The Business-to-Consumer Lock-in Effect

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This is a working paper

Why this paper might be of interest to Alliance Partners:

The lock-in effect refers to a situation in which consumers are dependent on a single manufacturer or supplier for a specific service, and cannot move to another vendor without substantial costs or inconvenience. In Business-to-Consumer relationships the lock-in effect is typically considered by the business to be favorable and desirable, because it helps to secure constant and recurring revenues. However, the lock-in effect can also have negative consequences for the business, in particular when the consumer becomes dissatisfied with the service. In our study we analyzed consumers' potential reactions in dependence of the strength of the lock-in effect and the type of relationship with the business. The strength of the lock-in effect depends on the amount and intensity of different aspects of the lock-in effect, for example, commitment to a contract or personalization of service. We differentiated between the two common types of brand relationship: on the one hand, an exchange relationship that is characterized by the functionality and benefits that the service provides; and on the other hand, a trust-based, so-called "communal" relationship, in which the consumer cannot differentiate between the functionality and benefits of several similar services, but makes his/her decision on the basis of how much he/she trusts that the business is concerned with his/her welfare. Our results suggest that consumers in an exchange relationship with a weak lock-in effect are most likely to leave a current service for another one. Consumers in a communal relationship rather tend to condone changes in the relationship that are disadvantageous to them than consumers in a functional relationship. The tendency to complain officially (e.g. contact customer service) about an unsatisfactory service or unfavorable changes for the consumer is much lower than the tendency to complain privately (e.g. gossip about the business with friends). This can be quite dangerous for the business because it may not be immediately aware of the reactions. Consumers in a communal relationship with a strong lock-in effect are most likely to complain privately. We found evidence that this group of individuals is the one most likely to post their frustrations on social media (like Facebook, Twitter, etc.) and try to convince friends to leave the business as well. However, in weak lock-in effect situations they tend to complain less and may still remain customers even under worse conditions. These results may help alliance partners to reflect on their relationships with consumers and may also contribute to finding a reasonable degree of lock-in effect in order to avoid damage to their brand value and reputation.

August 2014

The papers included in this series have been selected from a number of sources, in order to highlight the variety of service related research currently being undertaken within the Cambridge Service Alliance and more broadly within the University of Cambridge as a whole.

The Business-to-Consumer Lock in Effect

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The lock-in effect refers to a situation in which consumers are dependent on a single manufacturer or supplier for a specific service, and cannot move to another vendor without substantial costs or inconvenience (Arthur, 1989; Farrell & Klemperer, 2007; LINFO, 2006). In Business-to-Consumer (B2C) communication and business relationships the lock-in effect is typically regarded as positive and desirable by the business. Lock-in is considered a means to increase customer loyalty, create a market for cross-selling opportunities, bind consumers to the business, and eventually gain recurring revenues from the same pool of customers (Amit & Zott, 2001; Farrell & Klemperer, 2007; Harrison, Beatty, Reynolds, & Noble, 2012). In the literature on the business model it is sometimes recommended to build a lock-in into the business model design in order to achieve economic sustainability and to strive for higher levels of value creation and revenue generation (e.g., Amit & Zott, 2001; Osterwalder & Pigneur, 2010; Picker, 2010; Pynnonen, 2008). The benefits of the lock-in effect are predominantly on the company's side. The consumer may not even be aware of the lock-in. If the consumer realizes the effect of the lock-in, he/she may not bother about it as long as he/she is pleased with the service, its provisioning and its price. However, a change in the B2C relationship that is disadvantageous to the consumer might not only change the consumer's perception of the particular service, but also the entire brand. Dissatisfying changes to the B2C relationship include increased prices, problems with the service or its provisioning, data leakage and privacy infringements, another business that enters the market with superior services, or unavailability of former service features. These changes can annoy the consumer and he/she might become frustrated when prevented from leaving the service and the service providers for another (because of the lock-in). This frustration may have several negative consequences for the business such as a clamor of outrage on the Internet, especially posting and writing on social media, or putting off potential new customers. The consequences may be particularly severe for the company if it is not immediately aware of them, for example, because the consumers do not complain to the company about the dissatisfying changes it has made, but privately to friends and colleagues instead.

