



# The influence of transaction cost variables on e-buyer satisfaction and loyalty: An e-business-to-consumer retailer context



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## Dates:

Received: 18 Mar. 2020  
Accepted: 18 June 2021  
Published: 30 Sept. 2021

## How to cite this article:

De Meyer-Heydenrych, C.F. & Struweg, I., 2021, 'The influence of transaction cost variables on e-buyer satisfaction and loyalty: An e-business-to-consumer retailer context', *Journal of Economic and Financial Sciences* 14(1), a565. <https://doi.org/10.4102/jef.v14i1.565>

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**Orientation:** Considering the shifts in online buyer behaviour in the past few years, e-buyer satisfaction and loyalty should be at the forefront of any business strategy.

**Motivation for the study:** Despite the confluence of transaction cost economics (TCE) and marketing, which predominantly appeared in relationship marketing and international marketing studies, there is a scarcity specifically of studies of the convergence of online retailing and TCE.

**Research purpose:** This study therefore advances the convergence of TCE and marketing research to describe the influence of online retail transaction cost variables (specifically, uncertainty and asset specificity) on e-buyer satisfaction and loyalty. In this study, uncertainty in the TCE is linked to online price and risk reduction, whilst asset specificity refers to special offers online.

**Research approach/design and method:** A quantitative, descriptive research design was followed, and 355 responses from e-buyers were analysed through structural equation modelling.

**Main findings:** The key findings of the study show that reducing uncertainty is the strongest predictor of e-buyer satisfaction and loyalty.

**Practical/managerial implications:** This implies that online retailers need to focus on developing marketing and online retail strategies that, from an economic perspective, unambiguously communicate all terms and conditions of the costs involved and provide alternative, safe payment options.

**Contribution/value-add:** These results further imply that TEC could be refined to ensure e-buyer satisfaction on loyalty from an online retail perspective and to focus on the role and relevance of uncertainty and asset specificity.

**Keywords:** transaction cost economics theory; price and risk reduction; exclusive offers; e-buyer behaviour; satisfaction; loyalty; online retail.

## Introduction

### Orientation

The marketing field has broadened the reach of transaction cost economics (TCE) to highlight research challenges and opportunities to be addressed. Williamson and Ghani (2012) recall Erin Anderson's early recognition of TCE's implications for marketing inquiry in the 1980s and beyond in her seminal work that combined the two fields. More recently, various studies have continued to acknowledge the applicability of TCE in marketing (Cheng & Lee 2011; Gatignon & Gatignon 2010; John & Reve 2010; Mukherjee, Banerjee & Bandyopadhyay 2012; Ndoro, Mudhara & Chimonyo 2015; Seggie 2012; Varadarajan 2019; Yang & Su 2014). Yet one aspect of marketing that has received scant attention in this literature is the applicability of TCE in online retail.

The Internet has directly affected retailing practices and thus customers' e-buyer behaviour. It is especially the way in which customers interact with and respond to retail offerings that have been profoundly modified (Mulky, Sarkar & Mukherjee 2019). With Internet penetration in South Africa in 2019 at 81%, more consumers have access to online retail stores (Gilbert 2019). Consumers are also moving towards online shopping because of the convenience it offers, the variety of channels available (e.g. websites, apps and purchasing through social media) and consumers' ability to search for products and services quickly and easily (Mandal 2020). Moreover, the growth of the Internet through smartphones has increased the use of e-commerce amongst rural consumers

(Han & Li 2019). Significant growth in online retailing, especially in emerging countries such as South Africa in recent years, provides promising commercial potential. In this regard, Euromonitor (2019) predicted that digital commerce in South Africa would achieve a 15% total value of the compound annual growth rate (9% constant with 2018 prices) to reach South African Rand (ZAR) 120.5 billion by 2023. Staffa et al. (2019) predicted a 9.9% growth from 2019 to 2023, which is 1% above the predicted global growth in retail e-commerce sales. Nisar and Prabhakar (2017) argued that such an increase in e-commerce would result in customers increasingly preferring to shop in the virtual marketplace. Many authors recognise the advantageous nature of e-buying for both the buyer and the retailer (Kumar & Anjaly 2017; Lin & Sun 2009; Rose, Hair & Clark 2011; Wu et al. 2014). For the retailer, this can be the catalyst that attracts new customers from new markets – those who are not physically in close proximity to the retailer – and e-buying provides a multitude of contact point opportunities for e-buyer satisfaction and increased loyalty. From a customer perspective, e-buyers can visit online stores in the comfort of their own home and in their own time. Yet Wu et al. (2014) concur with Bolton, Kannan and Bramlett (2000) and Tsai and Huang (2007) that e-buyers and online retailers alike often face challenges in acquiring and retaining customers, especially in online business-to-consumer (e-B2C) online retailing. These challenges can range from establishing trust and addressing data privacy concerns from an e-buyer perspective to integrating and coordinating omni-channel brand experiences from an online retailer point of view. The key to long-term success from an online retailer perspective is to give e-buyers satisfaction and, ultimately, to win their loyalty (Nisar & Prabhakar 2017; Sfenrianto, Wijaya & Wang 2018; Tran, Pham & Le 2019).

