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Essays on Understanding and Managing Customer Complaints

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Abstract

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Retaining complaining customers and preventing complaint churn has been a topic of interest for scholars and businesses, yet research suggests there is ample room for both theoretical and managerial improvements. With the goal of understanding *why* complainers leave and *what* firms can do to mitigate complaint churn, in this dissertation, I conceptualize a framework to show 1) decreased perceptions of equity and trust are the two underlying mechanisms through which complaints negatively impact retention, and 2) complainers' perceptions of the extent of their investments into their relationship with the firm moderate equity and trust mechanisms in opposing directions, resulting in a net curvilinear U-shaped effect of investments on post-complaint retention. When complainers' investments are low, they mainly evaluate their relationship on transactional grounds. As such, perceptions of equity are the dominant mechanism driving post-complaint retention, and retention strategies that rebuild attenuated equity perceptions are more effective in minimizing churn. However, as complainers' investments increase, they move away from a transactional, equity-driven, assessment of their relationship to a relational, trust-driven, assessment, and retention strategies that rebuild attenuated trust perceptions become more effective in minimizing churn. Three studies—controlled experiments, game-theoretical

model, and empirical analysis using data of an international financial services firm—validate the framework. Theoretical and managerial implications are discussed.

Keywords

complaint churn, customer investments, complaint costs, equity, trust, retention, switching costs, compensation, loyalty program offers

Table of Contents

	Page
Chapter 1: Introduction-----	1
Chapter 2: Conceptual Framework for Understanding and Managing Customer Complaints-----	8
2.1 Literature Review-----	8
2.1.1 Complaint and Retention-----	8
2.1.2 Justice and Trust-----	10
2.1.3 Transactional-Relational Continuum of Exchanges-----	12
2.1.4 Switching Costs and Relationship Investments-----	13
2.2 Conceptual Framework and Hypotheses Development-----	15
2.2.1 Main Effect-----	15
2.2.2 Mediating Mechanisms-----	16
2.2.3 Moderating Role of Customer Investments-----	19
2.2.4 The Net U-shaped Effect of Complainers' Investments on Their Retention-----	24
2.2.5 Retention Strategies-----	26
Chapter 3: Methodology-----	33
3.1 Overview of Studies-----	33
3.2 Study 1 (Controlled Experiments)-----	35
3.2.1 Method-----	35
3.2.2 Results and Discussion-----	39
3.3 Study 2 (Analytical Model)-----	42
3.3.1 No Complaint Scenario-----	43
3.3.2 Complaint Scenario-----	44
3.3.3 Mechanisms-----	48
3.4 Study 3 (Empirical Analysis)-----	52
3.4.1 Data and Sample Preparation-----	52

3.4.2 Model and Results-----	58
Chapter 4: Conclusion-----	63
Bibliography-----	68
Appendix A: Appendix for Analytical Model (Study 2)-----	79
Appendix B: Appendix for Controlled Experiments (Study 1)-----	87
Appendix C: Appendix for Empirical Analysis (Study 3)-----	94

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Dedication

to my beloved parents, Parvin and Abed

&

to my dear brother, Behrad

Chapter 1

Introduction

Customer complaints are critical red flags representing negative interactions between customers and firms (Boire 2009). They are an important determinant of customer retention (Ahn, Han, and Lee 2006) and, despite all the organizational precautions, are an inevitable reality of many businesses (Homburg and Fürst 2005). Effective customer complaint management is known as a key success factor for businesses (Coussement and Van den Poel 2008). Past research has identified several benefits of effective complaint management. This research focuses on the benefit known as the *retention benefit*, that is the revenue or profit generated by retaining complainers that could be retained by effective complaint management (Stauss and Schoeler 2004). “Every company knows that it costs far less to hold on to a customer than to acquire a new one” (Coyles and Gokey 2005, p. 101). Previous research underscores that customer acquisition can cost five to 10 times more than customer retention (Premkumar and Rajan 2013; Morgan 2007; Ueno 2006). Effective complaint management helps firms retain their complaining customers and its return on investment (ROI) can exceed 100% at times (Technical Assistance Research Program 1986), highlighting its relevance and importance. This work provides a *framework that extends current understating around the drivers of complaint churn, shows the key moderating role of complainers’ investments, and investigates the effectiveness of retention*

strategies aiming to minimize complaint churn.

Despite its importance, research suggests that many companies suffer from ineffective complaint management with only about half of their complaining customers being satisfied with how their complaint is resolved (Estelami 2000; Homburg and Fürst 2005). Andreassen (2001, p. 47) argues that “companies in general must improve their complaint resolution efforts dramatically to retain dissatisfied complaining customers.” This suggests that there is ample room for improvement in customer complaint management. From a theoretical point of view, as Gelbrich and Roschk (2011, p. 24) point out “extant studies cover only some of the relevant constructs ... instead of conjointly analyzing the full range of relationships in an overall model ... empirical findings are contradictory”. For instance, research on the effectiveness of compensating complainers is inconclusive with empirical findings in support of a positive and significant impact of compensation on complainers’ evaluations (e.g., Smith, Bolton, and Wagner 1999; McCollough, Berry, and Yadav 2000) and research reporting no significant effect (Blodgett and Tax 1993). From a company point of view, as Homburg and Fürst (2005) and Singh and Widing (1991) point out the question of what companies should do to ensure successful complaint resolution mechanisms has remained largely unexplored.

This research is motivated by these unresolved issues around complaint management. I seek to bring complaint, retention, and the related constructs into one integrated conceptual model to examine 1) different ways through which complaints affect retention (i.e., the mediating mechanisms), 2) the moderating role that complainers’ investments play in shaping the customer-firm relationship structure and complainers’ decision making, and 3) practical retention strategies that firms can implement for minimizing post-complaint churn contingent on their complainers’ investments.

The findings show that decreased perceptions of equity and trust are the two underlying

mechanisms that drive post-complaint churn. Next, drawing on past research on relationship investment (Palmatier 2008), I define complainers' investments as their investment of time, effort, spending, and other resources focused on building a stronger relationship with the focal firm. This work then shows that the level of complainers' investments plays a central moderating role in the complaint-retention framework—strengthening the mediating role of trust perceptions and weakening that of equity perceptions. As such, complainers' investments specify which of the two mediating mechanisms (equity or trust) dominates the other and predominantly drives complainers' retention. The interplay of these mechanisms leads to a net curvilinear U-shaped effect of investments on retention. This U-shaped pattern suggests that complainers with medium levels of investments locate in the *switching region* and are most likely to churn—to the best I know this finding is new to the literature and entails important theoretical and practical implications. Furthermore, as with the increase of complainers' investments, the relationship structure changes from transactional (equity-dominant) to relational (trust-dominant), my dissertation explains the discrepancy of why certain retention strategies such as compensation are significantly effective under certain circumstances (e.g., in a transactional relationship) but not the others (e.g., in a relational relationship).

Through a multi-method approach, I first examine psychological theories and extend academic findings surrounding customer complaints in a conceptual model to establish the mediating role of equity and trust and moderating role of complainers' investments in driving complainers' retention. Next, across three studies I test the proposed conceptual model. In Study 1, by manipulating complaint vs. control scenarios and three levels of investments (low vs. medium vs. high) in randomized experiments, I establish the proposed mediating and moderating mechanisms and find the curvilinear U-shaped effect of complainers' investments on their retention. In Study 2, I design a game-theoretical

model for assessing consequences of customer complaints. The model teases apart two analytical mechanisms analogous to the equity and trust perceptions and specifies the analytical conditions under which the U-shaped effect of complainers' investments on retention happens. In Study 3, using individual-level complaint data of a financial services firm, I first verify the proposed U-shaped effect of complainers' investments on their retention. Next, I show that while the effectiveness of strategies that predominantly cure equity perceptions (i.e., compensation and loyalty programs given after complaints) shrink as complainers' investments increase, strategies that elevate weakened trust perceptions (i.e., loyalty promotions given before complaint) become more effective.

Specifically, this work makes four main contributions. First, to answer *why* customer complaints (consisting of a complaint cause driving the action and a subsequent complaint action taken by the customer) reduce retention, I draw on equity and attribution theories and the transactional-relational continuum of exchange. I identify decreased equity and trust perceptions as two underlying mechanisms driving complaint churn. It is a common practice in marketing and related fields to view relationship structures as a transactional-relational continuum of exchange or contract (e.g., Macneil 1982; Agustin and Singh 2005; Voss, Montoya-Weiss and Voss 2006; Yim, Tse, and Chan 2008; Chong et al. 2013). I bring this paradigm to the context of complaint management to show that complainers' perceptions and decision making has transactional and relational grounds. Looking from a transactional lens, when a negative experience happens and customers complain (i.e., the complaint event), complainers' perceptions of equity (i.e., what is invested in the relationship vs. what is received in return) shrink due to their unmet expectations. Looking from a relational lens, complainers' trust perceptions decrease as they perceive the firm as less reliable, benevolent, supportive, and competent.

Second, surveying on the literature of complaint management suggests that the influence of the

extent of complainers' investments on their retention has remained unstudied. To fill this research gap, this research shows that complainers' investments play an important *moderating* role in driving retention and specify whether a relationship is transactional or relational. "This is because collaborative [relational] relationships often require greater resource commitment and investment than transactional relationships" (Whipple, Lynch, and Nyaga 2010, p. 514). Therefore, while at low degrees of investments the relationship is mainly transactional and complainers evaluate their relationship through the lenses of equity, focusing on whether what they have invested is commensurate with what is received in return, as investments increase the relationship gradually shifts from transactional to relational and complainers' assessment of the relationship becomes less equity and more trust driven, mainly focusing on whether the firm is a trustworthy business partner. The experimental findings highlight the importance of investments by showing that when investments are low to medium (a transactional region), equity ($\beta = .52$) is more influential in driving retention than trust ($\beta = .16$). However, when investments are medium to high (a mainly relational region), equity ($\beta = .30$) is less influential in driving retention than trust ($\beta = .39$).

