimate
1	.606 ^a	.367	.358	1.164

Note. a. Predictors: (Constant), NumberOfChannels, DualChannel

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	110.940	2	55.470	40.942	.000 ^b
	Residual	191.032	141	1.355		
	Total	301.972	143			

Note. a. Dependent Variable: CustomerSatisfaction

b. Predictors: (Constant), NumberOfChannels, DualChannel

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.571	.372		23.017	.000
	DualChannel	.873	.285	.245	3.062	.003
	NumberOfChannels	-.557	.102	-.437	-5.464	.000

Note. a. Dependent Variable: CustomerSatisfaction

Model 2 output

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the estimate
1	.608 ^a	.370	.356	1.166

Note. a. Predictors: (Constant), NumberOfChannels, DualChannel_NumberOfChannels, NumberOfChannels, DualChannel

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	111.701	3	37.234	27.396	.000 ^b
	Residual	190.271	140	1.359		
	Total	301.972	143			

Note. a. Dependent Variable: customer satisfaction

b. Predictors: (Constant), NumberOfChannels, DualChannel_NumberOfChannels, NumberOfChannels, DualChannel

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	8.280	.538		15.377	.000
	DualChannel	1.252	.582	.351	2.152	.033
	NumberOfChannels	-.460	.165	-.361	-2.790	.006
	DualChannel_Number OfChannel	-.157	.210	-.104	-.748	.455

Note. a. Dependent Variable: CustomerSatisfaction

Model 3 output

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the estimate
1	.692 ^a	.479	.440	1.060

Note. a. Predictors: (Constant), OnlineChannelType, HouseholdSize, HouseholdIncome, DualChannel, Age, NumberOfChannels, DualChannel_NumberOfChannels

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	97.145	7	13.878	12.344	.000 ^b
	Residual	105.679	94	1.124		
	Total	202.824	101			

Note. a. Dependent Variable: customer satisfaction

b. Predictors: (Constant), OnlineChannelType, HouseholdSize, HouseholdIncome, DualChannel, Age, NumberOfChannels, DualChannel_NumberOfChannels

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	6.856	.843		8.132	.000
	DualChannel	1.528	.628	.472	2.433	.017
	NumberOfChannels	-.295	.173	-.258	-1.700	.092
	DualChannel_Number OfChannel	.047	.226	.034	.208	.835
	Age	.013	.008	.133	1.684	.095
	HouseholdSize	.004	.065	.005	.063	.950
	HouseholdIncome	.067	.106	.051	.629	.531
	OnlineChannelType	-.877	.332	-.226	-2.642	.010

Note. a. Dependent Variable: CustomerSatisfaction

Model 4 output

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the estimate
-------	---	----------	-------------------	----------------------------

1	.703 ^a	.494	.439	1.062
---	-------------------	------	------	-------

Note. a. Predictors: (Constant), Individualism, Collectivism, PowerDistance, OnlineChannelType, HouseholdSize, Household Income, DualChannel, Age, NumberOfChannels, DualChannel_NumberOfChannels

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	100.239	10	10.024	8.892	.000 ^b
	Residual	102.584	91	1.127		
	Total	202.824	101			

Note. a. Dependent Variable: customer satisfaction

b. Predictors: (Constant), Individualism, Collectivism, PowerDistance, OnlineChannelType, HouseholdSize, Household Income, DualChannel, Age, NumberOfChannels, DualChannel_NumberOfChannels

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.652	.951		6.992	.000
	DualChannel	1.527	.640	.472	2.388	.019
	NumberOfChannels	-.229	.187	-.201	-1.228	.223
	DualChannel_NumberOfChannel	.001	.241	.001	.005	.996
	Age	.012	.008	.124	1.550	.125
	HouseholdSize	.013	.066	.016	.192	.848
	HouseholdIncome	.026	.109	.020	.236	.814
	OnlineChannelType	-.865	.332	-.223	-2.602	.011
	Individualism	-.087	.078	-.088	-1.122	.265
	Collectivism	.007	.086	.007	.083	.934
	PowerDistance	.124	.085	.135	1.450	.150