## Research purpose and objectives

This article forms part of a larger study, based on the work of Kumar and Anjaly (2017), which examined the management of touchpoints in the service delivery process that act as differentiators between a one-time purchase and long-time loyalty in order to measure customers' post-purchase experience with a brand. However, the primary objective of this article is to describe the influence of TCE theory variables (specifically, uncertainty and asset specificity) on buyer satisfaction and loyalty in an e-B2C milieu. The secondary research objectives include:

1. To determine the effect of price and risk reduction as the 'uncertainty' TCE theory variable on buyer satisfaction in e-B2C retail.
2. To explain the effect of exclusive offers as the 'asset specificity' TCE theory variable on buyer satisfaction in e-B2C retail.
3. To determine the extent to which buyer satisfaction affects loyalty in e-B2C retail buying.

This article has considerable theoretical and practical importance. Firstly, its most significant contribution lies in

the exploration of e-buyer behaviour from a TCE theory perspective. In general, this study contributes to the generalisability of TCE and provides an insightful lens through which to view future research on TCE's impact on e-satisfaction and e-loyalty. Secondly, previous research in this regard has traditionally involved Western samples (Teo & Yu 2005). By collecting data from South Africa, this research examines the applicability of the TCE model in the marketing research context of a non-Western and emerging market. In addition, as suggested by Hossain (2019), most businesses take aspects of TCE and its effect on satisfaction and loyalty for granted, even though it has not been empirically validated. This study therefore aims to provide empirical evidence of the effects.

This article has been organised such that the following section provides a theoretical framework for the study, focusing through the theoretical lens of the TCE and its application and consequences in e-B2C retail and marketing, leading to the formulation of the hypotheses for the study. This is followed by a description of the research design and method and the data analysis and findings. Thereafter, the research implications, limitations and suggestions for future research are presented.

## Theoretical framework and hypothesis formulation

### Brief overview of transaction cost economics

Transaction cost economics, developed by Williamson in 1975, originates from the 'new institutional economics paradigm' and is usually researched from an economics and supply chain (i.e. B2B) perspective (Ketokivi & Mahoney 2020; Kim & Li 2009). Although Tsay et al. (2018) suggested that the theorem can be used in many other fields because of its dynamic nature, for the purposes of this study, the TCE theory has been applied in a marketing context.

This decision is supported by Ludorf (2016), Hossain (2019) and Cuypers et al. (2021), who argue that TCE can and should be more frequently applied to theories in contemporary marketing, as it examines individual transactions between buyers and sellers and should be expanded from a B2B to a B2C perspective and from a customer's perspective.

Liang and Huang (1998), Teo and Yu (2005) and Hossain (2019) argued that TCE reveals profit amongst economic actors in either traditional or online markets and that minimising transaction costs as the rationale for using TCE to explain e-buyer transaction behaviour is based firmly in the transaction at the heart of e-buyer behaviour. Considering this, the study focuses on the effects of TCE from a customer's perspective in an online retailer context.

As discussed above, TCE theory was initially developed to explain the selection of 'market exchange and internal organization among firms' (Khan 2010:21). However, TCE

has been employed in a variety of buyer perspective transaction settings (Bhattacharya, Singh & Nand 2015; Che et al. 2015; Tang & Lin 2019). The literature indicates that, whereas actual costs are used in a firm's (a retailer's) valuation of costs in the value exchange, it is perceived costs that are more applicable in a consumer buyer value exchange (Liao & Cheung 2001; Rao et al. 2016). Thus, when a consumer is about to engage in a potential e-transaction, the cost benefits (or losses) are considered *relative* to other e-transactions. Williamson (1996:36) described three dimensions that have been 'especially instructive to the study of commercial transactions': the frequency with which transactions recur, the uncertainty to which they are subject and the condition of asset specificity. Earlier studies (Che et al. 2015; Khan 2010; Liang & Huang 1998) infer that for e-transactions, uncertainty and asset specificity affect customer behaviour.