Thus far, it appears that the relationship between a firm's strategic assets and the lock-in effect has only been analyzed in a unidirectional manner. Strategic assets such as trust or brand name and the lock-in effect can contribute to strengthening the lock-in effect (Amit & Zott, 2001). However, the impact of the lock-in effect on buyer–seller trust, firm reputation and brand name seems under-researched. To our best knowledge, there is no study that systematically and experimentally explores the potential negative consequences for a company, which root back to the lock-in effect, and there are few systematic business model design experiments described in the literature (e.g., McGrath, 2010).

On the basis of a literature review and theoretical framework (described in the following section), we suggest that the consumers' reaction to a disadvantageous change to the B2C relationship depends on the strength of the lock-in and the type of relationship between service and consumer. We differentiated between the two common types of brand relationship: on the one hand, an exchange relationship that is characterized by the functionality and benefits that the service provides; and on the other hand, a trust-based, so-called "communal" relationship, in which the consumer cannot differentiate between the functionality and benefits of several similar services, but makes his/her decision on the basis of how much he/she trusts that the business is concerned with his/her welfare.

The goal of this study is to gain a better understanding of the potentially negative consequences of building a lock-in into a business model that is too strong, especially after a disadvantageous change

has occurred to a B2C relationship. Decision-makers and business model designers may use the findings in order to become more aware of the consumers' relationship with the services, to rethink their choices about the strength of the applied lock-in, and to get a better grasp on the potential consequences. Finally, these insights can help to determine the right degree of lock-in, anticipate earlier any consumer resentment, and eventually satisfy customers. From a theoretical perspective, this study is one of the first to apply an experimental research design to business modeling and value creation.

Literature Review and Theoretical Framework

Lock-in Effect

Lock-in can be described as 'switching costs' (e.g., Amit & Zott, 2001; Smith, Bailey, & Brynjolfsson, 1999) that consumers are forced to incur when changing from one vendor to another. In addition, the search and communication costs incurred, for example, for initiation, definition, control, and adaption of a service agreement (Fleisch, 2002). Therefore, the lock-in effect has its theoretical underpinnings in transaction cost economics (Coase, 1937, pp. 386-405; Williamson, 1989). Additional inconveniences can arise for the consumer when switching to another service, for example, learning how to use the service or personalizing the service (Smith, et al., 1999).

The lock-in effect is also facilitated by positive network externalities, which are commonly referred to as the "network effect"; an increased number of users make a product more valuable, as in the case of the telephone. Positive network externalities make it inconvenient and cumbersome to consume a service from another supplier. Thus, the lock-in effect also has a theoretical basis in the network theory (Katz & Shapiro, 1985; Liebowitz & Margolis, 1995; Shapiro & Varian, 1999).

Amit and Zott (2001) argue that from a resource-based view (Penrose, 2009; Wernerfelt, 1984) a firm's strategic assets, such as buyer–seller trust or brand name (D. Aaker, 2012), contribute to the lock-in effect.

Triggers for the lock-in effect include commitment to a contract, training and learning of product- or technology-specific knowledge, search cost, loyalty costs (losing a particular status), personalization of products or services, positive network externalities, dependence on complementary and compatible products or services, accommodation, habituation, and familiarization with a product or service (Frank, 2007; Harrison, et al., 2012; Liebowitz & Margolis, 1995; Smith, et al., 1999).

Depending on the presence and extent to which these factors apply, the degree of the lock-in effect can vary. The lock-in effect can be weak if only a few factors apply with low intensity; it can be strong if several factors apply, or only a single factor, but with a strong impact.

Business Model

A business model refers to the architecture and logic of how a business accomplishes its mission (Baden-Fuller & Morgan, 2010; Drucker, 1994) and is particularly concerned with creating value and generating revenue (e.g., Johnson, Christensen, & Kagermann, 2008; Teece, 2010).

The lock-in effect is popular in the business model research community, as well as with managers. The lock-in effect has proven to be a powerful means to increase customer loyalty, contribute to an augmented network effect, and finally to generate a recurring revenue stream (Amit & Zott, 2001; Frank, 2007; Harrison, et al., 2012). Therefore, the lock-in effect is frequently applied in many successful business model designs.