The third goal of this research is to answer, "*which complainers* are more likely to churn?" To answer, I propose and empirically verify that the interplay of the two proposed mechanisms results in a net U-shaped impact of complainers' investments on their retention, such that complainers with *medium levels of investments* are less likely to stay loyal to the firm relative to complainers with low and high investments. This finding is important because 1) complaint management is costly and involves allocation of firms' scarce and valuable resources. Thus, prioritizing the allocation of resources to retain the highest 'likely to churn' complainers is critical for firms, and 2) it highlights the importance of practitioners' deep understating of what "medium levels of investments" mean in their industry and

context. For instance, the empirical results in the context of baking show that one standard deviation decrease (increase) in investments relative to its average, increases retention by about 2% (5%). These findings spotlight the central moderating and curvilinear role of investments in driving post-complaint retention.

Fourth, I seek to answer, “*what* firms can do and *when* should they do it to utilize their resources and their knowledge of customer investments to effectively respond to complaints and retain their complainers?” To answer, this research identifies 1) compensation and loyalty promotions given *after* complaint as two immediate strategic responses that firms can implement to rebuild complainers’ damaged *equity* perceptions—these strategies tap on the transactional aspects of complainers’ evaluations and are immediate rewards distributed by the firm after customers voice their dissatisfaction, and 2) loyalty promotions given to customers *before* they complain as a proactive strategy which in case of complaints mainly alleviates complainers’ *trust* concerns. Unlike reactive strategies, proactive strategies tap on the relational aspects of complainers’ evaluations because the firm has taken a long way up to build and maintain the trust even before complaints happen.

This finding is important because of two main reasons. First, it highlights the importance of the *temporal dynamics* of complaint management and shows how implementing the same strategy (i.e., distributing loyalty promotions) at different times can influence complainers’ perceptions and loyalty differently. Second, since responding to a complaint is costly and time-consuming, prioritizing strategic responses to complaints and choosing ‘*the most effective*’ retention strategy at a limited cost and in a limited time has impactful takeaway for practitioners. Past research has identified timeliness as a key dimension of successful organizational response to complaints (Davidow 2003).

The empirical findings demonstrate that as complainers’ investments increase effectiveness of

compensation and loyalty promotions given after (before) complaint decrease (increase). For example, one standard deviation increase in relationship investments (i.e., count of bank accounts) makes compensation 2.4% less effective but increases effectiveness of loyalty program promotions given before complaint by 1.9%. These findings expand our understanding of the role of complaint retention strategies and highlights the variation in their effectiveness based on the extent of complainers' investments. Therefore, these findings can provide possible explanations for current discrepancies in the literature—why the effectiveness of complaint retention strategies such as compensation is accounted differently by past research.

Chapter 2

Conceptual Framework for Understanding and Managing Customer Complaints

2.1 Literature Review

There is a growing body of research in the marketing literature and other fields that examines complaints, complaint management and retention strategies (see Kumar and Kaur (2020), Stone (2011), and Orsingher, Valentini, and De Angelis (2010) for a review). The objective of this literature review is to succinctly summarize the essential findings of the existing literature that relates to shaping the proposed conceptual framework and summarize the contributions of this research.

2.1.1 Complaint and Retention

Past research has identified several options that customers have in response to their dissatisfaction with a firm offering. Initiated by Hirschman (1970) and extended by Farrell (1983), the exit, voice, loyalty, and neglect (EVLN) model conceptualizes four main approaches in response to a dissatisfactory experience. The focus of this work is complaint, the main form of the voice approach. Customer complaints are one of the means of expressing dissatisfaction with the goal of changing or voicing a negative experience (Fornell and Wernerfelt 1987; Bell, Mengüç, and Stefani 2004). Individuals complain to communicate something unacceptable about a product or service (Tronvoll 2007). In response, complaint management

is the systematic process and procedure of handling customer problems. It involves receiving, documenting, inquiry, resolution and prevention of complaints and customer recovery (Hansen, Wilke, and Zaichkowsky 2010). A complainer may pursue different goals such as asking for a refund, exchange, apology, satisfactory recovery, venting emotions, sharing their comments, providing feedback, or spreading negative word of mouth (e.g., Wan 2013; Voorhees, Brady, and Horowitz 2006; Johnston 2001; Stone 2011; Kim, Kim and Shin 2003; Halstead 2002; Singh and Wilkes 1996).

Literature suggests that oftentimes firms have not taken complaints seriously or have discouraged voicing dissatisfaction with means such as complicating complaint registering and handling procedures (Stauss and Seidel 2019). However, in recent years due to the influence of social media and increased market competition, the magnitude of complaint effects has increased. Customers are empowered with technology and in addition to traditional channels (e.g., calling the customer service, filing a complaint with the firm or pursuing a lawsuit), can take their complaints to social media to garner more exposure, attention or satisfactory outcome. “Furthermore ... competitive environment has turned customers as more demanding, and firms has started realizing the importance of addressing customer complaints” (Kumar and Kaur 2020, p. 1502). This has also emphasized the importance of the service aspect of all product offers (Pels, Coviello, and Brodie 2000).

A large body of research has documented the negative effect of complaint on customer loyalty and satisfaction. Past research at the intersection of customer complaints and customer loyalty has studied 1) antecedents of customer complaints (e.g., customer-related factors, dissatisfaction, service-usage, prior purchases, prior complaints, trust), 2) mediating factors for the relationship between customer complaint and customer retention (e.g., customer status and customer satisfaction), and 3) impact of effective complaint handling activities (e.g., well-documentation, compensation, politeness

and courtesy) on post complaint customer behavior and loyalty. While the main outcome of interest is customer retention, satisfaction, or loyalty, other outcomes such as long-term customer profitability and brand loyalty are also studied (e.g., Singh and Wilkes 1996; Gilly and Hansen 1985; Ahn et al. 2006; Davidow 2003; Crie 2003; Agag 2019; Ang and Buttle 2006; Simon, Tossan, and Guesquière 2015; Borah, Prakhya, and Sharma 2020; Stakhovych and Tamaddoni 2020; Knox and Van Oest 2014). However, to the best I know, there is no research focusing on the curvilinear impact of complainers' investments on retention and its consequences on the optimal choice and effectiveness of complaint retention strategies.

2.1.2 Justice and Trust

Justice is a founded construct in social exchanges to evaluate the fairness in exchanges and its impact on shaping subsequent perceptions and judgements (Smith, Bolton, and Wagner 1999; Wu 2013). Past research has investigated the impact of complaint justice on complainers' satisfaction, evaluations, loyalty, and repurchase intentions (e.g., Tax et al. 1998; Kau and Loh 2006; Hoffman and Kelley 2000; Blodgett, Granbois, and Walters 1993; Blodgett, Hill, and Tax 1997, Stauss 2002; Homburg and Fürst 2005). It has demonstrated that perceived justice during the complaint handling phase positively impacts customer satisfaction and post-complaint retention (Siu, Zhang, and Yau 2013) and has explored different forms of justice—interactional, procedural, and distributive justice (e.g., Manna and Chaudhry 2013, Davidow 2003; Homburg and Fürst 2005). Drawing on justice and cognitive appraisal theory, Schoefer and Ennew (2005) identify perceived justice as a cognitive appraisal dimension that causes positive or negative emotions during or after complaint situations.

It is also typically accepted that customer trust positively influences customer loyalty (e.g.,

Urban, Sultan, and Qualls 2000; Reichheld and Schefter 2000; Gounaris 2005; Silitonga, Fakhrorazi, and Ikhsan 2020; Samarah, Bayram, Aljuhmani, and Elrehail 2021). Past research has identified two conceptually independent dimensions of trust, honesty (competence) and benevolence. Honesty or competence trust is defined as a partner's belief that its partner is reliable, sincere and will fulfil promised obligations. Benevolence trust is defined as a partner's belief that its partner is genuinely interested in one's interests or wellbeing and subordinates immediate self-interest opportunism for mutual gain in the future (Anderson and Narus 1990; Ko 2010). However, questions remain regarding the necessity of measuring the two facets of trust independently. Past research suggests that the two dimensions of trust are highly correlated to the extent that they turn out to be operationally inseparable (see Geyskens, Steenkamp, and Kumar (1998) for a review).

Based on my review, extant research has identified several research gaps regarding the role of both justice and trust in complaint management. Orsingher, et al. (2010, p. 184) call for research seeking to answer questions such as “What antecedents other than justice dimensions have an impact on SATCOM [satisfaction with complaint handling] and/or overall satisfaction? ... May well-managed complaints generate sentiments of trust and commitment towards the service company? ... What is the form of the relationship between perceived justice dimensions and SATCOM—linear, exponential, or logarithmic? ... Should companies segment complaining customers? On which criteria? Are behavioral variables important? For example, should the recovery process be different for loyal customers and disloyal ones?” Questions also remain about the relative power of trust in driving customer loyalty—“yet research and managerial promises have not materialized fully, and questions remain regarding the power of the well-accepted linkage of satisfaction to trust to loyalty, on which many customer relationship programs have been anchored” (Yim, Tse, and Chan 2008, p. 741).

To extend current knowledge and contribute to filling these research gaps, I first identify decreased perception of equity as a mediating mechanism for the complaint-retention link. I then show that trust is another key mediating path through which complaints negatively impact retention. To the best I know, this is the first research conceptualizing trust as a parallel mediation path for equity in the context of complaint churn management. Utilizing complainers' investments as a moderating construct, I also shed light on the functional form of equity and trust in driving retention, complainers' segmentation based on the extent of their investments, and the effectiveness and choice of retention strategies for different segments.

2.1.3 Transactional-Relational Continuum of Exchanges

Transactional exchanges are explicit, cost-benefit or equity driven in nature and involve rational self-interested parties that participate in the relationship to maximize their individual benefit. Relational exchanges, however, are shaped around collective interest over self-interest, are less equity and more trust driven and involve ongoing interdependence, commitment, and investments of all parties in anticipation of long-term mutual benefits (Tafesse and Skallerud 2015; Hingley et al. 2011; Sheth and Shah 2003; Day 2000). The importance of a slight increase in customer retention in driving disproportionately higher profits, has invited the domain of marketing to shift from studying market exchanges "as transactions that need to be consummated to that of exchanges as relationships that need to be nurtured, preserved, and cultivated" (Agustin and Singh 2005, p. 96). While it is established that relationships are scattered along a transactional-relational continuum, research on how to categorize marketing variables in resonance to the transactional-relational view of relationships, their effectiveness and their optimal mix is scarce (Fruchter and Sigué 2005). In this work, I seek to bring this paradigm to

the context of complaint management and show how the extent of customer investments is informative of the transactional vs. relational structure of a relationship and effectiveness and optimal combination of marketing variables.