Table 1 operationalises the three dimensions of TCE in an e-B2C retail context.

Considering the above, together with the aim to link TCE to a marketing perspective, the following section describes each construct measured in the study and their linkages to the theory.

**TABLE 1:** Transaction cost economics dimensions and their definitions.

TCE variable	Definition	Authors
Uncertainty	<p>The cost linked to the unanticipated outcome and the asymmetry of information</p> <p>From an online perspective, customers may experience technological uncertainty (e.g. whether the website/app is functioning correctly, and purchases can be made); price and quality uncertainty; a lack of consumer confidence in the online retailer and behavioural uncertainty as customers do not know how the online retailer will react in unforeseen circumstances</p> <p>The uncertainty that goes along with a changing business and economic environment</p> <p>Conducting transactions where the cost is minimised</p>	Liang and Huang (1998); Aubert, Rivard and Patry (2004); Teo and Yu (2005); Ketokivi and Mahoney (2020); Akhmedova, Marimom and Mas-Machuca (2020); Talwar et al. (2020)
Asset specificity	<p>The state of being exclusive, specific or personalised to a particular user</p> <p>In an online retail setting, asset specificity refers to the amount of customisation offered to customers. This refers to the action of providing modified content and offers based on individual customers' purchase behaviour</p> <p>The amount of investment that customers and businesses use to build relationships</p> <p>The number of assets linked to a specific transaction or sacrifices that customers must make in using assets for alternative purchases.</p> <p>Investments made to promote the long-term relationship, which can be physical, monetary, informational or relationship-based</p>	Williamson (1975); Khan (2010); Hossain (2019); Lin, Wu and Chiou (2017); Shi et al. (2018); Ketokivi and Mahoney (2020); Talwar et al. (2020)
Frequency of transactions	<p>The number of times a customer purchases from an online retailer within a certain period</p> <p>Identifying conditions under which exchanges can occur to improve a buyer-supplier relationship</p>	Akhmedova et al. (2020); Ketokivi and Mahoney (2020)

TCE, transaction cost economics.

## Constructs measured in the study – Linking transaction cost economics to marketing

For the purposes of this study, the TCE elements of uncertainty, asset specificity and frequency of transactions are related to the marketing concepts of price and risk reduction, special (customised) offers and loyalty.

### Link between uncertainty of transaction cost economics and price and risk reduction in e-business-to-consumer transactions

Shopping online causes customers' higher levels of risk and uncertainty than purchasing from physical retail stores. This is because the customer is not certain whether the product will actually be delivered or whether the correct cost transaction will be carried out (Han & Li 2019). Therefore Hossain (2019) and Ma, Jang and Lai (2020) argued that when purchasing online customers expect price discounts and mechanisms put in place by the online retailer to reduce uncertainty and risk. Reducing uncertainty is known as being one of the biggest drivers to encourage customer loyalty. To reduce uncertainty as in the TCE for online purchases, price and risk reduction become essential to online buyers. Being able to reduce transaction costs and risk will enable businesses to develop relationships with customers and develop long-term relationships, whilst high levels of uncertainty can reduce the chances that a transaction takes place (Tsay et al. 2018; Yang et al. 2020).

### Link between asset specificity and special offers (customisation) in e-business-to-consumer transactions

Asset specificity links to marketing in the sense that it refers to how much investments businesses and customers make to keep the relationship and increase transactions that links to the concept of Relationship marketing as there can be high exit barriers and switching costs involved if positive relationships are not developed (Lin et al. 2017). Hossain (2019) argued that in an online retailing environment, asset specificity refers to how trust and customisation are built. Customers expect to receive special offers customised to their purchase behaviour that provide them with cost savings or alternative benefits within the relationship. Talwar et al. (2020) indicated that from an online perspective, customers will need to make more investments (e.g. have access to data; smartphones, software, etc.), which increases the uncertainty of dealing with the online retailer. Therefore, relationships need to be built to increase satisfaction. At the beginning, customers may have low levels (investments) of asset specificity, but this will increase with more investments as relationships grow and develop (Tsay et al. 2018).