One of the most popular examples became known as the "razor and blades" business model design pattern (Picker, 2010). The basic idea is to sell razors at a deliberately low price in order to create a market for blades that are only compatible with the original razors. In this way, the customer keeps buying blades for the whole lifetime of the razor and thus ensures the supplier recurring revenues. The lock-in effect in this business model pattern mainly relies on the dependence on complementary

and compatible products or services. This business model is applied in several domains; for example, Nespresso sells a combination of coffee machine and coffee capsules. Nestlé (which owns Nespresso) benefits from constant revenues over a long period of time, which stem from selling compatible coffee capsules (Matzler, Bailom, von den Eichen, & Kohler). Printer manufacturers sell printers at a low price with the goal of securing periodic revenues from selling relatively high-priced ink cartridges. They claim that the warranty of the printer becomes void if any ink cartridges are used in the printer that are not produced by the original equipment manufacturer (Yue, Mukhopadhyay, & Zhu, 2006).

Another business model pattern that builds on the application of the lock-in effect is known as "freemium". The term "freemium" is a portmanteau that describes the blend of the two major components of the business model pattern: "free" and "premium". The basic idea is that a service or product is offered for free, while a premium is charged for additional features, services, or add-ons (Anderson, 2009). The business model is characterized by the distinction of free and premium services. Basic services are offered for free, which attract a large customer base. A large customer base is essential for the premium services because the more users consume the basic services, the higher the absolute number of premium service users. The more free and premium services are interconnected, the more attractive the usage of premium services becomes. Therefore, the lock-in effect is based on positive network externalities: the more people use services for free, the more valuable the service becomes for all consumers; and the greater the network, the higher the lock-in effect becomes and costs and efforts increase to change to a competitive service (Bughin, Chui, & Manyika, 2010; Zott & Amit, 2010). Training and learning of product- or technology-specific knowledge, as well as accommodation, habituation, and familiarization with the product or service, are additional factors that can convince a consumer to enter into a premium contract. These factors further strengthen the lock-in effect. An example is Skype, which is a voice-over-IP (Internet Protocol) software application developed by Skype Ltd., which allows users to make voice and video calls among one another for free. The premium services "SkypeIn" and "SkypeOut" allow calls to landline and cell phones for a fee using a debit-based account system (Tapio, 2005).

Consumer Behavior

There are two types of brand relationship that may influence the perception of a service and its lock-in:

1. An *exchange* relationship is characterized by the functionality and benefits that the service provides and is based on information that the consumer assesses.
2. A *communal* relationship is based on trust, essentially on how much he/she believes the business is concerned with his/her welfare. The consumer may not be able to differentiate between the functionality and benefits of several similar services and therefore has to rely on and trust that the service he/she chooses is appropriate.

Compared to a communal relationship, consumers in an exchange relationship are more likely to keep track of inputs and outcomes and determine the cost-benefit ration, less likely to request help, less likely to condone dissatisfying changes, and less prone to emotional states towards the service and the brand (D. Aaker, 2012; J. L. Aaker, 1997; Aggarwal, 2004; Clark & Mills, 1979).

Propositions

Remain a Customer

In accordance with theory (transaction cost theory, network theory, resource-based view), consumers should be more likely to remain consumers in a strong lock-in than in a weak one. In accordance with the considerations about brand relationships, consumers should be more likely to remain consumers in a communal rather than exchange relationship. Therefore, we hypothesize:

H1a. *After a change in the relationship between business and consumer that is disadvantageous to the consumer, consumers will be more likely to remain a customer with the business when the lock-in effect is strong than when it is weak.*

H1b. *After a change in the relationship between business and consumer that is disadvantageous to the consumer, consumers in a communal relationship will be more likely to remain a customer with the business than those in an exchange relationship.*

Complain about a Disadvantageous Change

In a B2C relationship with a weak lock-in, it is easier for dissatisfied consumers to terminate the relationship with the business than in a strong lock-in situation. Therefore, consumers in a weak lock-in situation should have fewer reasons to complain about disadvantageous changes. Relative to consumers in an exchange B2C relationship, consumers in a communal B2C relationship should rather interpret the business's action as a breach of trust and should therefore be more likely to complain about the dissatisfying change.

We were interested in the potential differences between official (e.g. writing an email to customer service) and private complaints (e.g. gossiping about the business with friends). From an industry perspective, this difference can be decisive. While the business gets immediate feedback about their changes in the case of official complaints, private complaints may remain hidden from the business's attention and dissatisfaction and frustration may build up in the meantime.

