Customer resistance to churn in a mature mobile telecommunications market

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Abstract: Effective customer retention is critical for company survival, especially in a mature mobile telecommunications market. To build on customer retention research, we propose an integrative model capturing the dual relational mechanisms that explain customer resistance to churn. We empirically test the model using data from 815 subscribers who have stayed with their mobile network operators for more than three years. The results show that two contrasting mechanisms, dedication-based and constraint-based relationships, simultaneously determine customer resistance to churn.

The constraints of procedural, financial, and relational costs significantly influence perceived risk, while dedication factors of economy-based and identification-based trust significantly influence commitment.

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1   Introduction

Customer churn is a major concern in the mobile telecommunications market (Ahn et al., 2006). For most mobile network operators (MNOs), the annual churn rate ranges from 20% to 40% (Ahn et al., 2006; Kim et al., 2004). In Korea, where the market has reached saturation and the number portability policy is in force, the high rate of customer churn is causing significant losses to the MNOs (KISDI, 2013; Reichheld and Schefter, 2000). When customers leave, MNOs incur two types of churn costs, one that originates from the loss of revenue as existing customers leave and the other from the additional sales and marketing costs needed to recruit new customers in order to maintain market share. By increasing customer retention by 5%, MNOs could see a rise in profits from 25% to 95% (Reichheld and Schefter, 2000). In general, attracting new customers is expensive as it costs five times more than retaining existing customers (Reichheld and Schefter, 2000). Thus, clearly, customer churn is expensive.

One effective way to manage customer churn is to understand the determinants of resistance to churn among long-term customers. This understanding can then be used in a customer retention strategy. There are many studies that have examined the issue of customer retention and churn in the telecommunications sector (Chuang, 2011; Deng et al., 2010; Hong et al., 2008; Hossain and Suchy, 2013; Keramati and Ardabili, 2011; Kim and Hwang, 2012; Kim et al., 2013, 2016; Malhotra and Malhotra, 2013; Nimako et al., 2014; Shin and Kim, 2008; Svendsen and Prebensen, 2013). For example, Ahn et al. (2006) found that call quality, switching cost, dissatisfaction, and service use influenced churn behaviour. Keaveney (1995) identified eight factors that were significant in forming a churn attitude: price, inconvenience, core service failure, service encounters, response to failure, competition, ethical problems, and involuntary incidents. Using a binomial logit model, Kim and Yoon (2004) found that the probability of a subscriber switching carriers was dependent on subscription duration and the level of satisfaction with alternative-specific service attributes including call quality, tariff level, handsets, brand image, and income.

While existing studies contribute to the understanding of churn, they have a common focus, which is on 'why customers leave'. The determinants of why customers leave are different from the determinants of why customers resist leaving (i.e., why customers stay). IT adoption research supports this argument by contending that it is not possible to define resistance to an innovation as the opposite of acceptance because complete acceptance or resistance comes from different successive procedures (Kim and Kankanhalli, 2009). Similarly, research on employee turnover posits that employee intention to leave is different from employee intention to stay; therefore, research needs to address both issues separately (Mitchell et al., 2001). Following this line of reasoning, we argue that churning (i.e., intention to leave) is not the direct opposite of resistance to churn (i.e., intention to stay). Therefore, a study that focuses on how customers evaluate change and decide to resist it could offer additional valuable insights.

Furthermore, understanding customers' reasons for leaving and taking actions later to prevent their leaving is a reactive strategy. This strategy will not be effective because one's intention is highly correlated with one's actual behaviour. Following the theory of planned behaviour (TPB) (Ajzen, 1985), when customers have already formed their intention to leave, it is difficult, if not impossible, to retain them.

In this study, we investigate the determinants of resistance to churn among long-term customers in a mature mobile telecommunications market. We propose an integrative framework that captures the dual-relational mechanisms that increase customer resistance to churn. Understanding why some long-term customers resist market temptation can offer a better indication of what the MNO has done well to retain its customers. This understanding could be used to prevent customers from entering the stage of thinking about leaving. Naturally, by increasing resistance to churn, the customer retention rate will increase. Our study adds new and significant insights into the persistent issue of customer churn and retention.

2   Theoretical background

2.1   Customer resistance to churn

Resistance refers to 'one's opposition to a certain situation or object' [Roux, (2007), p.60]. According to the status quo theory, people have a preference for maintaining the current state of affairs, which leads them to resist change (Samuelson and Zeckhauser, 1988). When making decisions, people use the current status as a reference point. Any departure from the reference point is perceived as a loss or a gain. Consequently, people tend to resist change to minimise disruption.

Information systems (IS) research, in particular, the IS adoption literature, has studied user resistance behaviour. In IS adoption research, user resistance is conceptualised as an adverse reaction to perceived change related to new IS implementation (Kim and Kankanhalli, 2009; Lapointe and Rivard, 2005; Markus, 1983). For example, Markus (1983) examined user resistance in terms of the interaction between system characteristics and the social context of their use. Kim and Kankanhalli (2009) studied the role of switching costs, perceived value and organisational support on user resistance, while Lapointe and Rivard (2005) proposed a process model of resistance to IS implementation based on the dimensions of initial conditions, interaction, threat, and behaviour. A user's resistance to adopt implies a desire to maintain the current status or situation, which is the status quo. Users may resist for reasons such as perceived threats to job security and power, social influence from others not to use the technology, and poor outcome expectations (Lapointe and Rivard, 2005).

Like user resistance to adopt new technology, customer resistance to churn implies a preference for maintaining the current position (Del Val and Fuentes, 2003; Kim and Kankanhalli, 2009), which is to stay with the existing MNO. It signifies an adverse reaction to threats that customers associate with changing to new MNOs. Customers with high resistance to churn consciously choose to continue with their current MNO and are less responsive to persuasion and perceived pressure from other MNOs. Therefore, following the literature in user resistance (Kim and Kankanhalli, 2009; Lapointe and Rivard, 2005; Marakas and Hornik, 1996), we define customer resistance to churn as "opposition of a customer to leaving the existing MNO and switching to a new MNO."

In IS adoption, the target resistance object is a new technology (Chang et al., 2018a). Technology has a static nature, meaning any user interaction with this static object will be one-sided. Any change involved will also originate from one party, which is the user. In the case of the MNOs, the target resistance subject is an organisation (i.e., an MNO). Unlike the interaction between a user and a technology, the relationship between a

customer and an organisation is dynamic in nature. Therefore, typical factors that contribute to user resistance of a technology may not be applicable here. Instead, a relational approach as introduced in social exchange theory is most suitable to capture the dynamic exchange between customers and their MNOs. We adopt this relational approach as our theoretical foundation to identify the determinants of customer resistance to churn.