### Link between frequency of transactions and satisfaction and loyalty in e-business-to-consumer transactions

The third TCE theory variable – the frequency in which transactions recur – is operationalised, for the purpose of this study, as satisfaction and loyalty. In e-B2C commerce, satisfaction is regarded as the fulfilment that comes from earlier real buying experiences with an e-commerce retailer, for the customer, which, if achieved, ultimately leads to

increased purchases (i.e. increased frequency of transactions) (Ting et al. 2016). This is therefore as a result of overall satisfaction based on all previous transactions the customer experienced with the e-commerce retailer. In this context, Yan and Du (2016) argued that e-buyer customer satisfaction is essential in attracting e-buyers to visit and learn about a retailer's products and services and ensuring *repeat* purchases. Satisfaction for the buyer in an e-B2C context can therefore be defined as an affective position and attitude arising from a holistic assessment of the relationship with the firm after a transaction (Budiastuti 2018). In online B2C settings, satisfaction is found to be a key determinant of repeat purchase intentions or loyalty (McCole et al. 2019). Online customer satisfaction, therefore, according to MacDonald and Smith (2004), has been applied to determine e-commerce success, as well as its resultant positive effect on post-purchase customer behaviour, especially loyalty. Correspondingly, Pereira, De Fátima Salgueiro and Rita (2016) found that e-customer satisfaction is an antecedent of loyalty, in line with studies by Kim, Qu and Kim (2009) and Anderson and Srinivasan (2003). Ensuring customer satisfaction and loyalty by developing long-term relationships with them is necessary from an economic (profit) perspective of a business (Yang et al. 2020). In the context of this study, loyalty is considered from an 'overall loyalty' perspective and does not consider the individual outcomes of loyalty such as attitudinal or behavioural loyalty but rather considers loyalty as an overall concept that inherently combines attitudinal and behavioural loyalty (Biscaia et al. 2017). As Bhatnagar, Syed and Mishra (2017) explained, the concept of customer loyalty does not have a uniformly accepted definition as it can be seen from many perspectives. For purposes of this study, loyalty is considered the overall concept as to whether customers would repurchase from the online retailer and have a positive attitude towards the retailer based on previous experience. From an online retail perspective, customer loyalty is difficult to maintain as multiple competitors are available on various websites (Tzavlopoulos et al. 2019).

Therefore, based on the above literature review and links between the TCE and marketing, the following hypotheses is developed for the study:

- H<sub>1</sub>: There is a significant relationship between price and risk reduction as the 'uncertainty' TCE theory variable and buyer satisfaction in e-B2C retail.
- H<sub>2</sub>: There is a significant relationship between exclusive offers as the 'asset specificity' TCE theory variable and buyer satisfaction in e-B2C retail.
- H<sub>3</sub>: Buyer satisfaction has a significant relationship with loyalty (frequency of transactions) in e-B2C retail buying.

The following section presents the methodological part of the study.

## Research design

### Research approach

As this study was quantitative and descriptive in nature, a positivistic research approach was used. This approach was

used as it is most suitable when researching human behaviour (Burns & Burns 2008), when it is objective in nature (Rahi, Yasin & Alnaser 2017:1) and when the researcher is independent (Wahyuni 2012:70), as is the case in this study. As this study was based on the previous studies of Kumar and Anjaly (2017), Rose et al. (2012) and Park and Kim (2003), as the existing literature about the subject was available, and as the research questions could be empirically tested, a deductive approach was most suitable (Saunders, Lewis & Thornhill 2016:148).

### Research method

As this study aimed to describe the behaviour of consumers in terms of the influence of pricing and costing elements on their online purchase behaviour and the relationships between the constructs, a quantitative, descriptive research method was employed (Saunders et al. 2016:165; Quinlan et al. 2019). A non-probability convenience sampling method, using a self-administered, face-to-face survey method, enabled the researchers to employ a deductive research approach (Rahi et al. 2017:2).

### Research population and sampling

The population for the study included any person living in South Africa who had purchased from an online retailer such as Superbalist, Amazon, the Google App store or any retailer's website (e.g. Woolworths online). From this population, the sample elements included respondents living in Gauteng who met the inclusion criteria of being 18 years and older and who had purchased online in the 6 months preceding the data collection. Gauteng was selected as it includes five major metros and is seen as the economic hub of South Africa, with a large number of people having access to the Internet and earning higher incomes that enable them to purchase online (City of Johannesburg 2019).