Hence, we hypothesize:

H2a. *After a change in the relationship between business and consumer that is disadvantageous to the consumer, consumers will be more likely to complain <u>officially</u> if the lock-in is strong than when it is weak.*

H2b. *After a change in the relationship between business and consumer that is disadvantageous to the consumer, consumers will be more likely to complain <u>officially</u> in a communal relationship than in an exchange relationship.*

H2c. *After a change in the relationship between business and consumer that is disadvantageous to the consumer, consumers will be more likely to complain <u>privately</u> if the lock-in is strong than when it is weak.*

H2d. *After a change in the relationship between business and consumer that is disadvantageous to the consumer, consumers will be more likely to complain <u>privately</u> in a communal relationship than in an exchange relationship.*

Method

Participants

Participants were 1,140 young adults who completed an online experiment. They were recruited via university mailing lists (ETH Zurich, University of Zurich), social networking sites, and personal contacts. The study was announced as a B2C marketing study about a fictional social media service. As an incentive, participants could win one of three iPod Shuffles. We excluded participants with completion times of below four minutes because our pre-test revealed that it was impossible to seriously complete the experiment in such a short time. Moreover, we excluded participants with completion times of above 30 minutes because a break that is too long during completion can interfere with the experimental manipulations (e.g. participants may not remember the vignette). The final sample included 1,090 young adults (405 females (37.2 %), average age = 26.32 years, SD = 4.66). The majority of the participants were students (79.9 %). Approximately one-fifth were employees (18.1 %). In our view, this sample reflects the characteristics of the target audience for social media services.

Design and Procedure

The study was conducted in January 2014. Data were collected via SelectSurvey (https://selectsurvey.net), a specialized software package for online research. Our experiment utilized a 2 x 2 design with type of relationship (communal, exchange) and strength of lock-in (weak, strong) as between-subject factors. Participants were randomly assigned to one of the four experimental conditions. First, participants completed several questions regarding their personal background. After that, they read a vignette about their relationship with the fictional online service, Tala (see manipulation). They were asked to immerse themselves in the situation and to imagine how they would think and feel about Tala. The vignette was followed by the first manipulation check. Participants then read another short vignette describing their usage of Tala, which served as manipulation of the strength of lock-in (see manipulation). This text was followed by the second manipulation check. After that, participants were informed that Tala would soon change its pricing strategy: services that have always been free, including voice communication, chatting and video-conferencing, would become subject to charge.

> *Change of the B2C relationship that is disadvantageous to the consumer*: "Tala has always been available for free. However, in a recent announcement, Tala declared that it will change its pricing strategy from next month on: updating posts will remain free. However, voice communication, chatting and video-conferencing will become subject to charge: 0.05 CHF[1] per minute."

We were interested in participants' reactions to this change, particularly, whether their reactions would vary as a function of the type of relationship and the strength of lock-in. Participants indicated their reaction by answering a number of items. In a pre-study we found that a charge of 0.05 CHF per minute is a reasonable threshold whereby consumers begin to think about how they should react to the change. The initially tested value of 0.10 CHF per minute was considered to be far too high.

Finally, participants were thanked and those interested in winning an iPod could enter their email address. The whole experiment lasted on average approximately eight minutes (average duration in seconds = 476, *SD* = 223).

Manipulations

To manipulate the type of relationship, we chose an approach similar to that used by Aggarwal (2004). Participants read a short vignette describing their relationship with Tala, a fictive social media service. In addition to giving the same general information about Tala, this text described their connection with the service as either a communal or exchange relationship.

> *Exchange relationship vignette*: "Tala is a free voice-over-IP communication service that runs on a laptop or a smartphone. Tala features voice communication, instant messaging videoconferencing, and provides the opportunity to maintain a profile and share news with friends. You have been using Tala for the last four years. You have used the Tala services extensively and have been very happy with its functionality and the quality of services. The program is self-explanatory and very easy to use. When you contacted Tala's helpdesk, you got a fast and competent answer. Their employees seem to be well trained. Overall, your experience with Tala has been excellent."

> *Communal relationship vignette*: "Tala is a free voice-over-IP communication service that runs on your laptop or on your smartphone. Tala features voice communication, instant messaging with your friends, videoconferencing, and provides the opportunity to maintain a profile and share news with your friends and comment on their news. You have been using Tala for the last four years. You still remember your first conversation via Tala and how excited you were. When your best friend started studying abroad, it was mainly thanks to Tala that your friendship continued to exist. You have always associated Tala with positive feelings since you often use it. You especially

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[1] 0.05 CHF are roughly 0.055 USD or 0.03 GBP.

appreciate that you are able to keep in touch with your friends all over the world. Overall, your experience with Tala has been memorable."