Note. a. Dependent Variable: CustomerSatisfaction

Appendix VII: PROCESS Output per model

Summary PROCESS Results for model 1, 2 & 3

DV:	Model 1 (Main model)			Model 2 (Set of control variables)			Model 3 (Full control)		
	Indirect effects	Boot LLCI	Boot ULCI	Indirect effects	Boot LLCI	Boot ULCI	Indirect effects	Boot LLCI	Boot ULCI
Customer satisfaction									
Total	1.130	.713	1.568	1.258	.787	1.749	1.173	.696	1.762
Intrinsic product q.	.623	.247	1.019	.657	.283	1.101	.602	.230	1.087
Extrinsic product q.	.440	.088	.834	.483	.108	.926	.475	.075	1.003
Service q.	.067	.260	.429	.117	-.254	.498	.096	-.234	.455
Total effect of dual-channels on CSAT			1.720***	1.805***			1.688***		
Direct effect of dual-channels on CSAT			.589***	.547**			.515**		

Note. Abbreviation: CSAT = customer satisfaction

Red mark = no mediation

* $p < .10$, ** $p < .05$, *** $p < .01$

Model 1 output

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 3.4 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

Documentation available in Hayes (2018). www.guilford.com/p/hayes3

```

Model   : 4
Y       : DV_Custo
X       : Dummy_Du
M1      : Intrinsi
M2      : Extrinsi
M3      : ServiceQ
  
```

Sample Size: 145

OUTCOME VARIABLE:
Intrinsi

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4576	.2094	1,0387	37,8647	1,0000	143,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,5530	,1830	19,4103	,0000	3,1912	3,9148
Dummy_Du	1,2703	,2064	6,1534	,0000	,8622	1,6784

OUTCOME VARIABLE:
Extrinsi

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	,4131	,1707	1,0812	29,4300	1,0000	143,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,5591	,1868	19,0578	,0000	3,1900	3,9283
Dummy_Du	1,1426	,2106	5,4249	,0000	,7263	1,5590

OUTCOME VARIABLE:

ServiceQ

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	,5266	,2773	,8681	54,8631	1,0000	143,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,1161	,1673	18,6213	,0000	2,7853	3,4469
Dummy_Du	1,3979	,1887	7,4070	,0000	1,0248	1,7710

OUTCOME VARIABLE:

DV_Custo

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	,7893	,6230	,8173	57,8504	4,0000	140,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,6397	,3258	11,1728	,0000	2,9956	4,2837
Dummy_Du	,5891	,2173	2,7111	,0075	,1595	1,0188
Intrinsi	,4903	,1556	3,1504	,0020	,1826	,7981
Extrinsi	,3853	,1562	2,4660	,0149	,0764	,6942
ServiceQ	,0482	,1186	,4060	,6854	-,1864	,2827

***** TOTAL EFFECT MODEL *****

OUTCOME VARIABLE:

DV_Custo

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	,4872	,2374	1,6188	44,5192	1,0000	143,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	6,9032	,2285	30,2089	,0000	6,4515	7,3549
Dummy_Du	1,7196	,2577	6,6723	,0000	1,2101	2,2290

***** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y *****

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI
1,7196	,2577	6,6723	,0000	1,2101	2,2290

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
,5891	,2173	2,7111	,0075	,1595	1,0188

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
TOTAL	1,1304	,2202	,7135	1,5673
Intrinsi	,6229	,1982	,2476	1,0183
Extrinsi	,4402	,1918	,0887	,8336
ServiceQ	,0673	,1736	-,2609	,4285

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
5000

NOTE: Variables names longer than eight characters can produce incorrect output.
Shorter variable names are recommended.

----- END MATRIX -----

Model 2 output

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 3.4 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2018). www.guilford.com/p/hayes3

Model : 4
Y : DV_Custo
X : Dummy_Du
M1 : Intrinsi
M2 : Extrinsi
M3 : ServiceQ

Covariates:
CV_Age CV_House CV_Onlin

Sample
Size: 141

OUTCOME VARIABLE:
Intrinsi

Model Summary	R	R-sq	MSE	F	df1	df2	p
	,5037	,2537	1,0274	11,5560	4,0000	136,0000	,0000

Model	coeff	se	t	p	LLCI	ULCI
constant	4,0137	,4581	8,7613	,0000	3,1078	4,9197
Dummy_Du	1,3546	,2138	6,3370	,0000	,9318	1,7773
CV_Age	-,0004	,0066	-,0619	,9507	-,0134	,0126
CV_House	-,1212	,0544	-2,2283	,0275	-,2288	-,0136
CV_Onlin	-,3510	,2464	-1,4248	,1565	-,8382	,1362