2.1.4 Switching Costs and Investments

As relationship investments and switching costs are tightly associated with each other, this research relates to the literature on switching costs. Past research has demonstrated that “investments in differentiation strengthen customers’ bonds of identity with a firm. Furthermore, as customers use more types of a providers’ products, they appear to enter a more advanced relationship stage in which switching is more costly” (Burnham, Frels, and Mahajan 2003, p. 119). As such, although the constructs are not interchangeable, higher relationship investments increase switching costs¹. It is also known that switching cost is a determinant of customer retention (e.g., Ahn et al. 2006; Suryani and Chaniago 2011; Li 2015). However, there is a discrepancy in what research suggests about the impact of switching costs on customer behavior and market competition. “It is clear from the previous discussions that the effects of SC [switching costs] in its relationship to CS [customer satisfaction] and CL [customer loyalty] are accounted differently in different studies, suggesting the need to clarify both the direct and the interaction effects. It is therefore necessary to illustrate the direct and interaction effects of SC in a single schema since this will enhance our understanding about the multiple ways by which SC impacts the other significant variables in its proximate nomological network” (Edward, George, and Sarkar 2010, p. 158).

¹ Burnham, et al. (2003) recognize customer investments, together with perceptions of product and market characteristics and domain expertise, as three antecedents of switching costs. My review suggests that after Burnham et al (2003), investigations on the connections between switching costs and customer investments has remained nearly stagnant.

On the one hand, literature reports that switching costs have a positive effect on firm desirable outcomes such as maintaining high customer retention (Choi 2020, Shi 2013) and make markets less competitive (Klemperer 1995). "... Farrell and Klemperer (2007) report that while the theoretic literature is inconclusive on which force dominates, the majority imply that SC [switching costs] should tend to decrease competition and increase prices" (Arie and Grieco 2014, p. 379). On the other hand, however, there are findings sharply contradicting this presumption (Dubé, Hitsch, and Rossi 2009; Cabral 2009; Cabral 2016). "For levels of switching costs in our data, I find that equilibrium prices fall in the presence of switching costs. I argue that the conventional wisdom may not be applicable to empirically relevant models even with high switching costs" (Dubé et al. 2009; p. 435).

Given the inconclusiveness of past research on the role of switching costs on firms' marketing mix strategies and market competition, and the association of relationship investments and switching costs, this research contributes to the literature of switching costs by showing how complainers' investments can have a positive or a negative impact on retention depending on the extent of investments. Although (1) providing a detailed comparison of relationship investments and switching costs, and (2) delving in and solving the outlined discrepancy in the role that switching costs play in a general setting without complaints are out of the scope of this research, to the extant higher switching costs can be inferred from higher relationship investments, this work contributes to our existing knowledge of switching costs in the domain of complaint management.

2.2 Conceptual Framework and Hypotheses Development

2.2.1 Main Effect

“Complaints are defined as expressions of dissatisfaction, whether subjectively experienced or not, for the purpose of venting emotions or achieving intrapsychic goals, interpersonal goals, or both” (Kowalski 1996, p. 179). It is typically accepted that customers take the action of complain when they have exceeded their tolerance zone for dissatisfaction (Goetzinger, Park, and Widdows 2006). The dissatisfaction comes from a complaint cause, that is a service or product performance that does not meet their expectations (Ateke and Kalu 2016; Brige 2006). I hypothesize that a customer complaint (a complaint cause followed by a complaint action) negatively impacts the complainer’s retention.

H₁: Customer complaints negatively impact customer retention.

Finding strategies to minimize the negative effect of complaint on retention and cutting the associated costs entail identifying the mechanisms that underlie complaint influence to drive behaviors or perceptions that lead to decreased retention. Preventing complaint churn and cutting down its undesirable costs require an adequate conceptualization of “why complainers leave.” Consequently, I continue this chapter with first theorizing the mediating mechanisms through which complaints influence retention. Second, knowing the underlying mechanisms which underpin the link between complaints and decreased retention, I hypothesize that relationship investments have a curvilinear and non-monotone moderating effect on complainers’ retention. Third, I study certain immediate reactive

(i.e., executed after complaint) and proactive (i.e., executed before complaint) firm strategies that can alter complaining customers' perceptions and information to bond them with the firm, or brand, and prevent attrition.

2.2.2 Mediating Mechanisms

Perceptions of equity

Equity theory maintains that people seek rewards in relationships, and rewards are greatest in fair relationships. In such relationships, relational partners' investments and efforts into the relationship are balanced (Greenberg 1993; Messman, Canary, and Hause 2000; Punyanunt-Carter 2008). "... in every exchange relationship, individuals are concerned about the inputs, outputs, and the fairness of the exchange and ... that they constantly compare their relative gains with those of others" (Monnickendam, Savaya, and Waysman 2004, p. 42). High perceptions of equity come from customers' positive evaluation of what is given up for what is received. Customers expect the ratio between effort and resources spent and rewards received to be equitable both in absolute (i.e., in relation to the firm) and social (i.e., in relation to customers with the same amount of input as the customer) terms. Past research indicates that perception of equity is an antecedent to satisfaction with service recovery (Piaralal, Piaralal, and Bhatti 2014) and "a central cognitive factor to determine reactions to organizational conflicts" (Ohbuchi, Suzuki, and Hayashi 2001, p. 100). It is also typically accepted that high perceptions of equity positively affect retention (e.g., Siu et al. 2013; Sokhanvar et al. 2016). If customers perceive a relationship as reciprocal and rewarding, they experience high perceptions of equity. Customers are more likely to stay with a firm or brand with which they have a reciprocal

relationship and desire to maintain a relationship that they perceive as fair and balanced.

I utilize equity theory and reciprocity in market exchange relationships to study the influence of complaints on complainants' perceptions of equity². I hypothesize that complaint negatively impacts the perception of reciprocity in exchange. Past research also suggests that “customers complain because they want to be treated fairly by the company” (Siu et al. 2013, p. 675). Complainers, who are not satisfied with a product or service performance, think what they have sacrificed in their relationship with the firm (i.e., complainers' input) is more than what they have received (i.e., output received from the firm). Complainers' unmet expectations and deteriorated perceptions of equity negatively impact their objective and subjective firm assessments and subsequently weaken the transactional, emotional, and relational ties between them and the firm, increasing the likelihood of their churn.

H₂: Customer complaints negatively affect customer retention by decreasing complainers' perceptions of equity toward the firm.

Perceptions of trust

Several definitions for trust exist in the literature. Andaleeb (1996, p. 79) defines trust as “the willingness of a party to rely on the behaviors of others, especially when these behaviors have outcome implications for the party bestowing trust. Trust bestowal is preceded by the focal party's belief that the partner's actions will lead to favorable outcomes.” What is common in definitions of trust and relevant to this context is that perception of trust maintains customers' understanding of the

² When the complaint cause happens, it negatively affects the equity and trust perceptions and then the customer takes the action of complaint to voice the dissatisfaction or pursue other complaint goals. The mere action of complaint can impact the prior action deteriorated equity and trust perceptions (i.e., adjustments of equity and trust perceptions after the complaint action and firm's response). The equity and trust perceptions in the conceptual framework point out to the adjusted level of equity and trust perceptions *after* the complaint action and firm response, immediately before complainers makes the staying vs. switching decision.

firm's benevolence, reliability and integrity. Trustworthy behavior is reflected in the courteous incentives towards customers even though the firm has a degree of freedom to leave the expectations of the customer unmet (Gambetta 1988). Trustworthy firms withhold self-interested opportunism and intend to show trustworthiness to customers. If customers perceive that a firm or brand is reliable, competent and is not acting opportunistically to take advantage of their trust and vulnerability for its own profit, they experience high perceptions of trust.