As we are not aware of any study that tried to experimentally induce different types of lock-in, we developed our own approach, which resembles manipulation of the type of relationship in that we also used vignettes. These vignettes described the participants' use of Tala, either in terms of a weak lock-in or a strong one.

Weak lock-in vignette: "Some of your friends and colleagues are using Tala. Tala allows you to communicate with them for free. Your profile on Tala is not very up-to-date. Sometimes, you post news and comment on your friends' posts. There are similar services available and changing to another service would not be complicated."

Strong lock-in vignette: "Almost all of your friends and colleagues use Tala. Tala allows you to communicate with them for free. You have taken care to keep your profile updated. Almost every day, you post news and comment on your friends' posts. Changing to a similar service would be complicated because of your friends with whom you are connected via Tala and because of other services being less convenient."

Measures

Manipulation checks. We used two different measures to test whether our first experimental manipulation (i.e. vignette) would affect participants' perceptions of their relationship with Tala. On the one hand, we used an adapted version of the 3-item consumer trust scale by Kim, Ferrin, and Rao (2008). A sample item is "Tala is trustworthy". The scale had sufficient reliability ($a = .78$). On the other hand, we used an existing scale to assess participants' affective commitment towards Tala (Gustafsson, Johnson, & Roos, 2005). A sample item is "I take pleasure in being a customer of Tala". The scale also had sufficient reliability ($a = .74$). For both measures, participants were asked to indicate their agreement with the statements on a 7-point scale ranging from 1 = "strongly disagree" to 7 = "strongly agree".

To the best of our knowledge, there is no standard instrument to assess the strength of a lock-in effect. Hence, the effectiveness of the lock-in manipulation was tested with a single item. Participants were asked to indicate how easy it would be for them to leave Tala. As with the other manipulation checks, a 7-point scale was used, ranging from 1 = "very easy" to 7 = "very difficult".

Dependent variables. We used three types of dependent variable. First, we asked the participants to estimate the probability that they would remain a costumer of Tala; second, *officially* complain about Tala's action; third, *privately* complain about Tala's action. By means of a slider bar, participants could indicate the respective probabilities on a scale from 0 to 100.

Social media use. As a control variable, we asked participants how frequently they used five popular social media services. These included whatsapp,[2] Facebook, Skype, Twitter, and Tumblr. Participants indicated their frequency of use on a 7-point-scale ranging from 1 = "never" to 7 = "several times a day".

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[2] The study was conducted before Facebook announced its acquisition of whatsapp on 19 February 2014.

Results

Remain a Customer

Table 1. Descriptive statistics for the dependent variable 'Remain a Customer'

Type of Relationship	Strength of Lock-in	Mean	Standard Deviation	N
communal	strong	48.1705	31.5270	264
	weak	43.1818	31.7050	264
	total	45.6761	31.6846	528
exchange	strong	43.6569	30.1856	274
	weak	36.4842	30.2233	285
	total	40.0000	30.3904	559
total	strong	45.8717	30.9050	538
	weak	39.7049	31.0972	549
	total	42.7571	31.1411	1087
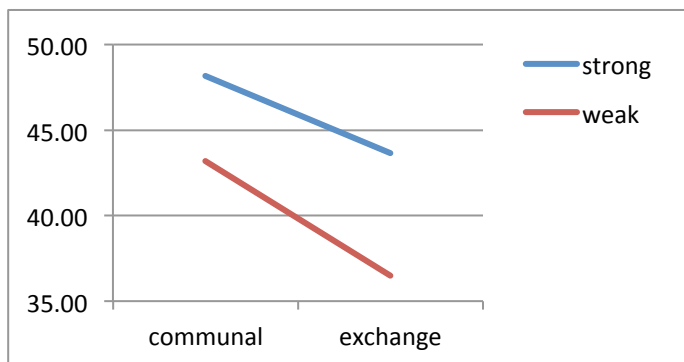
Figure 1. Evaluation of participants' intention to remain customers after a change in the B2C relationship that is disadvantageous to the consumer.

To test our hypotheses regarding the probability of remaining a consumer, we conducted a 2 (strength of lock-in: strong vs weak) x 2 (type of relationship: communal vs exchange) analysis of variance (ANOVA). The analysis revealed a main effect of strength of lock-in: $F(1, 1087) = 10.51$, $p = .001$. If the lock-in was weak, participants were significantly less likely to remain customers ($M_{weak} = 39.70$, $SD = 31.10$), compared to when the lock-in was strong ($M_{strong} = 45.87$, $SD = 30.90$), after a change in the vendor–consumer relationship that is disadvantageous to them. Thus, hypothesis H1a was supported.