OUTCOME VARIABLE:
Extrinsi

Model Summary	R	R-sq	MSE	F	df1	df2	p
	,4709	,2217	1,0583	9,6854	4,0000	136,0000	,0000

Model	coeff	se	t	p	LLCI	ULCI
constant	4,1895	,4649	9,0107	,0000	3,2700	5,1089
Dummy_Du	1,2187	,2169	5,6178	,0000	,7897	1,6477
CV_Age	-,0023	,0067	-,3498	,7271	-,0156	,0109
CV_House	-,1393	,0552	-2,5234	,0128	-,2485	-,0301
CV_Onlin	-,3294	,2500	-1,3175	,1899	-,8239	,1650

OUTCOME VARIABLE:

ServiceQ

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	,5823	,3391	,8256	17,4474	4,0000	136,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,6230	,4107	8,8224	,0000	2,8109	4,4351
Dummy_Du	1,5273	,1916	7,9709	,0000	1,1484	1,9062
CV_Age	-,0026	,0059	-,4320	,6664	-,0142	,0091
CV_House	-,1108	,0488	-2,2718	,0247	-,2072	-,0143
CV_Onlin	-,4915	,2208	-2,2256	,0277	-,9282	-,0548

OUTCOME VARIABLE:

DV_Custo

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	,8028	,6445	,7947	34,4422	7,0000	133,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	2,8566	,5252	5,4395	,0000	1,8179	3,8953
Dummy_Du	,5467	,2296	2,3811	,0187	,0926	1,0008
Intrinsi	,4852	,1553	3,1251	,0022	,1781	,7923
Extrinsi	,3966	,1569	2,5284	,0126	,0863	,7069
ServiceQ	,0767	,1203	,6378	,5247	-,1612	,3146
CV_Age	,0077	,0058	1,3322	,1851	-,0037	,0192
CV_House	,0935	,0490	1,9064	,0588	-,0035	,1905
CV_Onlin	-,2874	,2207	-1,3020	,1952	-,7239	,1492

***** TOTAL EFFECT MODEL *****

OUTCOME VARIABLE:

DV_Custo

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	,5065	,2565	1,6252	11,7311	4,0000	136,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	6,7437	,5762	11,7042	,0000	5,6043	7,8831
Dummy_Du	1,8045	,2688	6,7120	,0000	1,2728	2,3361
CV_Age	,0064	,0083	,7738	,4404	-,0100	,0228
CV_House	-,0291	,0684	-,4252	,6714	-,1644	,1062
CV_Onlin	-,6260	,3099	-2,0204	,0453	-1,2388	-,0133

***** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y *****

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI
1,8045	,2688	6,7120	,0000	1,2728	2,3361

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
,5467	,2296	2,3811	,0187	,0926	1,0008

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
TOTAL	1,2578	,2418	,7871	1,7485
Intrinsi	,6573	,2034	,2836	1,1002
Extrinsi	,4834	,2102	,1084	,9253
ServiceQ	,1171	,1890	-,2542	,4973

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
5000

NOTE: Variables names longer than eight characters can produce incorrect output.
Shorter variable names are recommended.

----- END MATRIX -----

Model 3 output

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 3.4 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2018). www.guilford.com/p/hayes3

Model : 4
Y : DV_Custo
X : Dummy_Du
M1 : Intrinsi
M2 : Extrinsi
M3 : ServiceQ

Covariates:
CV_Age CV_House CV_Onlin CV_Indiv CV_Colle CV_Power

Sample
Size: 141

OUTCOME VARIABLE:
Intrinsi

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	,5378	,2892	1,0005	7,7320	7,0000	133,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,1094	,6083	5,1112	,0000	1,9061	4,3127
Dummy_Du	1,2857	,2338	5,4988	,0000	,8232	1,7481
CV_Age	-,0007	,0065	-,1062	,9156	-,0136	,0122
CV_House	-,1179	,0538	-2,1920	,0301	-,2243	-,0115
CV_Onlin	-,3415	,2448	-1,3953	,1653	-,8256	,1426
CV_Indiv	-,0031	,0594	-,0516	,9589	-,1206	,1144
CV_Colle	,1112	,0653	1,7021	,0911	-,0180	,2405
CV_Power	,1132	,0600	1,8875	,0613	-,0054	,2319