2.2 *Social exchange theory*

Social exchange theory defines social exchanges between at least two parties. It posits that two forces drive a long-term relationship and its maintenance; one is when people genuinely want to be engaged in the relationship (i.e., dedication-based); and the other one is when they simply feel locked in (i.e., constraint-based relationship) (Bendapudi and Berry, 1997; Kim and Gupta, 2012; Wulf et al., 2001). Each type of relationship employs different mechanisms and requires different antecedent, intervening, and outcome variables (Kim and Son, 2009).

A dedication-based relationship is based on attitudinal commitment resulting from 'genuine appreciation for the relationship' [Bendapudi and Berry, (1997), p.20]. It centres on the concept of loyalty, which is one's 'deeply held affective commitment' toward a service [Kim and Son, (2009), p.52]. When individuals engage in a dedication-based relationship, they anticipate long-term positive relationship benefits. This anticipation originates from initial perceptions of confidence in an MNO's reliability and integrity, which equates to trust (Morgan and Hunt, 1994). Since a dedication-based relationship is relatively stable over time, it benefits both parties involved through a continuous connection. Bendapudi and Berry (1997) stressed that the effect of trust is building the dedication-based relationship between the buyers and the sellers. According to the commitment-trust theory, trust is one of the most influential factors affecting commitment (Mukherjee and Nath, 2007). Therefore, without trust, commitment cannot be explained thoroughly because both concepts are considered as the centre of successful relationship marketing (Morgan and Hunt, 1994).

A constraint-based relationship is based on locked-in 'economic, social or psychological investments' [Bendapudi and Berry, (1997), p.18]. It centres on the concept of switching costs, which capture customer dependency on a service due to fear of losing current investments. In other words, customers continue to engage in a constraint-based relationship because they perceive the risk of making changes to their current status quo. Previous literature in online customer relationships contends that since personal data accumulated from continuous use of a website cannot be easily transferred to other websites, this builds up the switching cost that ties these customers to this existing website (Burnham et al., 2003; Kim and Son, 2009). In this case, customers reluctantly stay just to avoid the termination of the relationship with their current provider.

Previous studies have shown that dedication-based and constraint-based relationships form two contrasting forces that characterise a variety of long-term relationships including personal relationships (Stanley and Markman, 1992), employee-firm relationships (Dunham et al., 1994), and customer-firm relationships (Bendapudi and Berry, 1997; Kim and Son, 2009). We argue that in the mobile telecommunications sector, the same contrasting forces will define the relationship between MNOs and their

customers. These forces form the basis of dual relational mechanisms that capture the determinants of customer resistance to churn.

3 Model and hypotheses

Based on our theoretical foundation, we develop our hypotheses. Figure 1 shows the research model.

Figure 1 Research model
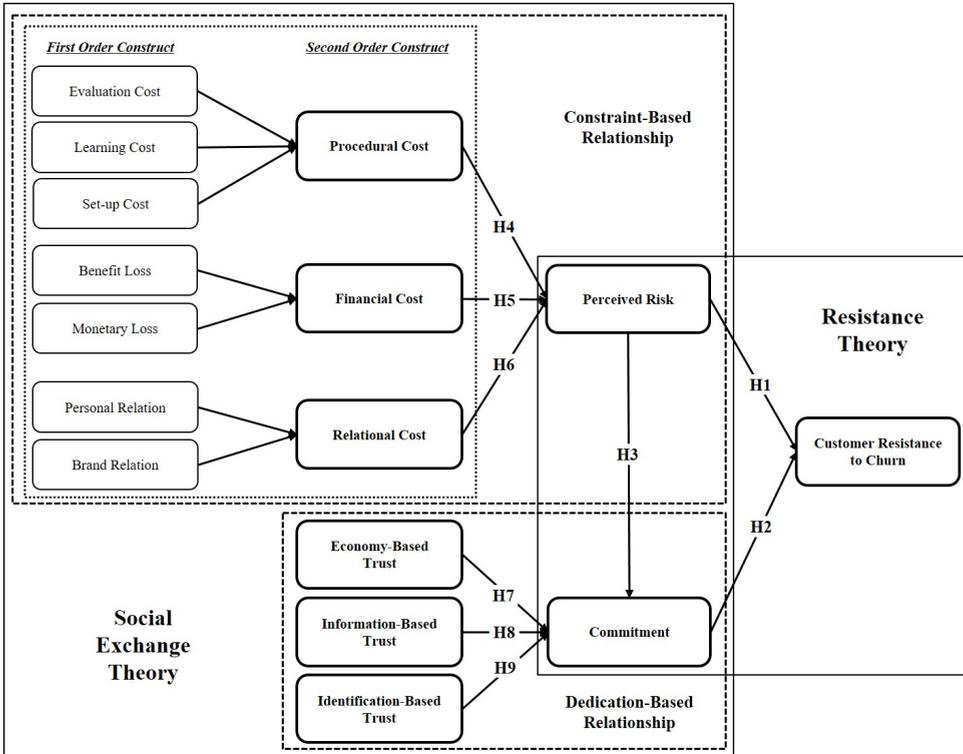
3.1 Constraint-based relationship

In a constraint-based relationship, customers stay with their current MNOs because they 'have to' preserve the relationships due to potential switching costs (Bendapudi and Berry, 1997; Kim and Gupta, 2012; Kim and Son, 2009). Switching costs are "potential losses that could result from terminating the existing relationship and establishing a new one" [Kim and Son, (2009), p.55]. This cost captures "the extent to which a customer feels dependent on a service because of economic, social or psychological investments that would become useless in other services" [Kim and Son, (2009), p.52]. Therefore, customers perceive switching cost as a risk (Kim et al., 2013; Murray, 1991; Shin and Kim, 2008). When people perceive risks in terminating a relationship, they will choose to maintain the current status quo (Bendapudi and Berry, 1997; Samuelson and Zeckhauser,

1988), which is to continue with their current MNOs. The higher the level of perceived risk, the stronger the resistance to churn.

H1   Perceived risk has a positive effect on customer resistance to churn.

There are three types of switching costs in the telecommunications sector: procedural, financial, and relational (Carter et al., 2014; Chuang, 2011). Procedural costs relate to the expenditure of time and effort in carrying out some activities (Burnham et al., 2003). Examples of procedural costs in changing MNOs are the time required to evaluate potential substitutes, the learning time required to familiarise oneself with new services, and the setup cost needed to move from one MNO to another. As the procedural costs increase, customers are likely to perceive a higher level of uncertainty and, hence, a higher level of risk associated with switching to a new MNO.