In support of hypothesis H1b, we found a significant effect of type of relationship: $F(1, 1087) = 8.94$, $p = .003$. After a disadvantageous change, consumers in a communal relationship were more likely to remain customers of Tala ($M_{communal} = 45.68$, $SD = 31.68$) than were consumers in an exchange relationship ($M_{communal} = 40.00$, $SD = 30.39$).

Finally, the analysis showed that the 'strength of lock-in' x 'type of relationship' interaction was not significant: $F(1, 1087) = 0.34$, $p = .56$.

A customer's intention to remain a customer after a dissatisfying change in the B2C relationship is highest in the case of a communal relationship with a strong lock-in effect. Customers are most likely to terminate a B2C relationship in the case of an exchange relationship with a weak lock-in effect.

Please note that the probabilities with which participants indicated that they would remain customers must not be understood as absolute values and cannot be generalized. The indication that the probability to remain a customer is on average below 50 per cent holds true only in this

particular experimental setting. Among others, these numbers depend on the level of dissatisfaction (in the experimental setting the dissatisfaction was provoked by the new price policy of 0.05 CHF per minute). Instead, only the relative differences between the probabilities to remain a customer are of importance.

Complain Officially

Table 2. Descriptive statistics for the dependent variable 'Complain Officially'

Type of Relationship	Strength of Lock-in	Mean	Standard Deviation	N
communal	strong	21,0917	27,7705	264
	weak	18,0568	26,1823	264
	total	19,5742	27,0052	528
exchange	strong	20,0270	25,5918	274
	weak	16,7088	24,7319	285
	total	18,3352	25,1893	559
total	strong	20,5494	26,6635	538
	weak	17,3570	25,4253	549
	total	18,9371	26,0824	1087
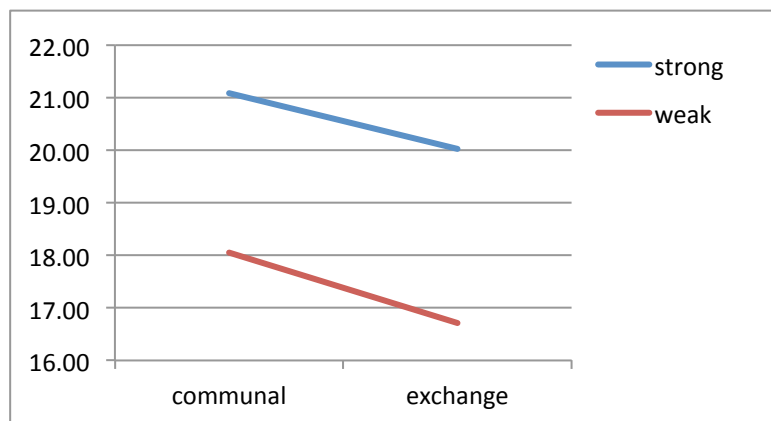
Figure 2. Evaluation of participants' intention to officially complain about a change in the B2C relationship that is disadvantageous to them.
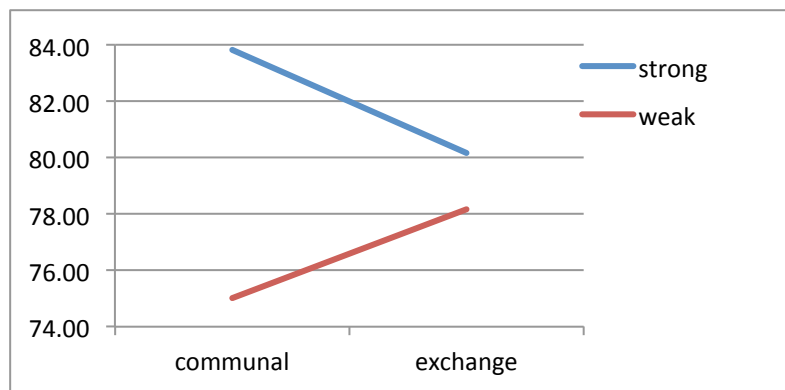
An ANOVA revealed that the main effect of strength of lock-in on the probability to complain officially was significant: $F(1, 1087) = 4.03$, $p = .045$. Consumers in a strong lock-in were more likely to complain officially ($M_{strong} = 20.55$, $SD = 26.66$) than were consumers in a weak lock-in ($M_{weak} = 17.36$, $SD = 25.43$). Thus, hypothesis H2a was supported. However, the main effects of 'type of relationship' and 'strength of lock-in' x 'type of relationship' interaction were both non-significant: $F(1, 1087) = 0.58$, $p = .45$ and $F(1, 1087) = 0.008$, $p = .93$, respectively.