OUTCOME VARIABLE:
Extrinsi

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	,5105	,2607	1,0280	6,6986	7,0000	133,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,1238	,6166	5,0659	,0000	1,9041	4,3435
Dummy_Du	1,2069	,2370	5,0923	,0000	,7381	1,6756
CV_Age	-,0021	,0066	-,3236	,7468	-,0153	,0110

CV_House	-,1356	,0545	-2,4865	,0141	-,2434	-,0277
CV_Onlin	-,3079	,2481	-1,2411	,2168	-,7986	,1828
CV_Indiv	,0481	,0602	,7981	,4262	-,0710	,1671
CV_Colle	,1277	,0662	1,9279	,0560	-,0033	,2587
CV_Power	,0801	,0608	1,3164	,1903	-,0402	,2003

OUTCOME VARIABLE:

ServiceQ

Model Summary

R	R-sq	MSE	F	df1	df2	p
,6026	,3631	,8136	10,8310	7,0000	133,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,1716	,5486	5,7814	,0000	2,0865	4,2567
Dummy_Du	1,4009	,2108	6,6441	,0000	,9838	1,8179
CV_Age	-,0034	,0059	-,5683	,5708	-,0150	,0083
CV_House	-,1076	,0485	-2,2175	,0283	-,2035	-,0116
CV_Onlin	-,5055	,2207	-2,2904	,0236	-,9421	-,0690
CV_Indiv	-,0302	,0536	-,5644	,5734	-,1362	,0757
CV_Colle	,0426	,0589	,7234	,4707	-,0739	,1592
CV_Power	,1149	,0541	2,1235	,0356	,0079	,2219

OUTCOME VARIABLE:

DV_Custo

Model Summary

R	R-sq	MSE	F	df1	df2	p
,8067	,6508	,7986	24,2286	10,0000	130,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	2,5399	,6131	4,1426	,0001	1,3269	3,7529
Dummy_Du	,5149	,2427	2,1218	,0358	,0348	,9950
Intrinsi	,4681	,1570	2,9818	,0034	,1575	,7787
Extrinsi	,3936	,1608	2,4482	,0157	,0755	,7117
ServiceQ	,0683	,1223	,5582	,5777	-,1737	,3103
CV_Age	,0073	,0059	1,2482	,2142	-,0043	,0189
CV_House	,0929	,0492	1,8875	,0613	-,0045	,1903
CV_Onlin	-,3043	,2232	-1,3633	,1752	-,7459	,1373
CV_Indiv	,0053	,0540	,0990	,9213	-,1014	,1121
CV_Colle	,0391	,0594	,6578	,5118	-,0784	,1565
CV_Power	,0723	,0548	1,3195	,1893	-,0361	,1807

***** TOTAL EFFECT MODEL *****

OUTCOME VARIABLE:

DV_Custo

Model Summary

R	R-sq	MSE	F	df1	df2	p
,5500	,3024	1,5592	8,2382	7,0000	133,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	5,4416	,7594	7,1654	,0000	3,9395	6,9437
Dummy_Du	1,6875	,2919	5,7814	,0000	1,1101	2,2648
CV_Age	,0059	,0082	,7238	,4705	-,0102	,0221
CV_House	-,0230	,0671	-,3420	,7329	-,1558	,1098
CV_Onlin	-,6199	,3056	-2,0287	,0445	-1,2243	-,0155
CV_Indiv	,0208	,0742	,2800	,7799	-,1259	,1674
CV_Colle	,1443	,0816	1,7688	,0792	-,0171	,3056
CV_Power	,1647	,0749	2,1987	,0296	,0165	,3128

***** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y *****

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI
1,6875	,2919	5,7814	,0000	1,1101	2,2648

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
,5149	,2427	2,1218	,0358	,0348	,9950

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
TOTAL	1,1725	,2753	,6968	1,7617
Intrinsi	,6019	,2198	,2307	1,0865
Extrinsi	,4750	,2327	,0752	1,0024
ServiceQ	,0957	,1751	-,2343	,4545

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
5000

NOTE: Variables names longer than eight characters can produce incorrect output.
Shorter variable names are recommended.

----- END MATRIX -----