### Measuring instrument

The questionnaire used in this study was adopted from the previous studies of Kumar and Anjaly (2017), Rose et al. (2012) and Park and Kim (2003). Although these studies included aspects measuring elements such as website design and quality, only the items in the questionnaire relating to the elements of cost and pricing and their effects on satisfaction and loyalty were used for the purposes of this study. The questionnaire included two sections. Section A measured the demographic and behavioural aspects such as age and how often they purchase online. This section included nominal and ordinal scales. Section B of the questionnaire measured aspects of pricing and risk (uncertainty) and exclusive offers (asset specificity) in purchasing online (nine items), satisfaction (seven items) and loyalty (four items). An unlabeled Likert-type scale with end points of 1 = strongly disagree and 5 = strongly agree was used in Section B.



## Research procedure and ethical considerations

Ethical clearance was provided by the relevant institutional committees before the data were collected. Trained fieldworkers were used to distribute questionnaires to respondents who met the inclusion criteria. Before providing the questionnaire to potential respondents, the fieldworkers provided them with a description of the study, and they were informed about their rights (e.g. respondents could withdraw from the study at any time without any negative consequences, and no payment would be given for participating in the study). Respondents were assured of their anonymity and confidentiality, as no names or contact details were requested. Respondents were approached using a convenience sampling method in public areas where permission to distribute questionnaires was not needed. After data cleaning, 355 questionnaires were retained for further statistical analysis.

## Statistical analysis

The data were analysed using Statistical Package for the Social Sciences (SPSS) and Analysis of Moment Structures (AMOS) version 25. Various steps were included in the data analysis. First, the data were cleaned and checked for normality using skewness and kurtosis. The data were found to be normally distributed, as it fell within the parameters of the absolute values of -2 and +2 (skewness) and -7 and +7 (kurtosis). As the data were normally distributed, further parametric testing could be done. Second, descriptive analysis was conducted in which the means and standard deviations of the data were determined. Finally, an exploratory factor analysis (EFA), a confirmatory factor analysis (CFA) and structural equation modelling (SEM) were conducted (see the 'Results' section for more details on the factor loadings, reliability, validity and model fit). Both an EFA and a CFA were conducted, as this research combined three previous studies, and the uncertainty and cost specificity elements of the questionnaire had not previously been tested in a South African context. The authors wanted to determine whether there was a further underlying factor structure amongst the items before confirming the structure.

Before conducting the EFA and the CFA, the data were analysed to determine whether it was suitable for those analyses. Pallant (2016) suggested that data must meet at least two criteria before an EFA, or a CFA can be conducted. The first criterion of enough data points was met, as 18 subjects for each scale item were available, which exceeds the suggested 7–10 subjects per scale item (Pallant 2016). Second, the Kaiser-Meyer-Olkin (KMO) value was 0.922 (above the suggested value of 0.6), and Bartlett's test of sphericity was significant ( $p \leq 0.000$ ). These results showed that the data met the criteria for sampling adequacy. The principal components method with Varimax rotation was used for the EFA, whilst the maximum likelihood method was used for the CFA, as suggested by Fabrigar et al. (1999:277), as this method allows for the significance testing and the determination of goodness of fit indices to be done. When conducting the analysis, only Eigen values above one were extracted, with coefficients of 0.3 and less being excluded. The results of the EFA and the CFA and

the reliability and validity of the analysis are presented in the following section, together with the results of the SEM.

## Ethical considerations

Ethical clearance was obtained from the University of Johannesburg, College of Business and Economics, School of Consumer Intelligence and Information Systems Ethics Committee (Sub-committee of CBEREC) – 2018MM018.

## Results

The section below presents the results of the demographic and behavioural profile of the respondents, the descriptive statistics for all the scale items and the results of the EFA, CFA and SEM.

### Demographic and behavioural profile of respondents

Table 2 depicts the results of the demographic and behavioural profile of the respondents for characteristics such as age, gender and Internet purchase activity. The table reports the frequency (F) and percentage (%) for each variable.

The results in Table 2 indicate that most respondents were between the ages of 18 and 29 (76.6%), female (51.3%), accessed the Internet via their smartphone (53.5%) and mainly purchased online every 3 months (22.5%). In addition to the demographics reported in Table 2, respondents were also

**TABLE 2:** Demographic and behavioural profile of respondents.

Variable	F	%
<b>Age (in years)</b>		
18–29	272	76.6
30–39	66	18.6
40–49	11	3.1
50+	6	1.7
<b>Total</b>	<b>355</b>	<b>100</b>
<b>Gender</b>		
Male	169	47.6
Female	182	51.3
Missing values	4	1.1
<b>Total</b>	<b>355</b>	<b>100</b>
<b>How do you access the Internet?</b>		
Cellphone	190	53.5
Tablet	51	14.4
Laptop	114	32.1
<b>Total</b>	<b>355</b>	<b>100</b>
<b>How often do you purchase online?</b>		
Once a week	12	3.4
More than once a week but less than once a month	17	4.8
Once a month	68	19.2
More than once a month but less than every 3 months	47	13.2
Every 3 months	80	22.5
More than every 3 months but less than every 6 months	36	10.1
Every 6 months	57	16.1
More than every 6 months but less than once a year	17	4.8
Once a year	21	5.9
<b>Total</b>	<b>355</b>	<b>100</b>

asked to write down from which online store they mainly purchased from. Analysis of this indicates that the majority of respondents purchased from Takealot (24.5%), followed by Superbalist (16.9%) and then Pick n Pay online (7.9%).