A customer's intention to officially complain about a change in the vendor–consumer relationship that is disadvantageous to him/her is highest in the case of a communal relationship with a strong lock-in effect.

Complain Privately

Table 3. Descriptive statistics for the dependent variable 'Complain Privately'

Type of Relationship	Strength of Lock-in	Mean	Standard Deviation	N
communal	strong	83,8163	25,1838	264
	weak	75,0152	28,7434	264
	total	79,4157	27,3536	528
exchange	strong	80,1588	28,7442	274
	weak	78,1614	28,8818	285
	total	79,1404	28,8059	559
total	strong	81,9535	27,0925	538
	weak	76,6485	28,8320	549
	total	79,2741	28,0973	1087

Figure 3. Evaluation of participants' intention to privately complain about a change in the B2C relationship that is disadvantageous to them.

In support of hypothesis H2c, an ANOVA revealed that the main effect of strength of lock-in on the probability to complain privately was significant: $F(1, 1087) = 10.13$, $p = .002$. Consumers in a strong lock-in were more likely to complain privately ($M_{strong} = 81.95$, $SD = 27.09$) than were consumers in a weak lock-in ($M_{weak} = 76.65$, $SD = 28.83$). However, the main effect of type of relationship was non-significant: $F(1, 1087) = 0.02$, $p = .88$. As a result, hypothesis H2d had to be rejected. The interaction between 'strength of lock-in' and 'type of relationship' interaction was significant: $F(1, 1087) = 4.02$, $p = .045$. For a communal relationship, there was a difference in the probability to complain privately in such a way that consumers in a strong lock-in ($M = 83.82$, $SD = 25.18$) were more likely to complain than were consumers in a weak lock-in ($M = 75.02$, $SD = 28.74$): $F(1, 1087) = 13.08$, $p < .001$. In contrast, for an exchange relationship, the probability to complain privately did not differ between consumers in a strong lock-in ($M = 80.16$, $SD = 28.74$) and consumers in a weak lock-in ($M = 78.16$, $SD = 28.88$): $F(1, 1087) = 0.71$, $p = .399$.

A customer's intention to privately complain about a change in the vendor–consumer relationship that is disadvantageous to him/her is highest in the case of a communal relationship with a strong lock-in effect.

The intention to complain privately is much higher than to complain officially.

General Discussion and Conclusion

Summary

The overall objective of this research is to test the assumption that the type of consumer-brand relationship and the strength of the lock-in influence the attitude towards the business and the kind of reaction to a change in the B2C relationship that is disadvantages for the consumer. The results of our research show that consumers in a strong lock-in situation are more likely to remain customers after a dissatisfying change in the B2C relationship than in a weak lock-in situation; however, at the same time they are more likely to complain about the change. Consumers in a communal relationship are more likely to remain customers after a change occurred in the relationship that is disadvantageous for them than consumers who consider themselves in an exchange relationship. The experiment did not support our assumption that consumers in a communal relationship are more likely to complain than thise who are in an exchange relationship, thus this assumption had to be rejected. Overall, the intention to complain privately is much higher than to complain officially. For a communal relationship, there was a difference in the probability to complain privately in such a way that consumers in a strong lock-in were more likely to complain than consumers in a weak lock-in. In contrast, for an exchange relationship, the probability to complain privately did not differ between consumers in a strong lock-in and consumers in a weak lock-in. This could be explained as follows: in an exchange relationship, it would be expected that consumers decide their actions on the basis of a cost–benefit ratio. If the cost–benefit ratio suggests the termination of the relationship and if the lock-in is weak, they should terminate the relationship. No matter whether they remain with the business or terminate the relationship, they should realize that the deal will get worse for them: they will either have to pay more by remaining a customer or they will have to pay 'switching costs' to leave for another business. However, in the case of a communal relationship, consumers may remain a customer even if the cost–benefit ratio gets worse for them and even if there is a weak lock-in because they should trust that the business cares for their welfare. If they stay with the business, they cannot blame the dissatisfying situation on external conditions (strong lock-in) and cognitive dissonances should they arise. In accordance with Leon Festinger's theory of cognitive dissonance (1954) consumer should be motivated to try to reduce the dissonance and achieve consonance. In order to reduce the dissonance, it may happen that the customer condones the disadvantages that arise as a result of the changes and privately and mentally accept and reinterpret them in order to keep the good relationship with the brand alive.