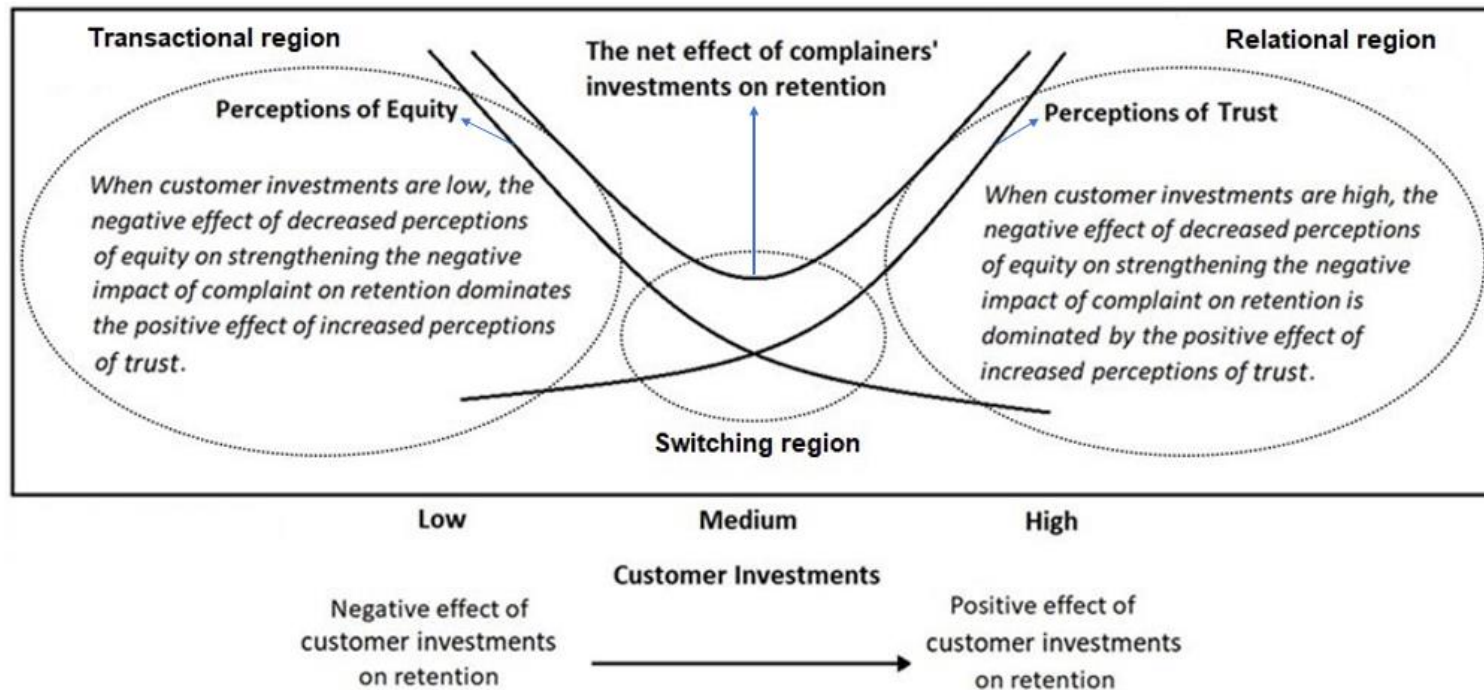
I posit that customers' perceptions of trust increase retention by assuring customers that the firm is honest, reliable, and supportive. Scholarly research also suggests that trust positively influences customer purchase intention and retention (Ranaweera and Prabhu 2003; Gefen and Straub 2004; Gounaris 2005; Silitonga, Fakhrorazi and Ikhsan 2020). In the context of customer complaints, I hypothesize that complaints negatively impact trust perceptions because complainers, who following a complaint event are not satisfied with a product or service performance, are highly likely to think that the firm is not reliable and supportive, is ignorant of their needs and prioritizes its own wellbeing over that of its customers. Complainants' decreased perceptions of trust negatively impacts their objective and subjective assessments of the firm, organization, or brand. Thus, I hypothesize that complainers' unmet desire to be cared about and feel confident about the firm's trustworthiness and reliability negatively affects odds of their retention.

H₃: Customer complaints negatively affects customer retention by decreasing complainers' perceptions of trust toward the firm.

2.2.3 Moderating Role of Customer Investments

Customer investments are structural tools that could help firms retain their customers and are informative of the extent to which the customer has invested its tangible or intangible resources in his relationship with the firm. However, are higher customer investments always effective in retaining complaining customers? To discover the effect of complainers' investments on their retention, I investigate the underpinning influence of complainers' investments on perceptions of equity and trust and propose that the effect leads to a net U-shaped pattern. The net U-shaped effect of investments on complainers' retention and the two opposite moderating mechanisms driving this net effect are depicted in Figure 1.

Figure 1: The U-shaped Effect of Complainers' Investments on Their Retention



Investments and Equity Perceptions

According to the equity theory in the context of market exchange relationships (Messman et al. 2000; Punyanunt-Carter 2008), if a complainer has sacrificed a lot for its relationship with a firm, she expects higher rewards and seeks greater utility from the relationship. Many customer decisions (e.g., opening accounts, repeated purchases, diversified investments, paying for long-term membership fees), are examples of their relationship investments. Given a fixed level of a firm's investment into its relationship with a complainer, I expect the complainer's perception of both absolute and social equity to shrink as the complainer's investments increase. From an absolute angle, customers compare their own investments to the firm's investments into their relationship. They expect the firm to equalize and invest in the relationship commensurate with their investments. Intuitively, one could think that a customer's perception of equity in absolute term is equal to the perceived ratio of the firm's input or investments into the relationship to the customer's investments. Therefore, for the customer's perceived ratio of the firm's investments to the customer's own investments (i.e., the absolute perception of equity) to be high, the firm's investments should be perceived equitable to those of the customer. The greater the perceived difference between a customer's own vs. firm's investments, the lower the absolute perception of equity.

From a social comparative angle, past research has established loyal customers expect to get exceptional treatment and firms are strongly recommended to identify and exceptionally reward their loyal customer segment (e.g., Alshurideh 2019; Wolter et al. 2019; Ho et al. 2009; Kruger and Mostert 2012; MahmoudGonbadi, Katebi, and Doniavi 2019; Petzer and Steyn 2006; Jo, Hwang, and Lee 2010). Loyal customers expect to receive preferential treatment, defined as the practice of giving added value, recognition, elevated status, additional or enhanced products and services that goes above and

beyond firms' standard value proposition (Morrisson and Huppertz 2010; Ferguson et al. 2020), such as price discounts (Wieseke, Alavi, and Habel 2014) and exclusive promotions (Barone and Roy 2010). Knowing that firms' preferential treatment enhances as customer investments increase (firms give preferential rewards to loyal customer segments with higher investments), customers' perceptions of what similar others are receiving from the firm increases as their own investments increase. Relationship partners repel if they realize that a similar other is receiving a better deal (Lo, Lynch and Staelin 2007). I hypothesize that at the event of complaint, with the increase of own investments, complainers maintain higher expectations from the firm due to the perception that a similar other is being treated more preferentially and is gaining higher benefits from the firm. Thus, a complainer's perceived ratio of what the firm is giving to the complainer relative to what the firm is giving to the same other (i.e., the social perception of equity) decreases as the complainer's own investments increase. Therefore, the greater the perceived difference between own vs. firm's investments, the lower the social perception of equity.

Investments and Trust Perceptions

I utilize attribution theory to investigate cognitive biases in customers' evaluation of a firm or brand. My conjecture is that as customer investments increase, they are more biased toward evaluating the firm positively and neglecting the shortcomings, which suppresses the negative effect of complaint on trust perceptions. Self-attribution bias is defined as the tendency of the self to attribute negative experiences or failures to external factors and accredit positive experiences and successes (e.g., personal skills or achievements) to internal factors (van Elk 2017; Hoffmann and Post 2014). According to this definition, the more a customer perceives a firm or brand as a part of his extended self and associates it with his identity, the more the customer is biased toward evaluating the firm positively. In line with attribution

theory, I argue that when the firm becomes part of the extended self of the customer, the customer has the tendency to attribute negative experiences faced at the event of complaint (e.g., inconvenience, poor staff behavior, service failures, etc.) to external factors out of the firm's control and not recognize the firm responsible for the case.

I believe that as complainers' investments increase, self-attribution bias also increases due to two main reasons. First, as customer investments increase, switching becomes harder and gradually becomes almost impossible due to its cumbersome hassles. At high degrees of investments, the complainer is trapped, distancing from the firm financially, transactionally, or emotionally, is more complicated, and the difficulty or hassle of attrition is severe. Thus, the firm becomes part of the extended self, and self-attribution bias protects the firm against negative customer judgments. Second, even in the absence of a complaint event, I expect customer investments to increase the connection with the focal firm.

Customers who have made considerable investments into their relationship with a firm are more emotionally or financially attached, and the connection between their identity and the brand or firm is expected to be stronger. Take customers who have purchased several electronic devices from a brand as an example. Relative to customers who have not bought as many devices, these customers are expected to be more attached to the brand, engaged in their relationship with the firm or the brand, and consider it a part of their identity. Thus, even irrespective of complaint events, the connection between oneself and the firm is expected to elevate with higher investments. The complaint event taps on this strong bond and triggers self-attribution bias toward the firm. As such, I theorize that complainers with high investments, have high self-attribution bias toward the firm as a part of their identity and therefore seek to find a justification that does not undermine the firm or brand as part of the self. Instead, they attribute the poor performance to factors unrelated to the firm or brand (e.g., enforced state laws, stock market

shocks, government rules, unexpected market shocks). High self-attribution bias protects firms from being negatively judged by complainers as dishonest, ignorant, opportunistic agents and suppresses the negative effect of complaints on trust perceptions. Therefore, I hypothesize that as customer investments increase, their perceptions of trust increase and positively impact their post-complaint retention.

2.2.4 The Net U-shaped Effect of Complainers' Investments on Their Retention

The net effect of customer investments on complainers' retention depends on the strength of each mechanism (equity or trust perceptions) and the moderating power of investments. At low to medium levels of customer investments, perceptions of equity are relatively high and decreasing, whereas perceptions of trust are relatively low and increasing. I believe that at low to medium levels of customer investments, trust perceptions are not the dominant driver of customer loyalty as self-attribution bias is negligible. I expect complainers with low to medium investments to mainly evaluate their relationship transactionally based on fairness and equity perceptions rather than their relational connections with the firm. At low to medium levels of investments, I do not expect the increase in trust perceptions to be high enough to offset the drop in complainers' equity perceptions. For trust perceptions to dominate the equity perceptions and be the dominant mechanism, customers should have made sufficiently high investments in the relationship with the firm. I hypothesize that it is only at sufficiently high degrees of investments and the consequent strong ties with the firm that trust perceptions become the dominant mechanism driving retention. Thus, I suggest that at low to medium levels of investments, the "transactional region", the decreasing effect of perceptions of equity on complainers' retention dominates the increasing effect of trust perceptions.

I also hypothesize that trust perceptions are high and increasing at medium to high levels of

customer investments and are the dominant mechanism driving complainers' retention. Due to high self-attribution bias and its shielding effect, I expect that at medium to high levels of investments, the "relational region", trust perceptions become the dominant mechanism driving retention. In the relational region, I expect complainers' self-attribution bias to be high enough to considerably mask the negative effect of equity perceptions. Therefore, I propose that the strength of the effect of customer investments on the relationship between customer complaint and retention follows a U-shape as customer investments increase. This curvilinear U-shaped effect of customer investments on post-complaint retention is caused by the interplay of equity and trust perceptions and the moderating effect of complainers' investments.

As investments increase, the dominant mechanism driving post-complaint retention gradually switches from equity perceptions to trust perceptions. This suggests that maximum switching behavior happens among complainers with medium levels of investments (i.e., the switching region). In this region, customers experience severe drop in their equity perceptions, yet the positive effect of trust perceptions is not high enough to dampen the negative effect of equity perceptions on retention. In the switching region, churn rate is expected to be higher relative to the transactional and relational regions resulting in a flat curve shaping the bottom of the U-shaped plot in Figure 1. In this region, both mediating mechanisms (i.e., equity and trust perceptions) play a critical role in driving complainers' decision to stay with the focal firm.