### Exploratory factor analysis

As the study combined previous studies and these have not been tested in a South African context before, an EFA was conducted. The results of the EFA indicated that the data could be further reduced into four factors. The first factor (three items) was labelled 'price and risk reduction' as the items measured in each linked to the 'uncertainty' element of the TCE, whilst the second factor (eight items) was labelled 'exclusive offers', which linked to the 'asset specificity' element of the TCE. The final two factors were labelled 'satisfaction' (seven items) and 'loyalty' (four items) and all included the Frequency of Transaction aspects of the TCE. These four factors explained 73.0% of the variance. After conducting the EFA, a CFA was conducted to confirm the structure.

### Confirmatory factor analysis

As indicated in research design section above, the data were firstly analysed to determine whether it was suitable to conduct the CFA. The data met all the criteria of minimum sample size, the KMO being above 0.6 and Bartlett's test of sphericity was significant indicating sampling adequacy (Muthen & Muthen 2002). The CFA was conducted using the maximum likelihood method as suggested by Fabrigar et al. (1999) in order to determine goodness of fit indices. The CFA resulted in a four-factor solution, but in order to improve the model fit, eight items were removed. One price reduction item (uncertainty reduction) and three exclusive offers items (asset specificity) had to be removed. Three 'satisfaction' items and one 'loyalty' item were also removed (frequency of transactions). For the analysis, only Eigen values above one were extracted and any coefficient below 0.3 was removed. To ensure that the results of the CFA were valid and reliable, the construct validity – through factor

loadings, average variance extracted (AVE), composite reliability (CR) and Cronbach's alpha (CA) as shown in Table 3 – was calculated, as well as the discriminant validity, as depicted in Table 4.

According to Fornell and Larcker (1981), the factor loadings in Table 3 should be  $\geq 0.5$ , the AVE should be  $\geq 0.5$ , that assesses convergent validity composite reliability and CA should be  $\geq 0.7$  (but in the social sciences, a value of 0.6 is acceptable) to determine reliability and internal consistency (Pallant 2016). The results of Table 3 therefore indicate that the criteria for reliability and validity were met.

Discriminant validity, as shown in Table 4, is calculated by determining the square root of the AVE for each factor. According to Fornell and Larcker (1981), this value (shown in bold) should be greater than the correlations' values. As shown in Tables 3 and 4, all parameters for reliability and validity were met. The high correlations may indicate a level of multicollinearity although this was tested throughout the analysis. According to Grewal, Cote and Baumgartner (2004:526), multicollinearity in SEM only becomes an issue when the correlations are above 0.9; the CR is below 0.7 and a small sample size is used. None of these three are valid for this study as the results show indicating that multicollinearity was not a problem in this study.

### Structural equation modelling

The results of the SEM indicate the relationships between the variables and give the goodness of fit indices. Table 5 provides the model fit summary. For a model fit to be seen as good or great, the CMIN/DF should be  $\leq 3$ , comparative fit index (CFI)  $> 0.90$ , TLI  $> 0.95$ , root mean square error of approximation (RMSEA)  $< 0.05$  and PCLOSE  $> 0.05$  (Hair et al. 2010). All the parameters are met or exceeded, indicating that the results show a good model fit.

Figure 1 provides the results of the SEM for the relationships between the factors and the strength of those factors (beta values).