Financial costs relate to benefit loss and monetary loss. An example of benefit loss is accrued points and discount benefits given only to long-term customers (Burnham et al., 2003; Guiltinan, 1989). Monetary loss is a one-time financial outlay incurred in switching providers (Guiltinan, 1989). An example of monetary loss is a new customer registration fee. Customers who perceive a higher level of financial costs will see the act of changing MNOs as riskier.

Relational cost originates from losing the relationship that exists within the network of the current MNO (Burnham et al., 2003). There are two types of relational cost: personal relation and brand relation. Personal relation cost is the loss of psychological or emotional connection and familiarity with the employees or personnel of a company (Burnham et al., 2003; Dang et al., 2015). Some customers continue to use the same services because they have established close relationships with employees of a particular MNO. Switching to a new MNO could lead to an unfavourable relationship disconnection with employees of the existing MNO. Many try to avoid this situation. Brand relation loss is the emotional discomfort that occurs when disassociating oneself with a brand name. Brand names have become an important part of some customers' lives to the extent that it influences their personal identities (Tuškej et al., 2013). As such, they will shy away from changing to a new brand because doing so will mean losing their identity. In summary, when a customer perceives there will be a higher level of relational cost of churning, they will see the action as highly risky.

Based on the discussions above, we propose:

H4   Procedural switching cost has a positive effect on perceived risk.

H5   Financial switching cost has a positive effect on perceived risk.

H6   Relational switching cost has a positive effect on perceived risk.

3.2   *Dedication-based relationship*

Forming a dedication-based relationship requires commitment (Kim and Son, 2009; Lee et al., 2015; Morgan and Hunt, 1994). Commitment is "an enduring desire to maintain a valued relationship" [Moorman et al., (1992), p.316]. In a dedication-based relationship, customers feel deeply committed to their current MNOs. They are willing to stay in the relationship because they want to, especially in terms of their post-consumption behaviour (Bendapudi and Berry, 1997; Morgan and Hunt, 1994; Tuškej et al., 2013).

Such commitment encourages customers to maintain their current relationship with their existing MNO and increase their resistance to churn. Accordingly, we hypothesise:

H2   Commitment has a positive effect on customer resistance to churn.

Trust is a strong antecedent to forming a commitment (Lee et al., 2015; Morgan and Hunt, 1994; Yamagishi and Yamagishi, 1994). Trust refers to "willingness to rely on an exchange partner in whom one has confidence" [Morgan and Hunt, (1994), p.23]. According to commitment-trust theory, trust exerts a positive effect on commitment (Harris and Goode, 2004; Morgan and Hunt, 1994). Trust is developed through repeated interactions between two partners (Ba, 2001; Yeon et al., 2016). It indicates one's willingness to rely on a partner with whom one has confidence in Moorman et al. (1993). When trust is developed, people are more willing to invest time and effort to share resources and exchange experiences for the benefit of the relationship. They will shy away from attractive short-term alternatives and instead focus on maintaining the existing relationship because they are committed and expect long-term benefits from staying in the relationship (Tuškej et al., 2013). They also believe their partner will not act opportunistically (Tuškej et al., 2013).

The literature has used multiple dimensions of trust to examine different aspects of trust in a buyer-seller and user-platform relationship (Hsu et al., 2007; Mukherjee and Nath, 2007; Rousseau et al., 1998). Rousseau et al. (1998) pointed out that trust has various forms and involves different relationships. Trust can also be separated into different types when a relationship involves long-time and repeated interactions (Mukherjee and Nath, 2007). In this study, we adopt the three types of trust from Hsu et al. (2007), economy-based, information-based, and identification-based trust, to explain a long-term commitment to an MNO.

Economy-based trust is a calculative process based on economic benefits and the fear of punishment for the violation of trust (Luo and Najdawi, 2004; Panteli and Sockalingam, 2005). It is shaped by the rational assessment of costs and benefits of being in a relationship (Gefen et al., 2003). Examples of these costs and benefits are direct saving in costs and technical efficiencies, as well as services received. In the mobile telecommunications sector, customers who have stayed with an MNO for a certain time period may receive incentives such as free calling time or better priced packages. They trust that their MNO will continue offering them better incentives to entice them to stay. The beliefs of decreasing costs and increasing benefits in terms of time, knowledge, and advantage will form one's economy-based trust. As trust increases, customers will have a higher level of commitment toward their MNOs.

Information-based trust is also known as knowledge-based trust (Panteli and Sockalingam, 2005). It relies on the information obtained and is formed based on one's familiarity with the other party and one's belief that the behaviour of the partner is predictable. Consequently, the sense of uncertainty is reduced (Ba, 2001). In the mobile telecommunications sector, a major concern is privacy issues and consumer data protection (Chang et al., 2018b; Chua et al., 2015; Libaque-Sáenz et al., 2016). Customers will feel more comfortable and have a higher level of confidence and commitment toward MNOs that adhere to technical standards and have implemented security procedures and protection mechanisms to safeguard customer data. Therefore, information-based trust is customers' trust in sound privacy and technology mechanisms implemented by MNOs. The more they believe an MNO is protecting their privacy and data, the higher the level of commitment they will have toward the MNO.

Identification-based trust is transference-based trust (Ba, 2001). It exists because the parties have a mutual understanding of each other's 'needs' and 'wants' (Lander et al., 2004). This involves emotional bonding where genuine care and concern for the welfare of the other party are expressed. The sentiments are reciprocal to enable both parties to work collaboratively together and to remain in the relationship. For mobile subscribers, identification-based trust refers to the customers' emotional attachment to their MNOs whom they believe will act in their interest and address their concerns. As such, identification-based trust will increase customer commitment toward their MNOs.

In summary, we hypothesise that the higher the level of trust (economy-based, information-based, and identification-based) customers have in their MNOs, the stronger their commitment will be toward the companies.

H7 Economy-based trust has a positive effect on commitment.

H8 Information-based trust has a positive effect on commitment.

H9 Identification-based trust has a positive effect on commitment.

3.3 Linking commitment-based and dedication-based relationships

Most people do not like uncertainty and are risk-averse (Choi and Ahluwalia, 2013). In the mobile telecommunications sector, customers are very sensitive to risk related to changing a subscription plan or losing the benefits they currently enjoy. If customers plan to change their MNO, they will evaluate other operators' advantages and disadvantages such as the coverage area, billing system, value-added services, loyalty program, and customer service. When customers find that there are more disadvantages if they switch, then they will perceive a higher risk and a higher switching cost. Because of the risk and the switching cost, customers will become more loyal to their current MNO and continue to use its service (Aydin and Ozer, 2005). In other words, when they perceive a higher risk, they will choose to maintain their status quo (Kim and Gupta, 2012), which is to stay with their current MNO. Aydin and Ozer (2005) found that perceived switching cost positively influenced customer loyalty in the Turkish's telecom sector. In addition, long-term customers with high brand and service commitment tend to show stronger resistant behaviour when they perceive risk (Choi and Ahluwalia, 2013). This increases their commitment level toward the current MNO. We propose:

H3 Perceived risk has a positive effect on commitment.