H₄: a) The strength of the effect of customer investments on the relationship between customer complaint and customer retention follows a curvilinear U-shape pattern as investments increase. This is because customer investments **b)** strengthen the negative effect of complaint on equity perceptions, and **c)** suppress the negative effect of complaint on trust perceptions.

2.2.5 Retention Strategies

“Since the final outcome of the complaint is rarely visible publicly, the message characteristics ... of company replies can represent signaling cues for observers of how the complaint is handled” (Javornik, Filieri, and Gumann 2020, p. 100). It is typically accepted that effective complaint handling strategies positively influence complainers’ retention. Acknowledgment of the problem, quick response, providing explanations for service failure, apologizing, compensation (i.e., refunds, discounts, upgraded or free services), politeness, warmth, and respect during the recovery process positively impact perceptions of justice, satisfaction and service recovery effectiveness (e.g., Patterson, Cowley, and Prasongsukarn 2006; Bitner 1990; Levesque and McDougall 2000; Clemmer and Schneider 1996; Sparks and Callan 1997; Sparks and McColl-Kennedy 2001). In this research, I argue that reactive complaint handling strategies are not the only means to respond to complaints. Firms can act forward-looking and anticipate the occurrence of negative events such as service failures or customer complaints and implement proactive strategies such as promotional loyalty offers to protect themselves against such prospect events. Furthermore, I argue that retention strategies are not equally effective in minimizing churn and seek to identify strategies for effectively retaining complaining customers contingent on their investments.

Drawing on this framework, at lower (higher) levels of investments, the “transactional” (“relational”) region, complainers’ equity (trust) perceptions are the dominant mechanism that drive their retention. Therefore, a retention strategy that mitigates decreased equity (trust) perceptions is expected to be more effective. I study post-complaint compensations and loyalty program promotions as two reactive short-term (i.e., done after complaints and in response to complaints) that firms can implement to address post-complaint churn. I also study proactive loyalty promotions (i.e., distributed

prior to complaints) as a *forward-looking* retention strategy that soothe complaint churn and argue that the effectiveness of reactive vs. proactive strategies depends on the extent of customer investments. I expect post reactive (prior proactive) strategies to impact retention mainly through the equity (trust) mediation path and be more effective in transactional (relational) regions. In the switching region consisting of customers with minimum retention rate, I do not expect to have a dominant mechanism and both strategies strongly influence complainers' retention. Thus, from a theoretical standpoint, this theory suggests that both reactive and proactive strategies are effective tools to minimize switching behavior among customers in the switching region who impose the biggest attrition treat on the firm.

Compensation

Compensation following a complaint event is a reactive response by the firm that shows the firm seeks to invest into the relationship and act commensurate to the customers' expectations. In line with past research by Mostafa et al. (2015), I believe that compensation is an effective tool to mitigate decreased equity perceptions when a failure or negative experience such as a complaint event happens. Although compensation can also have a positive effect on trust perceptions, I expect the effect to be minimal as trust perceptions need to be built and shaped over time. I do not expect immediate and reactive financial strategies such as compensation to have a meaningful effect on repairing trust perceptions.

Moreover, recall that I hypothesized that while at low levels of investments equity perceptions are the dominant mechanism driving post-complaint retention, at higher levels of investments trust perceptions gradually take the lead and become the dominant mechanism. Because compensation is expected to influence post-complaint retention mainly through moderating equity perceptions, I expect the effect of compensation on complainers' equity perceptions and consequently on their post-complaint

retention to shrink as their investments increase.

Loyalty Promotions

Offering loyalty promotions to customers is an effective mean to build strong connections over time. Past research has studied the positive influence of loyalty program membership (Bahri-Ammari and Bilgihan 2019; Rothenberger, Grewal, and Iyer 2008), and general firm offerings such as price and promotion (Nguyen and Simkin 2014; Lo et al., 2007; Oliver and Swan 1989) on customer retention. Bolton, Kannan, and Bramlett (2000, p. 95) discuss that “members in the loyalty reward program overlook or discount negative evaluations of the company vis-à-vis competition.”

In this research, I argue that while offering loyalty promotions after complaint is a reactive response to complaints and predominantly influence equity perceptions, loyalty offers given before complaint can help the firm maintain a trustworthy benevolent identity that operates as a *buffering* tool if complaint events happen. I believe that loyal customers who frequently enjoy the benefits of firms’ promotional strategies in the absence of complaints, are expected to shape and maintain higher trust perceptions toward the firm.

As giving loyalty promotions after complaint is happening when complainers have already complained and are dissatisfied with their relationship with the firm, I expect loyalty promotions given after complaint to work as reactive responses by the firm to show its intention to invest into its relationship with the customer, fix the problem and fairly reciprocate to complainers’ expectations. I believe that it is *too late* for a firm to utilize such reactive strategies for building trust when a complaint has already happened, but firms can still use these strategies after complaint to address complainers’ fairness concerns. In this sense, like compensation, I expect reactive loyalty promotions rewarded post

complaint to alleviate post-complaint churn predominantly through repairing damaged perceptions of equity with trust perceptions being the trivial mechanism.

To discover how prior-complaint loyalty promotions influence trust perceptions, I draw on past research that distinguishes between two forms of trust, *benevolence trust* and *competence trust*. While benevolence trust is defined as trustworthiness based on sentiments, genuine care, honesty, and personal attachments, competence trust is defined as trustworthiness based on ability, reliability, and competence (Ko 2010). I believe that loyalty promotional offers given to customers, before a complaint event happen, have a strong effect on boosting both benevolence and competence trust.

The key reason loyalty promotions given before complaint can strongly moderate trust perceptions is that, in essence, firms do not limit their loyalty program benefits and reward promotions to their complaining customers. In fact, complaint is a predictable yet an uncertain event. As such, through the lenses of benevolence trust, I expect customers to view frequent loyalty promotions as indicators of firms' proactive effort signaling its genuine care, support, and honesty rather than a reactive immediate strategic act to impress complainers. On a long-term horizon, I expect firms who frequently distribute loyalty program promotions to their customers to construct an honest and benevolent identity over time, or a strong brand image, which works as a shield that protects them against potential negative evaluations such as, but not limited to, those that typically happen at the complaint events. A benevolent firm that offers frequent and generous rewards, builds a positive reputation, and creates a shield around its business by making its customers believe that it is withholding self-interest opportunism and seeks to put customers interest ahead of self-interest. Firms who invest in their loyalty program strategies and put a desirable benevolent impression on their customers, can expect customers' higher benevolence trust perceptions to protect them against negative evaluations and

accusations at the possible event of complaint.

Through the lenses of competence trust, I argue that a firm capable of offering “good deals” is a firm capable of “solving problems.” Firms who frequently distribute loyalty promotions build and maintain a competent, capable, and reliable character in their customers’ mind. Long-term desirable firm offerings construct and solidify a competent and capable firm identity in customers’ mind and thus positively influence customers’ competent trust perceptions. I suggest that if a firm is competent and reliable to work hard and offer desirable promotions, it is inferred that it is also capable of working hard to find a solution to its customers’ needs. At the event of complaints, I expect complaining customers with high competence trust toward the firm to put their trust in the firm and allow the firm to address the complaint, rather than getting disappointed, giving up and switching to competitors. Complainers with high competence trust toward the firm do not give up and seize their relationship with the firm when a complaint event happens because they believe that the firm is reliable to find a solution to their case and will ultimately ensure customer satisfaction. Furthermore, in some cases a firm may not be able to respond to a complaint in a manner the complainer expects; in this case a complainer with high competence trust is more likely to believe and accept that their request cannot be met due to firm’s rules, logistics or limitations. As such complainers’ tendency to criticize the firm for not meeting their expectations and perception that alternative firms are more capable mitigates as competence trust increases. Thus, this theory suggests that any firm strategy that boosts perceptions of competence trust among customers to protect the firm against negative customer evaluations if they happen.

Next, following this conceptualization, I investigate how the *effectiveness of retention strategies* change with complainers’ investments. As loyalty promotions given after (before) complaint influence complainers’ retention predominantly through moderating their equity (trust) perceptions, I expect their

influence on perceptions of equity (trust) and therefore retention to decrease (increase) as investments increase. This is because, with the increase of investments, equity gradually becomes less influential in driving retention and trust gradually takes the lead and becomes the dominant mechanism driving complainers' retention.

H₅: As complainers' investments increase, the impact of **a)** compensation, and **b)** loyalty promotions given after complaint on post-complaint retention decrease.