**TABLE 3:** Factor loadings, composite reliability, average variance extracted and Cronbach's alpha values.

Variable name	Item	Factor loading	AVE	CR	Cronbach's $\alpha$
Price and risk reduction (uncertainty reduction)	PR2	0.942	0.749	0.856	0.600
	PR3	0.782	-	-	-
Exclusive offers (asset specificity)	Exclu4	0.832	0.623	0.868	0.809
	Exclu5	0.803	-	-	-
	Exclu6	0.795	-	-	-
	Exclu7	0.724	-	-	-
Satisfaction	Sat3	0.866	0.753	0.938	0.917
	Sat4	0.902	-	-	-
	Sat5	0.885	-	-	-
	Sat6	0.857	-	-	-
	Sat7	0.826	-	-	-
Loyalty (frequency of transactions)	Loy2	0.892	0.743	0.897	0.884
	Loy3	0.852	-	-	-
	Loy4	0.841	-	-	-

AVE, average variance extracted; PR, Price and risk reduction; Exclu, Exclusive; Sat, Satisfaction; Loy, Loyalty; CR, composite reliability.

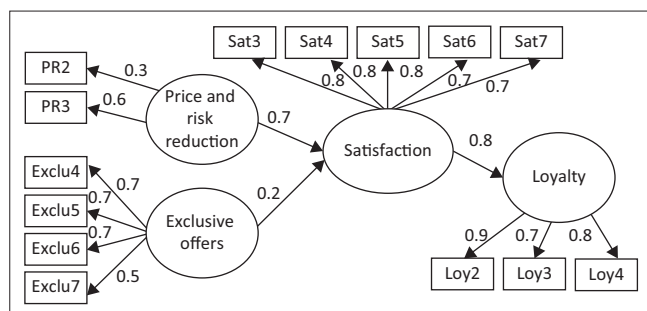
**TABLE 4:** Correlation matrix indicating discriminant validity.

Construct	Price and risk reduction	Exclusive offers	Satisfaction	Loyalty
Price and risk reduction (uncertainty)	<b>0.865</b>	-	-	-
Exclusive offers (asset specificity)	0.158	<b>0.789</b>	-	-
Satisfaction	0.744	0.316	<b>0.868</b>	-
Loyalty	0.575	0.277	0.833	<b>0.861</b>

**TABLE 5:** Model fit summary of the structural equation model.

Fit indices	Result
CMIN/DF	1.823
CFI (comparative fit index)	0.978
TLI	0.973
RMSEA (root mean square error of approximation)	0.048
PCLOSE	0.572

TLI, Tucker-Lewis index; CMIN/DF, Minimum discrepancy per degree of freedom; PCLOSE, p of Close Fit.



Exclu, exclusive; Loy, loyalty; PR, price and risk reduction; Sat, satisfaction.

**FIGURE 1:** Results of the structural equation modelling.

The results from the factor analysis and the SEM, as shown in Figure 1, indicate that there are positive significant relationships between price and risk reduction (uncertainty reduction) and satisfaction ( $p \leq 0.001$ ), exclusive offers (asset specificity) and satisfaction ( $p \leq 0.001$ ) and satisfaction and loyalty ( $p \leq 0.001$ ) (frequency of transactions). Price and risk reduction especially are strong predictors of satisfaction ( $B = 0.71$ ), but satisfaction is the strongest predictor of loyalty ( $B = 0.83$ ). Based on these findings, H1, H2 and H3 can all be accepted. This indicates that respondents require online retailers to reduce the uncertainty when purchasing online and to increase the asset specificity of the purchase in order to increase the frequency (and loyalty) of transactions.

## Discussion

The results of the study showed that the respondents in the study clearly differentiated 'price' as two different factors that link directly to the 'uncertainty reduction' and 'asset specificity' elements of the TCE. The respondents indicated that they want online retailers to provide price as a way to reduce risk (e.g. providing warranties and guarantees and offering free returns of products and cash on delivery) and to provide exclusive offers to them (e.g. loyalty rewards, additional discounts based on previous purchases and individualised offers). If online retailers want to increase profits through customer satisfaction and loyalty (transaction element of the TCE), it is essential that they reduce the uncertainty risk and provide asset specificity through customised offers. The findings of the study clearly show that theories (such as the TCE) should be tested in various fields (such as marketing) as these can assist businesses in ensuring customer and stakeholder value is applied throughout the business. Although the TCE has mainly focused on B2B environments (e.g. economics and supply chain), this study's findings show that the theory is relevant in an online and B2C context as well. These findings support the suggestion by Rita, Oliveira and Farisa (2019) and Hossain (2019) that the TCE is applicable in various contexts and that reducing uncertainty, for example, (price) and offering customised offerings through a relationship marketing programme can increase customer satisfaction and loyalty. Akhmedova et al. (2020) also support the findings of the study where the authors indicate that customers need to have their risk of unforeseen situations reduced and provide customers with customised services. As transactions increase and

relationships develop, the uncertainty and risk involved decrease as customers become more familiar and knowledgeable about the online retailer (Sullivan & Kim 2018).