4 Methodology

4.1 Measurement development

To develop the measurement items, we adapted validated standard scales from the literature and added the context of customer churn within the mobile telecommunications sector. Items for measuring resistance to churn were adapted from Kim and Gupta (2012), and Kim and Kankanhalli (2009). Perceived risks were measured using questions adapted from Im et al. (2008), while commitment was measured using items taken from Mukherjee and Nath (2007). Items that measure procedural cost, financial cost, and relational cost, economy-based trust, information-based trust, and identification-based

trust came from Carter et al. (2014) and Burnham et al. (2003). Appendix A shows the instrument.

Following Burnham et al. (2003), we modelled procedural cost, financial cost, and relational cost as second-order formative constructs. Formative structures assume that the second-order construct is caused by the first-order factors (Chin, 1998). The procedural cost was formed by first-order dimensions of evaluation cost, learning cost, and set-up cost; financial cost was formed by first-order dimensions of benefit loss cost and monetary loss cost; and relational cost was formed by first-order dimensions of personal relationship loss cost and brand relationship loss cost. All other constructs were modelled as reflective measures.

Table 1   Demographic information

Criteria	Frequency	Percentage (%)
Gender		
Male	403	49.4
Female	412	50.6
Age		
20–29	204	25.0
30–39	194	23.8
40–49	209	25.6
50 years old and above	208	25.5
Mobile network provider (MNO)		
SK telecom (SKT)	443	54.4
KT	286	35.1
LG U+	86	10.6
Length of relationship with the MNO (years)		
3 to 5 years	178	31.4
6 to 10 years	276	33.9
More than 10 years	261	32.0

4.2   Data collection

Following the development of the constructs and their operationalisation, we pre-tested the instruments to establish the psychometric properties of the measurement scales. A survey methodology was used to collect pre-test data from 125 university students in Korea who have stayed with the same MNO for more than three years. In Korea, most MNOs give subsidies to customers who sign a minimum of a two-year contract whenever they change devices or MNOs (KISDI, 2013). We argue that subscribers who have extended their contract beyond their initial engagement of two years have a tendency to resist changing to a new MNO.

The study's main sample comprised 815 consumers who have stayed with the same MNO for more than three years. We use an online panel company, Embrain (http://www.macromillembrain.com), to collect the data. Embrain's online panel system sent an invitation e-mail containing the URL link of the online survey instrument to

randomly chosen respondents who have been with their current MNO for more than three years. The respondents were offered an incentive in the form of a $5 voucher to participate in the survey.

Table 1 presents the participants' demographic information. About 49.4% of the respondents were male (n = 403) and 50.6% of the respondents were female (n = 412). Their age groups were distributed almost equally with 25% aged 20~29 years old, 23.8% aged 30~39 years old, 25.6% aged 40~49 years old, and 25.5% aged 50 years old and above. As for the participants' length of relationship with their current MNOs, about 34.1% have stayed with their MNOs for 3 to 5 years, 33.9% between 6 to 10 years, 32% for more than ten years. About 54.5% of the customers subscribe to SKT, 35.1% subscribe to KT, and 10.6% subscribe to LG U+, which closely resembles the actual market share of the MNOs in South Korea.

Table 2 Reliability and convergent validity

Construct	Mean	Standard deviation	Average variance extracted	Composite reliability	Cronbach's α
COM	5.01	1.10	0.77	0.91	0.85
CRC	4.62	1.50	0.93	0.98	0.96
EBT	4.14	1.27	0.81	0.93	0.89
IBT	3.30	1.53	0.90	0.96	0.94
IDT	4.31	1.24	0.89	0.96	0.94
PR	4.41	1.21	0.72	0.91	0.87
BC	4.66	1.28	0.88	0.94	0.87
BL	4.66	1.28	0.88	0.94	0.87
EC	4.75	1.24	0.69	0.87	0.77
LC	4.28	1.39	0.85	0.95	0.91
MLC	4.53	1.38	0.86	0.93	0.84
PL	3.02	1.59	0.84	0.94	0.90
SUC	4.37	1.23	0.77	0.91	0.85

Notes: COM – commitment, CRC – customer resistance to churn,
EBT – economy-based trust, IBT – information-based trust,
IDT – identification-based trust, PR – perceived risk, BC – benefit loss,
BL – brand relation, EC – evaluation cost, LC – learning cost,
MLC – monetary loss, PL – personal relation, SUC – set-up cost.

5   Results

We used partial least square (PLS) to analyse the data. PLS is a powerful second-generation multivariate technique that employs a component-based approach to produce the estimations (Chin, 1998; Hair et al., 2012). It is robust for theory testing, in managing complex models, and can handle formative factors (Chin, 1998). PLS assesses both the measurement and structural models simultaneously in an optimal fashion while placing minimum restrictions on measurement scales, sample size, and residual distributions (Chin, 1998). The tool used was SmartPLS 2.0 (Ringle et al., 2014).

5.1   Measurement model

To validate the measurement model, we examined item reliability, convergent validity, and discriminant validity. Item reliability examines how well an item measures the construct it is intended to reflect. Appendix B shows that the factor loadings exceeded 0.707, suggesting that more variance was shared between an item and its construct than there was error variance (Hair et al., 2012). Convergent reliability is determined by the composite reliability and average variance extracted (AVE). As shown in Table 2, the composite reliabilities were greater than the recommended threshold of 0.70 (Nunnally et al., 1967) and the AVE was greater than 0.50 for all constructs (Chin, 1998).

Table 3   Correlation matrix and AVE

Constructs	BC	BL	CRC	COM	EC	EBT	IDT	IBT	LC	MLC	PL	PR	SUC
BC	*0.92*												
BL	0.53	*0.94*											
CRC	0.59	0.60	*0.97*										
COM	0.50	0.75	0.56	*0.88*									
EC	0.38	0.20	0.34	0.28	*0.83*								
EBT	0.63	0.60	0.63	0.55	0.25	*0.90*							
IDT	0.48	0.68	0.56	0.61	0.25	0.69	*0.94*						
IBT	0.34	0.52	0.43	0.39	0.19	0.56	0.59	*0.95*					
LC	0.41	0.26	0.34	0.23	0.58	0.36	0.29	0.35	*0.92*				
MLC	0.64	0.31	0.41	0.31	0.47	0.47	0.31	0.26	0.47	*0.93*			
PL	0.31	0.35	0.25	0.24	0.12	0.40	0.33	0.49	0.37	0.21	*0.92*		
PR	0.72	0.41	0.60	0.40	0.52	0.59	0.45	0.37	0.53	0.67	0.31	*0.85*	
SUC	0.39	0.18	0.31	0.20	0.54	0.35	0.25	0.26	0.62	0.57	0.27	0.58	*0.88*

Notes: The diagonal elements (in ital) represent the square root of the AVE.
COM – commitment, CRC – customer resistance to churn, EBT – economy-based trust, IBT – information-based trust, IDT – identification-based trust, PR – perceived risk, BC – benefit loss, BL – brand relation, EC – evaluation cost, LC – learning cost, MLC – monetary loss, PL – personal relation, SUC – set-up cost.