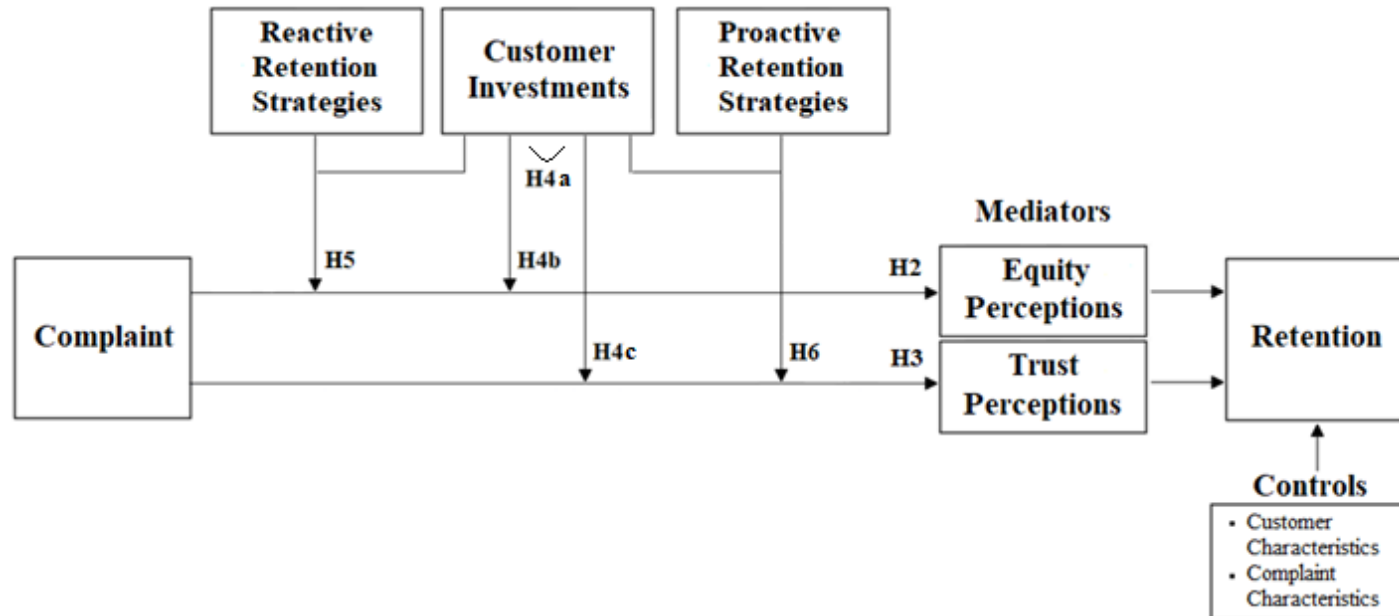
H₆: As complainers' investments increase, the impact of loyalty promotions given before complaint on post-complaint retention increases.

Control Variables

I draw on past research to identify the control variables needed for making the conceptual model comprehensive. I incorporate two types of control variables into the model: customer characteristics and complaint characteristics. First, consistent with common wisdom various customer characteristics and demographics such as age or gender may impact how they react to complaints. The characteristics and nature of the relationship between the customer and the firm can also influence complainers' post-complaint behavior. Thus, in the proposed framework I also control for factors that relate both to the firm and the customer. While one could differentiate between some customer and relationship characteristics, here by customer characteristics I refer to characteristics of the customer or the relationship between the firm and the customer. Second, the characteristics of the complaint can also play a role in how customers' perceptions toward the firm and their relationship changes following a complaint (e.g., how severe or complicated a complaint is).

The conceptual framework is depicted in Figure 2.

Figure 2: Impact of Complaints on Retention and the Moderating Role of Customer Investments



Chapter 3

Methodology

3.1 Overview of Studies

Across three studies—two controlled experiments on Amazon Mechanical Turk (MTurk), a game-theoretical model, and an empirical analysis using data of an international financial services firm based in the U.S.—I test and replicate the proposed conceptual framework. Online experiments demonstrate i) the negative main effect of complaints on retention, ii) the mediating role of perceptions of equity and trust, and iii) the moderating U-shaped role of customer investments on the relationship between complaint and post-complaint retention. The analytical model i) verifies the negative main effect of complaint on retention, ii) shows that there are two analytical mechanisms— analogous to the equity and trust perceptions—through which complaint affects loyalty to firms and that these mechanisms are moderated by the strength of customers’ preference for firms (an indicator of their extent of investments), and iii) specifies analytical conditions under which post-complaint churn has a U-shaped relationship with complainers’ investments. The empirical analysis i) verifies the U-shaped effect with observational data and ii) specifies managerially practical strategies for managing post-complaint churn depending on the extent of each complainer’s investments. Table 1 summarizes the pipeline of my studies.

Table 1: Summary of Studies (Chapter 3)

Method	Findings
<i>Study 1 (Two Randomized Experiments, Studies 1a and 1b)</i>	
Two by two between-subject design	H ₁ (negative main effect of complaint on retention)
Complaint (complainer vs. control)	H ₂ (decreased equity perceptions mediate the effect of complaint on retention)
Study 1a: Investments (low vs. medium)	H ₃ (decreased trust perceptions mediate the effect of complaint on retention)
Study 1b: Investments (medium vs. high)	H _{4a} (The U-shaped effect of complainers' investments on their retention)
	H _{4b} (complainers' investments strengthen the effect of complaint on equity perceptions)
	H _{4c} (complainers' investments suppress the effect of complaint on trust perceptions)
<i>Study 2 (Analytical Model)</i>	
Two competing firms and a unit of customers	H ₁ (negative main effect of complaint on retention)
Firms set prices simultaneously and customers choose a firm and form a relationship	H ₂ (decreased equity perceptions mediate the effect of complaint on retention)
Customers complain with probability $\gamma > 0$ and decide whether to stay loyal or switch	H ₃ (decreased trust perceptions mediate the effect of complaint on retention)
	H _{4a} (The U-shaped effect of complainers' investments on their retention)
	H _{4b} (complainers' investments strengthen the effect of complaint on equity perceptions)
	H _{4c} (complainers' investments suppress the effect of complaint on trust perceptions)
<i>Study 3 (Empirical Analysis)</i>	
Data: international financial services firm	H _{4a} (The U-shaped effect of complainers' investments on their retention)
Sample: individual level complainers' data	H ₅ (as complainers' investments increase, the impact of reactive (post complaint) retention strategies (i.e., compensation and loyalty promotions after complaint) on retention decrease)
	H ₆ (as complainers' investments increase, the impact of proactive (prior complaint) retention strategies (i.e., loyalty promotions before complaint) on retention increase)

3.2 Study 1 (Controlled Experiments)

Study 1 was designed to test whether complaints negatively impact retention as predicted in H₁, whether equity and trust perceptions mediate this negative effect, i.e., H₂ and H₃, and whether extent of complainers' investments into the relationship with the focal firm moderate the impact of equity and trust perceptions on their post-complaint intention to stay, i.e., H₄.

3.2.1 Method

In Studies 1a and 1b, I manipulate the level of customer investments to test the U-shaped effect proposed in Figure 1. Study 1a is a 2 (investments: low vs. medium) × 2 (complaint: complainer vs. noncomplainer) between-subjects design. Study 1b is a 2 (investments: medium vs. high) × 2 (complaint: complainer vs. noncomplainer) between-subjects design. Participants were recruited on MTruk in exchange for financial reward upon completion of the survey. Spurious data is excluded according to the criteria outlined in Appendix B. Exclusion rate did not vary significantly across conditions. This procedure led to a sample of 647 participants for Study 1a (56% female) and 414 participants for Study 1b (57% female).

Procedure

A quasi-experimental approach is implemented for both Studies 1a and 1b such that rather than asking participants to imagine bank names and relationship conditions, I asked them to provide the name of one of their current banks. In Section 1 of each study, I asked them to provide the name of a U.S. bank

where they have been a customer for at least the past six months³. Next, I collected data on customer loyalty using a five-point scale (“Would you consider yourself a loyal customer to [bank name]?”; 1 = “definitely not” and 5 = “definitely yes”), customer tenure (i.e., “How many years they have been a [bank name] customer?”), usage rate (“In the last 6 months, on average in each month, how many transactions have you made using all of your [bank name] bank accounts (e.g., checking, savings, credit or loan payments, etc.)? Transactions refer to online or in store purchases, wire transfers, bill pays, automated payments, loan payments, etc.”⁴ on a five-point scale), and real complainer, or indicator of complaint status using a two-point scale (“Have you ever complained to [bank name]?” 0 = “no” and 1 = “yes”.)

In Section 2 of each study, participants were randomly assigned to one of the experimental conditions. First, participants completed the investments and complaint manipulations. They were asked to specify their extent of satisfaction and answered attention checks. Second, they answered questions about their perceptions toward their bank and their retention intention. They also reported demographics.

Investments Manipulation

I manipulate the level of customer investments, which is measured as the combination of *number* and *type* of accounts. Specifically, in Study 1a, whereas participants in the low investments condition were asked to imagine that they have only one savings account with their bank, those in the medium investments condition imagine they have one savings account and one checking account that comes with a debit card.

³ Those who did not have a U.S. bank in at least the past six months did not qualify to take the survey and were thanked and dismissed.

⁴ In the context of financial services, I conjectured that those with a higher usage rate, or usage frequency, make more transactions and collected data on participants’ average monthly transactions as a control variable.

In Study 1b, the medium investments condition is the same as that in Study 1a. Participants in the high investments condition were asked to imagine that they have one savings account, one checking account that comes with a debit card, one mortgage account, and one credit card account with their bank. The rationale of using both the number and type of accounts is as follows. First, customers with multiple accounts form stronger transactional and relational bonds with a brand or firm. Accounts of diverse types show diversified investments and multiple accounts of the same type show a stronger tie between the firm and the customer relative to one account. Second, customers with more accounts face more salient interruptions if they decide to switch to a different firm and transfer their investments. I also expect the transition period to relocate assets and accounts from the focal to the new firm to be more costly and cumbersome for customers with more accounts.

Complaint Manipulation

The purpose of this manipulation is to compare a scenario when a complaint event (consisting of a complaint cause followed by a complaint action taken by a customer) has happened to a control scenario when no complaint cause or action has happened. As I expect participants to have a general understanding about service fees, I shape this manipulation around incurring service fees as a complaint cause. Participants in the complaint scenario read a text that asked them to picture themselves in a scenario when they notice that their bank has charged them a total of \$25 fees and they do not understand why. They call customer service and after speaking to a representative and explaining their situation, they strongly ask for a refund. The representative refuses their refund request⁵, and they stop complaining and end the call. Participants in the noncompliant scenario read a text that asks them to

⁵ To rule out the confounding effect of firm retention strategies, in the complaint scenario the complainer receives no refund. The firm refuses to take any action in response to the complaint.

picture themselves in a scenario when they call the customer service of their bank to ask questions about the bank fees that might apply to them and the representative answers their questions. They thank the representative and end the call.

Measures

To check whether the complaint manipulation is successful, I asked participants to rate the extent to which they are satisfied with their bank's customer service⁶ using a seven-point scale ("Picturing yourself in the circumstances of the previous question, to what extent are you satisfied with [bank name] service?" on a 0 = "extremely dissatisfied" and 6 = "extremely satisfied"). To obtain data on participants' investments, equity and trust perceptions and their intention to stay, I asked participants to rate the extent to which they agree with "I have made big investments into my relationship with [bank name].", "Considering the investments I have made into my relationship with [bank name], [bank name] is treating me unfairly.", "Considering the investments I have made into my relationship with [bank name], I feel that [bank name] is trustworthy.", "I am going to end my relationship with [bank name] and will move to another bank." on a 0 = "extremely disagree" and 100 = "extremely agree" 100-point scale. These provides measures of perceptions of (own) investments, inequity⁷, trust, and intention to leave⁸.