From the results, it can be noted that online retailers need to consider how they offer exclusive offers to customers and to ensure that customers are satisfied before they will consider becoming loyal.

## Practical implications

From the results of the study, it can be noted that the TCE can be extended to other fields in management and should be reconsidered in new contexts. The findings show that although the TCE is usually researched in a B2B setting, its relevance can be extended to a B2C perspective. Businesses should therefore consider the TCE as an alternative way of developing marketing strategies from an e-retailer perspective as shown in this study. With many businesses moving towards omni-channel retailing because of the changes in the current economic environment and the increased use of technology, it is suggested that B2C omni-channel retailers reconsider their business model to include the findings of this study. The results of the study show that online retailers must redevelop their marketing strategies to also focus on the uncertainty and asset specificity elements linked to customers' perceptions of the business. This requires that all marketing mix elements need to be redesigned with the focus on reducing uncertainty and providing customers with value through asset specificity of special (customised) offers. Furthermore, to redesigning the marketing strategy, it will be essential for B2C online retailers to focus on the promotions and relationship marketing efforts and clearly communicate on an individual level with each customer, how uncertainties can be reduced during the transaction (e.g. have clear and easy return policies, provide alternative payment methods and ensure that personal and credit card information is kept confidential). Customers want to be seen as important to the online retailer and want to be offered exclusive offers (i.e. offers that are customised to the individual customer based on their previous purchases). Online retailers also need to ensure that customers are satisfied before they will increase their spending with the online retailer. This is essential in order to create repeat purchases through relationship marketing (frequency of transactions in the TCE) and to generate more profit for the online retailer that is essential for the future sustainability of the online retailer.

## Limitations and recommendations

The limitations of the study include that a convenience sampling method was used to collect the data. The data were also only collected in one province of South Africa, and, in addition, the demographic profile of the respondents was skewed towards respondents under the age of 30. Therefore, future research should consider a quota sampling method to ensure a spread of ages and to identify whether the results would be different based on generational theory. The study

also did not consider the difference in terms of the type of online purchase made and whether that could influence the type of cost factor involved. The study also did not consider the full extent of the TCE and all various aspects of asset specificity.

The main recommendations for this study include that online retailers should:

- Ensure that the marketing mix elements in the marketing strategy are clearly developed to reduce uncertainty for customers.
- Ensure relationship marketing is applied within the online retailer and specifically with customers so that each customer can be communicated at an individual level with customers and special offers be developed for each type of customer.
- As part of the marketing strategy, communicate with all stakeholders so as to reduce the uncertainty of the transaction, such as alternative payment methods (e.g. Electronic funds transfer (EFT), credit card, cash on delivery, purchasing via vouchers) and explain how payment and credit card details will be managed, how third parties will use personal detail and ensure that products and services purchased will be delivered. This requires that all parties are clearly aware of all the terms and conditions involved in the purchase/exchange process.
- Relationship marketing needs to be considered as a way to link with the third element of the TCE, namely the frequency of transactions. By linking with relationship marketing, the frequency of transactions can be further developed to not only include how often purchases are made, but how loyal the customer is.
- Provide customers with exclusive offers based on their previous purchase history and offer suggestions for purchases based on previous purchases.
- Ensure that customers are satisfied with the pre-purchase, purchase and post-purchase experience in order to create loyalty.
- Conduct more research on how the TCE can be used and needs to be adapted from a B2C perspective in an online context as technology and the current economic environment is driving more customers to the online retail sphere.

## Conclusion

This study provides online retailers with important insights into how to increase customer satisfaction and loyalty, which is essential for business growth and profitability (McCole et al. 2019). Specifically, the theory of TCE was used, and it was found that two elements are the greatest predictors of online satisfaction: decreasing uncertainties and increasing the asset specificity of purchases.

The findings of this study confirm that, even in an emerging and non-western economy, similar results are observed to those in studies in Western economies, and that perceived costs are more applicable in a consumer buyer value exchange (Liao & Cheung 2001; Rao et al. 2016). This suggests that worldwide

(and particularly as 62% of online purchases by South Africans in the past year were from international retailers (Masweneng 2018), the focus of the retailer should be on reducing the uncertainty of the purchase and payment and ensuring that offers are exclusive and individualised to customers in order to derive satisfaction, loyalty and, ultimately, profit.

## Acknowledgements

### Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

### Authors' contributions

Both authors contributed equally to this work.

### Funding information

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

### Data availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

### Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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