Discriminant validity is the degree to which items measuring different constructs are distinct (Campbell and Fiske, 1959). From Table 3, the square root of all the AVEs was greater than 0.70, which was much larger than the cross-correlations (Table 3). In addition, each item loaded strongly on its corresponding construct (Appendix B). These tests suggest that our measurement model demonstrated adequate item reliability, convergent reliability, and discriminant validity (Fornell and Larcker, 1981).

We also evaluated the validity and significance of the seven first-order constructs on the three second-order constructs (i.e., procedural cost, financial cost, and relational cost). All seven constructs' value loading, t-value, composite reliability, and AVE met the recommended values (Stewart and Segars, 2002). Therefore, our three second-order constructs were acceptable statistically for further analysis.

In addition, we conducted a multicollinearity test using the regression method that assesses the variance inflation factor (VIF). Hair et al. (2011) recommended that a VIF value that is equal to or less than five suggests an absence of multicollinearity. We

regressed the construct 'customer resistance to churn' on all the other constructs. The highest VIF value among the constructs was 3.074 for perceived risk. Thus, our measurement model was free from the multicollinearity issue.

Table 4 Weights and VIFs of the second-order factors

	Weight	T-statistics	P-value	VIF	
EC -> PC	0.333	31.775	0.000	EC	1.629
LC -> PC	0.442	40.666	0.000	LC	1.871
SUC -> PC	0.400	42.912	0.000	SUC	1.741
BC -> FC	0.677	53.579	0.000	BC	1.676
MLC -> FC	0.422	46.770	0.000	MLC	1.676
PL -> RC	0.751	45.071	0.000	PL	1.137
BL -> RC	0.448	31.648	0.000	BL	1.137

Notes: BC – benefit loss, BL – brand relation, EC – evaluation cost, LC – learning cost, MLC – monetary loss, PL – personal relation, SUC – set-up cost, PC – procedural cost, FC – financial cost, RC – relational cost.

We further conducted a common method bias (CMB) test using Harman's one-factor test (Podsakoff et al., 2003). We used the exploratory factor analysis with an unrotated solution to enter all the items. The result shows that the highest value was 49.63%, which was smaller than the threshold of 50%. It means no one single factor occupied the majority of the variance (Hazen et al., 2011). Thus, our measurement model was free from CMB as well.

Figure 2 Results of the path analysis
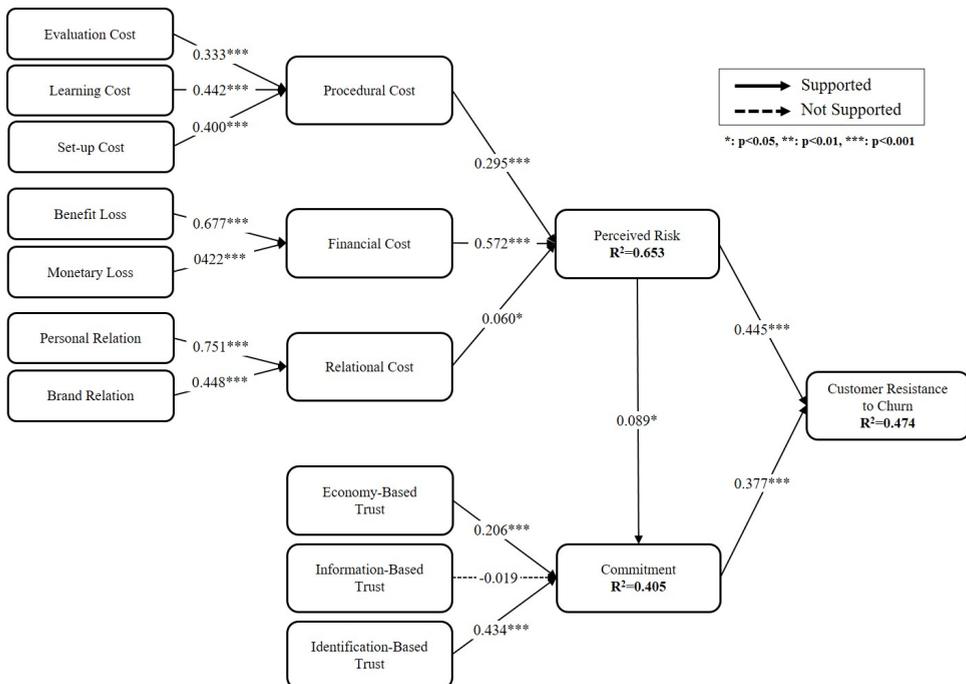
We also conducted second-order constructs measurement model validation. The normal validation guideline for reflective scales does not apply to formative constructs because formative constructs are aggregate constructs that do not assume the co-variation of indicators. Therefore, a multicollinearity test needs to be performed for formative constructs. We calculated the VIFs at the second-order level as suggested by Ringle et al. (2012). As shown in Table 4, all VIF values were below 10 and, thus, did not indicate multicollinearity issues. We also checked whether the weights of the second-order constructs were significant (Ringle et al., 2012; Wetzels et al., 2009). As shown in Table 4, all the weights were significant at the 0.001 level. The validity of different constructs as significant parts of the second-order constructs was, therefore, guaranteed.

5.2   *Structural model*

After confirmation of the acceptable psychometric properties for the measurement model, we examined the structural model. We used the repeated indicators approach to analyse the structural model (Becker et al., 2012). We followed the analytical procedures for the repeated indicators approach suggested by Wetzels et al. (2009). In PLS, the predictive power of the structural model is assessed using R2 in the endogenous constructs (Chin, 1998; Gefen et al., 2000). Figure 2 shows the path coefficients. Sixty-five percent of the variance in perceived risk, 40.5% of the variance in commitment, and 47.4% of the variance in resistance to churn were accounted for by the model. Since the percentages of variance explained were far greater than 10%, it indicated a satisfactory and substantive model (Falk and Miller, 1992).