⁶ I believe that satisfaction is the most relevant construct for this study through which I can check whether the complaint manipulation is successful. This conceptualization is in line with past research suggesting that dissatisfied customers are more likely to complain (Prakash 1991; Landon 1977).

⁷ To make participants think more carefully about whether they have been treated "unfairly", I measure perceptions of inequity and then convert it to equity perceptions. Perceptions of equity are calculated as 100 - perceptions of inequity.

⁸ To make participants think more carefully about whether they intend or want to "change" their position from being a customer to not being a customer, I framed the question around asking for their intentions to *leave*. I did this to make the question salient and invite participants to think carefully whether they intend to *leave* their bank. Intention to stay is calculated as 100 - intention to leave.

3.2.2 Results and Discussion

Manipulation Checks

As expected, for Study 1a participants in the low investments condition report significantly lower ($M = 45.97, SD = 28.01$) investments perceptions relative to participants in the medium investments condition ($M = 63.23, SD = 25.47; p < .001$). Similarly, for Study 1b, the difference between the investment perceptions in the medium investments ($M = 62.56, SD = 23.46$) vs. the high investments ($M = 72.95, SD = 23.74$) condition is significant ($p < .001$). Across both Studies 1a and 1b, participants in the complaint condition ($M_{1a} = 1.31; M_{1b} = 1.25$) are significantly less satisfied than participants in the noncompliant condition ($M_{1a} = 5.13, p_{1a} < .001; M_{1b} = 5.18, p_{1b} < .001$).

ANOVA

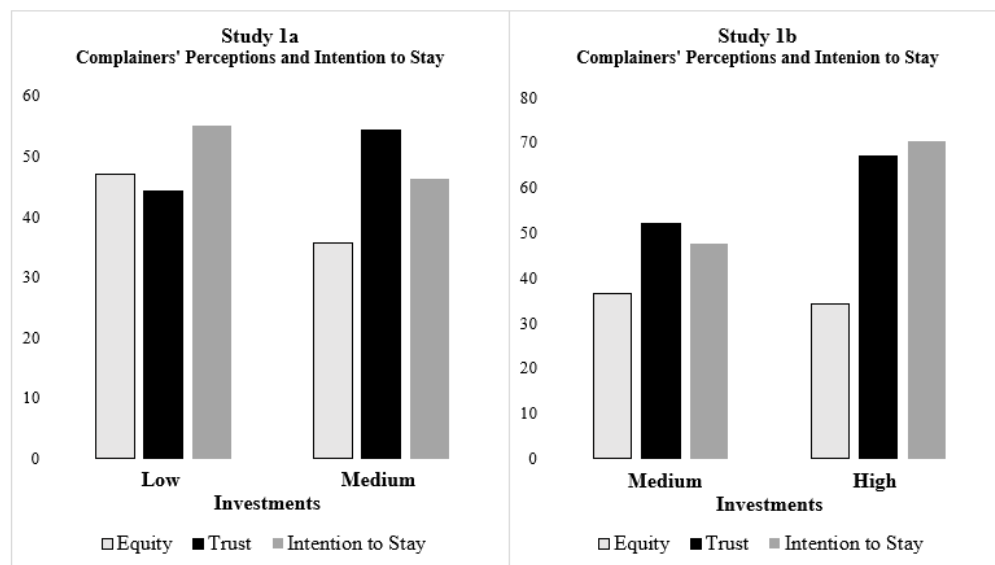
Next, I analyzed the data using ANOVA to test the hypotheses. Consistent with H_1 , in both studies participants in the complaint condition report significantly lower intention to stay ($M_{1a} = 50.76, SD_{1a} = 35.37; M_{1b} = 59.09, SD_{1b} = 33.34$) relative to those in the noncompliant condition ($M_{1a} = 74.84, SD_{1a} = 31.73, F_{1a} = 82.51, p_{1a} < .001; M_{1b} = 79.23, SD_{1b} = 25.62, F_{1b} = 47.44, p_{1b} < .001$).

For each study, a between-subjects ANOVA is conducted with complaint and investments as two independent factors and intention to stay as the dependent variable⁹. For

⁹ I controlled for customer loyalty, usage rate, tenure, and real complainer in the analysis.

Study 1a, I found a significant main effect of complaint ($F = 23.10, p < .001$), a significant main effect of investments ($F = 6.60, p = .010$) and a significant effect of the interaction between these factors ($F = 6.19, p = .013$). For Study 1b, I found a significant main effect of complaint ($F = 9.31, p = .002$), a significant main effect of investments ($F = 33.53, p < .001$) and a significant effect of interaction of these two factors ($F = 8.71, p = .003$) on intention to stay. Results of Studies 1a and 1b are consistent with H₃ and H₄. While Study 1a supports H₂, Study 1b does not support H₂. Figure 3 show the results of Studies 1a and 1b.

Figure 3: Results (Study 1)



Moderated Mediation Analysis

Next, a moderated mediation analysis is conducted for each study using PROCESS model 7 (Hayes 2017) and 5000 bootstrapped samples. In this model, investments moderate “a path” between the independent variable (complaint) and the mediators (perceptions of equity and trust) with intention to stay serving as the dependent variable. Results of Study 1a indicate that the

moderated mediation model for perceptions of equity (index of moderated mediation = -5.23, SD = 2.38, 95% CI: [-10.10, -.74]) and perceptions of trust (index of moderated mediation = 1.40, SD = 0.77, 95% CI: [.25, 3.32]) are significant supporting both H_{4b} and H_{4c}. Fairness ($\beta = 0.52$, $p < .001$) compared to trust ($\beta = 0.16$, $p < .001$) has greater effect on intention to stay supporting that in the equity region, equity perceptions are the dominant mechanism driving customer retention. The direct effect of complaint on intention to stay is insignificant ($index = -1.79$, $p > .5$), suggesting that equity and trust perceptions fully mediate the impact of customer complaints on their intention to stay.

For Study 1b, while the moderated mediation effect of equity perceptions (index of moderated mediation = -.98, SD = 1.70, 95% CI: [-4.16, 2.54]) is insignificant, the moderated mediation impact of perceptions of trust is significant (index of moderated mediation = 4.11, SD = 2.04, 95% CI: [0.50, 8.54]). Thus, Study 1b supports H_{4c} but fails to support H_{4b}. One possible explanation, why in Study 1b fairness perceptions are not significantly lower in the high investments condition relative to the medium investments condition is that the identity link between the customer and the firm, or brand, is so strong that creates strong cognitive bias (i.e., self-attribution bias) that it prevents customers from shaping very high unfairness perceptions.

Results also indicate that trust perceptions ($\beta = 0.39$, $p < .001$) have a greater effect on driving retention compared to equity perceptions ($\beta = 0.30$, $p < .001$). This supports the prediction that in the relational region, trust perceptions are the predominant driving force of retention. The direct effect of complaint on intention to stay is insignificant ($index = -1.32$, $p > .6$) suggesting that equity and trust perceptions fully mediate the impact of complaint on intention to stay. Further details are relegated to Appendix B.

3.3 Study 2 (Analytical Model)

In this section, I build a game theoretical model to shed light on how complaint events affect customer retention and how customer investments can have a U-shaped effect on complainers' retention. Analogues to the equity and trust perceptions theorized in Chapter 2, I analytically identify two mechanisms with opposite effects on post-complaint retention. Proofs of Lemmas and statements, and robustness checks are relegated to Appendix A.

The model consists of two firms, and a unit of consumers. Consumers are uniformly located on a Hotelling line represented by the $[0, 1]$ interval. The two firms are located at the two endpoints of the interval, firm A is located at $x_A = 0$ and firm B is located at $x_B = 1$. Firm $i, i \in \{A, B\}$, offers price P_i to all customers and customers pay as they use the good¹⁰. The Hotelling distance between a consumer and each firm corresponds to the mismatch between the consumer's ideal product and the firm's offering and accounts for customer heterogeneity in taste. The mismatch disutility, commonly known as the travelling cost, for the customer located at x and firm i is $t|x - x_i|$ where t corresponds to the unit misfit cost. Denote by V , consumers' reservation price for their ideal product and assume V is sufficiently large to ensure full market coverage at all stages (i.e., no customers refrain from buying). To account for the detrimental impact of complaints, assume that after customers chose a firm and formed their relationship, with probability γ a negative experience occurs, and customers complain to their firm.

At the event of complaint, firm i 's complainers have a choice between staying with firm i and incurring the complaint cost, $Cost_i^c$, or switching to firm $j, j \neq i$, and incurring the switching cost $Cost_i^s$. The complaint cost is the cost of staying loyal to firm i , and incurring the

¹⁰ Note that key results are robust when switching complainers pay full price to both firms.

consequences of the complaint event *which could be avoided by switching* to a different firm.

The switching cost captures the emotional, financial, and procedural cost of switching from one firm to the other¹¹. As past research suggests, consumers of one firm have costs of switching to an alternative firm even when the two firms' products are functionally identical (Klemperer 1995).

Denote by superscripts c and s the complaint and switching conditions respectively. I allow both $Cost_i^c$ and $Cost_i^s$ to be quadratic in x such that complainers with higher taste preference for a firm incur higher complaint and switching costs. Past research has also utilized a similar approach in choosing the functional form of customers' disutility functions and suggests that a quadratic form can preserve an equilibrium that may not exist if the disutility function is linear in x (d'Aspremont et al. 1979; Liu and Tyagi 2011).

$$Cost_i^c(x) = c_0 - c_1|x - x_i| - c_2|x - x_i|^2$$

$$Cost_i^s(x) = s_0 - s_1|x - x_i| - s_2|x - x_i|^2$$

3.3.1 No Complaint Scenario ($\gamma = 0$)

First, I will solve for the baseline case when no complaints happen ($\gamma = 0$). The game consists of two stages depicted in Figure 4. Denote by $U^{nc}(x)$, the utility that a customer located at x gets from choosing firm i . The superscript nc stands for the non-complaint scenario.