Figure 4 summarizes potential reactions to a change in a B2C relationship that is disadvantageous for the consumer in relation to the strength of lock-in and type of relationship.

Strong	Depending on a cost-benefit assessment, consumers may leave the service for another service	Consumers stay with the service
Weak	Consumers leave the service for another one	Consumers tend to stay with the service
	Exchange	Communal

Figure 4. Potential reactions to a change in a B2C relationship that is disadvantageous for the consumer in relation to the strength of lock-in and type of relationship

Limitations and Future Research

In a pre-test we learned that in the particular example of our fictional case about 0.05 CHF per minute is the acceptance limit. A much higher price or any other more dissatisfying circumstance would make most consumers run off and leave the service for another one in the case of a weak lock-

in. In the case of a strong lock-in, a much higher price or another more dissatisfying change would make consumers even angrier and trigger strong reactions such as more complaints.

With the chosen experimental research design, we could only test the intention to remain a customer and complain about a dissatisfying change but not the actual behavior. Behavior can be understood as a function of compatible intentions (cf. Theory of Planned Behavior, Ajzen, 1991)); therefore our test results provide at least a good prediction of consumers' reactions to a disadvantageous change in the B2C relationship. Future research could elaborate on the actual behavior in concrete situations. Moreover, future research could address which triggers (e.g., contract, training and learning, search cost, personalization, habituation, and familiarization with a product or service) work best to create a lock-in that is acceptable for consumers; which circumstances (e.g., increased prices, problems with the service or its provisioning, data leakage and privacy infringements) annoy consumers the most; and which kind of issues consumers would condone (e.g., because there is a way to blame a dissatisfying change on an external entity and not on the service provider such as the case of a data piracy).

Implications and Outlook

Managerial Implications

The results of the experiments have some important implications for managers and for business model designers in particular. The study should highlight that a lock-in does not just have positive effects for the business, but there are situations in which a particularly strong lock-in can annoy customers so much that they react in a way that can have negative consequences for the business. In particular, private complaints, e.g. complaints in the circle of friends and acquaintances and on social media, can do some serious harm because they may not immediately receive companies' awareness. Therefore, these complaints bear the risk of being underestimated in the first place, and once resentments and rumors are spread via the Internet, it can become expensive for the company to sustain and maintain its reputation, value proposition, and brand value. Disappointed consumers may have already discredited the value proposition and prevented potential future customers from entering into a B2C relationship with the business.

The results add to our understanding of consumer behavior. They can contribute to helping decision makers and business model designers rethink the relationship with the consumers and their choices about the strength of the applied lock-in. Finally, the results can help find the right degree of lock-in, earlier anticipate consumers' resentment, and eventually satisfy customers in a better way. These insights may be particularly important for entrepreneurs. Once a relationship has been established with a customer, it cannot be altered easily. freemium-based business models have become popular recently. Several start-ups, above all in IT, offer their services for free in the first business stage in order to attract and build up a large customer base. In a later stage, they try to capture revenues for their services. The results of our experiment suggest that there is the potential for customers to leave the service for another one and for angry reactions. Therefore, entrepreneurs are well advised to carefully plan the different stages to ramp up their business. Providing services free of charge in the first stage could become a source for future conflicts.

Theoretical Implications

Business model research, especially on value creation and capturing, enjoys an increasing interest and importance. Thus far, research on the design of a business model focuses a great deal on cases, conceptual models, taxonomies, and design patterns (Eurich, Weiblen, & Breitenmoser, 2014; Pateli & Giaglis, 2004) while systematic research on what makes a business model work is rare. Several authors asked for business model experiments for future research (Baden-Fuller & Morgan, 2010; Chesbrough, 2010; McGrath, 2010), but there is very little such research up to this point. This study is one of the first that applies an experimental research design to business modeling and value creation. It shows how specific effects (in this case, the lock-in effect) are built into the design of

business model and their consequences can be studied in a systematic manner. We would be pleased to see future research that generates additional insights into business model design considerations.

Acknowledgement

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