Perceived risk (β = 0.445, p < 0.001) and commitment (β = 0.377, p < 0.001) significantly influenced resistance to churn. Both the procedural (β = 0.295, p < 0.001) and the financial costs (β = 0.572, p < 0.001) exerted significant impact on perceived risk with the latter having a much stronger effect. Relational cost (β = 0.060), p < 0.05) significantly affected perceived risk but it was relatively weaker than procedural cost and financial cost. Economy-based trust (β = 0.206, p < 0.001) and identification-based trust (β = 0.434, p < 0.001) significantly affected one's commitment. Perceived risk (β = 0.089, p < 0.05) also had a significant, albeit rather small, effect on commitment. Information-based trust (β = –0.019) was the only construct that did not have a significant impact on commitment.

6   Discussion and conclusions

The objective of this study is to examine the roles of two contrasting mechanisms, dedication-based and constraint-based relationships in characterising customer resistance to churn from MNOs in a mature mobile telecommunications market. The findings provide strong support for an integrative, dual-relational model, which posits that dedication-based and constraint-based relationships simultaneously, yet distinctly, determine user resistance to churn. In the dedication-based relationship, economy-based trust and identification-based trust influence commitment, which, in turn, influences user resistance to churn. In the constraint-based relationship, the procedural cost and financial cost influence perceived risk, which, in turn, influences user resistance to churn. While the two mechanisms exhibit discernible patterns, they are not completely independent of

each other because the findings also show that commitment and perceived risk are interrelated.

An interesting result is the insignificant relationship between information-based trust and commitment. One factor that may contribute to the insignificance of this relationship is the rising privacy concern in the telecommunications sector (Chua et al., 2015, 2017; Libaque-Sáenz et al., 2016). In Korea, there have been incidents of customer information leaks including credit card numbers and social security numbers. For example, in 2013, hackers penetrated the KT network using an automated program and stole information on 12 million customers (Kim, 2014). Previously, in 2012, personal information from 8.7 million KT customers was also stolen (The Korea Herald, 2012). These repeated incidents destroy any information-based trust customers have in the security mechanisms of the MNOs and nullify its impact on commitment. Liu et al. (2005) suggested that privacy-related perceptions will significantly influence trust in a company in the electronic commerce sector. We also believe that the same is true here in the telecommunication sector. Increasingly, companies are collecting and using customer data for their businesses. Therefore, they need to pay more attention to customers' privacy concerns and data security.

Among our nine hypotheses, the relationship between relational cost and perceived risk was relatively weaker than the others, especially compared with procedural cost and financial cost. A feasible explanation for this relates to the policies implemented in Korea. Prior to 2004, each MNO had its own prefix identification number. For example, 011 and 017 were for SKT, 016 and 018 for KT, and 019 for LGU+. Using a certain prefix was an indication of attachment to that MNO, which provided brand identification. In that environment, it was possible that customers developed a strong connection and identification with their MNO. In 2004, when mobile number portability came into effect, that connection between subscribers and their MNOs was broken. The prefix was no longer tied to a specific MNO. This disassociation removed the feeling of attachment customers used to have by linking the prefix to the MNO. This change in policy removed the fear of relational loss when changing MNOs, thus, contributing to a weaker influence on perceived risk than other variables.

For the antecedents of perceived risk, we adopted three different switching costs from Carter et al. (2014) and Chuang (2011). Specifically, we used second-order constructs to measure the three different aspects of switching costs, namely, procedural cost, financial cost, and relational cost. In each second-order construct, we estimated two to three different first-order constructs to explain the second-order constructs. All seven first-order constructs corresponded well and formed the second-order constructs in the model. All three types of costs also had a significant relationship with perceived risk.

6.1 *Theoretical implications*

Our study contributes to the IS literature by offering a conceptual framework to clarify the complex nature of the relational interplay between customers and their MNOs. It theoretically highlights the duality of the customer relationship with MNOs and empirically demonstrates that having a dedication-based relationship is not the only variable tying customers to MNOs. Rather, constraints that exist within the relationship also play important roles in binding customers to MNOs. Therefore, a dual-relational mechanism as validated in our study best captures the true nature of the complex

relationship between customers and MNOs in a mature mobile telecommunications market.

By investigating user resistance to churn, our work also adds a new perspective to the literature on customer churn and customer retention. The existing literature often approaches the topic from the perspective of 'why customers leave' (i.e., customer churn). However, the determinants of why customers leave are different from the determinants of why customers resist leaving. By investigating a different dependent variable, we offer more comprehensive insights into the issue of why customers churn and why they stay. Furthermore, the context of our research – the mobile telecommunications sector – is unique. While previous research has examined other contexts, such as online Internet transactions (Kim and Gupta, 2012), the operating environment in the telecommunications sector is unique, thereby, requiring special attention on the behaviour of its consumers.

The profiles of the participants also add value to the literature. These participants have subscribed to their MNOs for a minimum of three years, which is longer than the commonly stipulated contractual period of two years within the Korean telecommunications market. Therefore, we could classify them as 'loyal' customers regardless of the factors that bind them to the MNOs. In today's competitive consumer environment where service hopping is common, a consumer who stays with an MNO for such a time period is a loyal customer. Information on their resistance to churn is valuable in the MNOs' effort to turn a service-hopping customer into a loyal customer.

6.2   *Practical implications*

Our findings show that both dedication-based and constraint-based mechanisms influence customer resistance to churn, suggesting the importance of these two relational factors in regulating customer decisions. This means MNOs will benefit from marketing tactics that create both dedication-based and constraint-based customer relationships.

While both mechanisms are significant, it is interesting to find that a constraint-based mechanism exerts a stronger force compared to a dedication-based mechanism. This suggests an important shift is required in customer relationship management. Instead of focusing only on customer loyalty, MNOs should also develop strategies to increase customers' perceived risk of leaving. In fact, the stronger effect of perceived risk compared to commitment suggests that in a mature, competitive market environment, customers are more concerned about the risk they might encounter if they were to leave their current MNO. Consequently, they tend to maintain the status quo, which is to stay with their current MNO. Our findings also offer an insight into how MNOs could appeal to new customers, which is if MNOs are able to reduce the switching cost, they might be able to break the barrier of customer resistance to churn and attract new customers.

Comparatively, customers are less tolerant of financial costs than procedural costs. Therefore, to increase customer resistance to churn, MNOs should increase the benefits given to customers. When customers perceive a higher risk of losing the benefits they are already enjoying, they will resist the move. On the other hand, to attract new customers, MNOs could provide incentives such as heavily discounted or subsidised devices or waive the initial registration fee for those who sign new contracts. MNOs could also try to match the incentives of their competitors in order to appear more competitive to customers. These strategies reduce the resistance barriers and facilitate customer switching.

Since the procedural cost and relational cost are also significant, albeit having lesser influence compared to the financial cost, MNOs should also revise their procedures and processes of engaging existing and new customers. For new clients, MNOs should make the transition as effortless as possible. Pre-sales and post-sales customer service should be in place to ensure smooth transitioning into a new subscription plan.

The significant result of identification-based trust and commitment suggests that MNOs should try to establish emotional bonds with their customers. They should show their care for customers and work hard to fulfil customer needs and wants. One strategy is to implement customisation and personalisation techniques such as tailoring subscription packages to fit customers' usage pattern or sending special greetings and discounts on customers' birthdays. MNOs should also train their employees so that all customer-facing workers provide service with a smile and a sincere attitude. MNOs could also launch corporate social responsibility events that target the overall family and societal well-being to send a message of care and concern.

The importance of economy-based trust shows that MNOs should be consistent in providing benefits to long-term customers. As is often in practice at companies, the length of the relationship is tied to the amount of benefits received. When customers consistently receive an increasing amount of benefit, they will develop a higher commitment toward their MNO and, thus, resist churn.

To summarise, our findings suggest MNOs should take proactive action, rather than falling back on reactive planning. By increasing customer resistance to churn, MNOs will secure company revenue.

6.3 *Limitations and future research*

As with any empirical research, our study has limitations that should be taken into account. First, we used a cut-off point of 'more than three years' to determine participant eligibility. This decision is made based on common practice of MNOs in Korea to tie consumers to two-year contracts. Some may argue a difference of one year (i.e., between a two-year binding contract and a minimum of a three years relationship with an MNO to be eligible for this study) is not long enough for one to categorise the consumers into the group of resisting churn. However, according to rational theory (Merton, 1973), consumers could and usually will make changes if they wish to immediately after they are free from contracts. In fact, some dissatisfied customers may break a contract in the middle of their contractual period and switch to new MNOs. Furthermore, two-thirds of our respondents have stayed with their current MNOs for more than five years, which lends strong support to the reliability of our research findings.

Second, the data are collected only from consumers in the Korean mobile market. Care should be exercised when generalising the results to other markets that may have different operational environment and policies governing its operations. It is likely that consumer behaviours may vary in different operating environments. However, we argue that the rapid diffusion of technology and openness of global business contexts will expedite the convergence process in different markets where their operating environments and operational modes will grow to be increasingly alike. Consequently, it is likely that consumer behaviour will also converge, especially among developed countries with stiff market competition.

There are also potential avenues for future research. Resistance to churn may vary based on the length of the relationship with the MNO. Future research could investigate if a longer relationship implies a higher level of resistance to churn. If yes, what is the optimal cut-off point? If no, what other factors could instil higher resistance? Future research can also adopt a longitudinal method to examine how customer commitment and perception of risk change over time to affect their resistance to churn.

6.4   Concluding remarks

This study investigates the factors that influence customer resistance to churn in a mature mobile telecommunications market. The results show that a constraint-based relationship has a higher impact than a dedication-based relationship in affecting customer resistance to churn. All three switching costs significantly influence perceived risk, while economy-based trust and identification-based trust significantly influence commitment. To maintain market share in the competitive and mature mobile telecommunications sector, effective management of customer churn is important. While challenging, successful implementation of retention plans based on the findings in this study will help to ensure long-term business sustainability.

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Appendix A

Table A1   Measurement items

Constructs		Items
Customer resistance to churn (CRC)	CRC1	I would not willingly change my preference in using my current service provider.
	CRC2	I would not substitute my current service provider with another service provider.
	CRC3	Even if my close friends were to recommend another service provider, I would not change my preference in using my current service provider.
	CRC4	I would not change to a new service provider.
Perceived risk (PR)	PR1	It is probable that changing my current service provider would not be worth the cost.
	PR2	It is uncertain whether changing to a new service provider would be as effective as I think.
	PR3	Compared with holding on to my current service provider, changing it has more uncertainties.
Evaluation cost (PSC-EC)	EC1	I cannot afford the time to get the necessary information to fully evaluate other service providers.
	EC2	Comparing the benefits of my current service provider with the benefits of other service providers would take too much time/effort even when I have all the information.
	EC3	It is tough to compare my current service provider with other service providers.
Learning cost (PSC-LC)	LC1	Learning to use the features offered by a new service provider will take time.
	LC2	After switching to a new service provider, it would take some effort to get up to speed with the new service.
	LC3	Getting used to how another service provider works would be easy if I were to switch to a new service provider. (Reverse-coded)
Set-up cost (PSC-SUC)	SUC1	It would take time to go through the processes of switching to a new service provider.
	SUC2	Switching to a new service provider would involve an unpleasant sales process.
	SUC3	There are a lot of formal procedures involved in switching to a new service provider.
Benefit loss cost (FC-BC)	BC1	Switching to a new service provider would mean losing the loyalty points/benefits that I have accumulated with my current service provider.
	BC2	How much would you lose in credits, accumulated points, services you have already paid for, and so on if you were to switch to a new service provider?*
	BC3	I will lose the benefits of being a long-term customer if I leave my current service provider.

Note: *Scale: nothing (1) … a great deal (7).

Table A1   Measurement items (continued)

Constructs		Items
Monetary loss cost (FC-MLC)	MLC1	Switching to a new service provider would involve some up-front costs (e.g., set-up fees, membership fees, deposits).
	MLC2	How much money would it take to pay for all of the costs associated with switching service providers?*
Personal relationship loss cost (RSC-PL)	PL1	I would miss the community of users I associate with at my current service provider if I were to switch to a new service provider.
	PL2	I am more comfortable interacting with the people working for my service provider than I would be if I were to switch to a new service provider.
	PL3	I like talking to the people where I get my current service.
Brand relationship loss cost (RSC-BL)	BL1	I like the public image my current service provider carries.
	BL2	I support my current service provider as a firm.
Commitment (COM)	COM1	I feel a very high degree of association with my current service provider.
	COM2	I have a very long association with my current service provider.
	COM3	I feel a sense of belonging to my current service provider.
Economy-based trust (EBT)	EBT1	By subscribing to my current service provider, I save costs.
	EBT2	By subscribing to my current service provider, the benefits that I received are being maintained.
	EBT3	By subscribing to my current service provider, I can enjoy all the benefits it provides.
Information-based trust (IBT)	IBT1	My current service provider has enough safeguards to make me feel comfortable to divulge my personal information.
	IBT2	My current service provider never sells the members' personal information it kept in its database.
	IBT3	My current service provider protects my personal information from unauthorised access.
Identification-based trust (IDT)	IDT1	If I share my problems with my current service provider, I know it will respond constructively and caringly.
	IDT2	My current service provider is honest.
	IDT3	My current service provider will do everything within its capacity to help its customers.

Note: *Scale: nothing (1) … a great deal (7).

Appendix B

Table A2   Loadings and cross-loadings

Items	BC	BL	COM	CRC	EBT	EC	IBT	IDT	LC	MLC	PL	PR	SUC
BC1	*0.90*	0.46	0.42	0.51	0.53	0.36	0.31	0.39	0.39	0.57	0.28	0.63	0.36
BC2	*0.94*	0.51	0.48	0.58	0.61	0.38	0.32	0.46	0.39	0.61	0.29	0.70	0.40
BC3	*0.90*	0.49	0.48	0.53	0.59	0.32	0.31	0.45	0.36	0.57	0.27	0.64	0.32
BL1	0.47	*0.93*	0.71	0.54	0.55	0.18	0.47	0.64	0.22	0.26	0.28	0.37	0.13
BL2	0.52	*0.95*	0.70	0.58	0.58	0.20	0.50	0.63	0.27	0.31	0.37	0.40	0.20
COM1	0.45	0.72	*0.92*	0.49	0.49	0.21	0.39	0.57	0.17	0.27	0.23	0.33	0.12
COM2	0.45	0.71	*0.93*	0.51	0.50	0.23	0.35	0.58	0.16	0.27	0.19	0.36	0.16
COM3	0.43	0.55	*0.79*	0.47	0.46	0.32	0.27	0.44	0.28	0.29	0.22	0.38	0.25
CRC1	0.59	0.59	0.55	*0.97*	0.61	0.34	0.40	0.53	0.33	0.41	0.24	0.58	0.31
CRC2	0.56	0.59	0.55	*0.97*	0.60	0.32	0.43	0.55	0.32	0.39	0.25	0.57	0.28
CRC3	0.56	0.55	0.51	*0.96*	0.60	0.32	0.42	0.53	0.34	0.40	0.25	0.58	0.30
EBT1	0.55	0.52	0.50	0.54	*0.90*	0.23	0.47	0.61	0.31	0.42	0.34	0.52	0.31
EBT2	0.61	0.58	0.53	0.60	*0.94*	0.23	0.51	0.66	0.32	0.44	0.35	0.56	0.31
EBT3	0.53	0.53	0.45	0.55	*0.86*	0.23	0.54	0.61	0.35	0.41	0.39	0.53	0.31
EC1	0.32	0.18	0.23	0.32	0.22	*0.89*	0.21	0.20	0.49	0.40	0.13	0.46	0.47
EC2	0.28	0.17	0.31	0.21	0.21	*0.70*	0.03	0.23	0.38	0.37	0.01	0.35	0.37
EC3	0.35	0.16	0.19	0.30	0.21	*0.90*	0.20	0.20	0.56	0.40	0.13	0.48	0.49
IBT1	0.33	0.49	0.37	0.41	0.52	0.18	*0.93*	0.54	0.33	0.26	0.45	0.36	0.25
IBT2	0.31	0.47	0.35	0.41	0.53	0.19	*0.95*	0.56	0.33	0.24	0.46	0.35	0.24
IBT3	0.33	0.51	0.38	0.41	0.53	0.17	*0.96*	0.58	0.33	0.24	0.47	0.34	0.24
IDT1	0.44	0.63	0.57	0.51	0.65	0.22	0.48	*0.93*	0.26	0.27	0.26	0.41	0.20
IDT2	0.44	0.63	0.56	0.52	0.65	0.25	0.61	*0.95*	0.28	0.29	0.33	0.41	0.26
IDT3	0.47	0.65	0.59	0.54	0.66	0.24	0.58	*0.95*	0.27	0.30	0.33	0.44	0.24
LC1	0.36	0.23	0.21	0.30	0.30	0.59	0.29	0.24	*0.91*	0.44	0.29	0.47	0.55
LC2	0.38	0.25	0.20	0.31	0.34	0.52	0.32	0.28	*0.94*	0.42	0.33	0.49	0.57
LC3	0.41	0.24	0.22	0.34	0.36	0.50	0.36	0.27	*0.92*	0.45	0.39	0.52	0.61
MLC1	0.63	0.30	0.31	0.41	0.44	0.47	0.24	0.31	0.45	*0.93*	0.19	0.65	0.57
MLC2	0.55	0.27	0.28	0.35	0.43	0.39	0.24	0.26	0.43	*0.92*	0.21	0.59	0.50
PL1	0.30	0.34	0.24	0.25	0.38	0.10	0.50	0.33	0.34	0.21	*0.93*	0.30	0.26
PL2	0.32	0.36	0.26	0.27	0.42	0.13	0.43	0.33	0.35	0.22	*0.92*	0.31	0.25
PL3	0.21	0.25	0.16	0.17	0.28	0.09	0.41	0.22	0.32	0.15	*0.89*	0.23	0.24

Notes: COM – commitment, CRC – customer resistance to churn, EBT – economy-based
trust, IBT – information-based trust, IDT – identification-based trust,
PR – perceived risk, BC – benefit loss, BL – brand relation, EC – evaluation cost,
LC – learning cost, MLC – monetary loss, PL – personal relation,
SUC – set-up cost.

Table A2   Loadings and cross-loadings (continued)

Items	BC	BL	COM	CRC	EBT	EC	IBT	IDT	LC	MLC	PL	PR	SUC
PR1	0.60	0.38	0.36	0.59	0.52	0.47	0.38	0.39	0.45	0.55	0.27	*0.85*	0.51
PR2	0.46	0.26	0.27	0.34	0.36	0.45	0.25	0.31	0.43	0.45	0.22	*0.76*	0.47
PR3	0.66	0.33	0.34	0.48	0.53	0.45	0.30	0.38	0.47	0.66	0.26	*0.90*	0.52
PR4	0.69	0.40	0.37	0.58	0.58	0.41	0.32	0.44	0.47	0.59	0.29	*0.89*	0.47
SUC1	0.36	0.20	0.19	0.28	0.34	0.48	0.31	0.26	0.68	0.46	0.34	0.52	*0.86*
SUC2	0.35	0.14	0.16	0.28	0.29	0.48	0.22	0.20	0.52	0.53	0.23	0.53	*0.93*
SUC3	0.32	0.13	0.17	0.24	0.27	0.45	0.13	0.18	0.43	0.53	0.13	0.47	*0.85*

Notes: COM – commitment, CRC – customer resistance to churn, EBT – economy-based
      trust, IBT – information-based trust, IDT – identification-based trust,
      PR – perceived risk, BC – benefit loss, BL – brand relation, EC – evaluation cost,
      LC – learning cost, MLC – monetary loss, PL – personal relation,
      SUC – set-up cost.