¹¹ The switching cost differs from the travelling cost which is due to the misfit between customers' taste and firm offerings.

$$U_i^{nc}(x) = V - P_i - t|x - x_i|$$

Figure 4: Timeline of the Game-theoretical Model (No Complaint Scenario, Study 2)

Stage 1	Stage 2
Firms set prices simultaneously	Customers choose one of the firms

In Lemma 1, I show that in an equilibrium without complaining customers, customers who have higher taste preference for firm i choose firm i and both firms charge a price equal to the unit misfit cost t .

Lemma 1: When probability of complaint is zero, i.e., $\gamma = 0$, the equilibrium outcome is that customers located at $x \in [0, \frac{1}{2}]$ choose firm A and customers located at $x \in (\frac{1}{2}, 1]$ choose firm B. The equilibrium prices are $P_A^* = P_B^* = t$.

Proof: See Appendix A

3.3.2 Complaint Scenario ($\gamma > 0$)

Consider the case when after choosing a firm, with probability γ customers complain to their firm. The game consists of the four stages shown in Figure 5. With probability γ at stage 4, firm i 's customers, i.e., customers who at stage 2 have chosen firm i , need to choose between staying with firm i and incurring the complaint cost or switching to firm j and incurring the switching

cost¹². Customers who switch from firm i to firm j , $j \neq i$, also pay a higher travelling cost which captures the higher misfit between the complainer's taste and firm j 's offerings. U_i^c and U_i^s show the utilities that firm i 's customers get if they stay with firm i or switch to firm j respectively. Denote by $\Delta U_i = U_i^c - U_i^s$, the additional (if any) utility that a complaining customer obtains from staying loyal to firm i and not switching to firm j ¹³.

Figure 5: Timeline of the Game-theoretical Model (Complaint Scenario, Study 2)

Stage 1	Stage 2	Stage 3	Stage 4
Firms set prices simultaneously	Customers choose one of the firms	With probability γ firm i 's customers complain	Complainers decide whether to switch or not

$$\begin{aligned}
 U_i^c(x) &= V - P_i - t|x - x_i| - Cost_i^c(x) \\
 &= V - P_i - t|x - x_i| - (c_0 - c_1|x - x_i| - c_2|x - x_i|^2)
 \end{aligned}$$

$$\begin{aligned}
 U_i^s(x) &= V - P_j - t|x - x_j| - Cost_i^s(x) \\
 &= V - P_j - t|x - x_j| - (s_0 - s_1|x - x_i| - s_2|x - x_i|^2)
 \end{aligned}$$

¹² In the interest of parsimony and to focus on key contributions, I assumed that complaint happens early such that the price a switching complainer pays to focal firm i is negligible. Main results are robust to assuming that the game starts at time $t = 0$ and ends at $t = 1$ and complaint event and switching decisions happen at time $t_c < 1$. In this case, $U_i^c(x)$ remains unchanged but $U_i^s(x)$ changes to $U_i^s(x) = V - t_c P_i - (1 - t_c)P_j - t(t_c|x - x_i| + (1 - t_c)|x - x_j|) - Cost_i^s(x)$.

¹³ When a complaint cause occurs and leads to customer complaints, there could be unavoidable costs that no matter whether complainers decide to stay with the focal firm or not they should incur those costs. The unavoidable cost, $Cost_i^u$, captures the unavoidable procedural, financial, or psychological disutility caused by the complaint cause and the hassles of going through the complaint process. In the presence of an unavoidable cost, $U_i^c = V - P_i - t|x_i - x| - Cost_i^c - Cost_i^u$ and $U_i^s = V - P_j - t|x_j - x| - Cost_i^s - Cost_i^u$. Since complainers incur $Cost_i^u$ no matter they stay loyal to firm i or not, the unavoidable cost does not impact their decision at stage 4 (i.e., it does not impact $\Delta U_i(x)$) and key results remain robust.

With probability $(1 - \gamma)$, no complaint happens, and customers obtain the noncomplaint utility U_i^{nc} . Therefore, at stage 2, the expected utility of choosing firm i for a customer located at x is:

$$U_i(x) = (1 - \gamma) U_i^{nc}(x) + \gamma \left(U_i^c(x) \cdot \mathbb{1}_{\{U_i^c(x) > U_i^s(x)\}} + U_i^s(x) \cdot \mathbb{1}_{\{U_i^s(x) > U_i^c(x)\}} \right)$$

In Lemma 2, I show that there is a parameter space such that only customers located at $x_{m_1,i}^c < x < x_{m_2,i}^c$ switch to firm j , i.e., $U_i^s(x) > U_i^c(x)$ when $x_{m_1,i}^c < x < x_{m_2,i}^c$. Note that $x_{m_1,i}^c$ and $x_{m_2,i}^c$ represent firm i 's marginal customers who at the event of complaint are indifferent between switching to firm j or staying loyal to firm i . Also, denote by x_m^{nc} , the customer indifferent between choosing firms A or B when no complaint happens.

The profit that firm i earns consists of three components, the profit coming from its own customers if no complaint happens, the profit loss from losing its switching customers if a complaint happens, and the profit earned from acquiring firm j 's switching customers if they complain and switch. Thus, the expected profit of firm i at stage 1 is:

$$\pi_i = P_i[(1 - \gamma) |x_i - x_m^{nc}| + \gamma(|x_i - x_m^{nc}| - (x_{m_2,i}^c - x_{m_1,i}^c)) + \gamma(x_{m_2,j}^c - x_{m_1,j}^c)]$$

Lemma 2: When complaints happen with probability γ , there exists an equilibrium in which customers with medium investments, i.e., those located at $x \in (x_{m_1,i}^{c*}, x_{m_2,i}^{c*})$, switch to firm j . The equilibrium outcomes are presented in Table 3.

Proof: See Appendix A

Table 3: Interior Equilibrium When Customers Complain with Probability γ .

Conditions	$s_1 + 2t - c_1 > 0$ and $s_0 + t - c_0 > 0$ and $s_1 + 2t - c_1 + \sqrt{4(s_2 - c_2)(s_0 + t - c_0) + (s_1 + 2t - c_1)^2} < c_2 - s_2 < \frac{(s_1 + 2t - c_1)^2}{4(s_0 + t - c_0)}$
Outcome	Equilibrium Value
x_m^{nc*}	$\frac{1}{2}$
$x_{m_1,A}^c$	$\frac{s_1 + 2t - c_1 - \sqrt{4(s_2 - c_2)(s_0 + t - c_0) + (s_1 + 2t - c_1)^2}}{2(c_2 - s_2)}$
$x_{m_2,A}^c$	$\frac{s_1 + 2t - c_1 + \sqrt{4(s_2 - c_2)(s_0 + t - c_0) + (s_1 + 2t - c_1)^2}}{2(c_2 - s_2)}$
$x_{m_1,B}^c$	$1 - \frac{s_1 + 2t - c_1 + \sqrt{4(s_2 - c_2)(s_0 + t - c_0) + (s_1 + 2t - c_1)^2}}{2(c_2 - s_2)}$
$x_{m_2,B}^c$	$1 - \frac{s_1 + 2t - c_1 - \sqrt{4(s_2 - c_2)(s_0 + t - c_0) + (s_1 + 2t - c_1)^2}}{2(c_2 - s_2)}$
$P_A^* = P_B^*$	$\frac{1}{\frac{1}{t} + \frac{8\gamma}{\sqrt{(s_1 - c_1)^2 + 4(c_0 - s_0)(c_2 - s_2) + 4t(s_1 + s_2 - c_1 - c_2) + 4t^2}}}$
$\pi_A^* = \pi_B^*$	$\frac{1}{\frac{2}{t} + \frac{16\gamma}{\sqrt{4(s_2 - c_2)(s_0 + t - c_0) + (s_1 + 2t - c_1)^2}}}$

3.3.3 Mechanisms

To shed light on the mechanisms through which complaint affects retention, I study the two components of $\Delta U_i(x)$. Complainers with $\Delta U_i(x) > 0$ ($\Delta U_i(x) < 0$), stay loyal (switch).

Without loss of generality and in favor of parsimoniously describing the mechanisms, consider firm A and its customers. Analogous to equity and trust perceptions specified earlier, in Lemma 2, I found two opposite mechanisms that affect complainers' decision about firm A :

$$\Delta U_A(x) = U_A^c(x) - U_A^s(x) = (-c_0 + c_1x + c_2x^2) + t(1 - 2x) + (s_0 - s_1x - s_2x^2)$$

Mechanism 1 (Equity)
Mechanism 2 (Trust)

One could think of x as an indicator of how favorable firm A is to the customer. Customers located close to firm A , i.e., x close to 0, have a stronger taste preference for firm A and obtain higher utility relative to customers with weaker taste preference (x far from 0). Therefore, customers in vicinity of $x_A = 0$ are expected to invest more into their relationship with firm A . As such, x is informative of customer investments—the smaller the x , the greater the customer investments. Considering firm A 's customers with higher investments (x in vicinity of $x_A = 0$):

- 1) one could expect them to expect higher rewards commensurate with their investments. As such, I expect them to suffer the most in a complaint situation. This aligns with the *equity perceptions* identified earlier. Thus, the first mechanism shows that a customer that is closest to firm A , suffers the most from the detrimental effect of a complaint event and

this detrimental effect quadratically decreases the further a complainer is located from firm *A*.

- 2) One could expect them to face higher transition costs if they decide to switch to firm *B*.

This transition cost consists of two components. The first component captures the additional mismatch between complainers' taste and firm *B*'s offerings (i.e., the additional travelling cost $t(1 - 2x)$). The second element, the switching cost, captures the cost of terminating the relationship with firm *A* and moving to firm *B*. This switching cost could be financial, psychological, procedural, or all. The greater the switching cost, the higher the tendency of the complainer not to switch to firm *B*.

The transition cost mechanism aligns with the *trust perceptions* that I identified earlier.

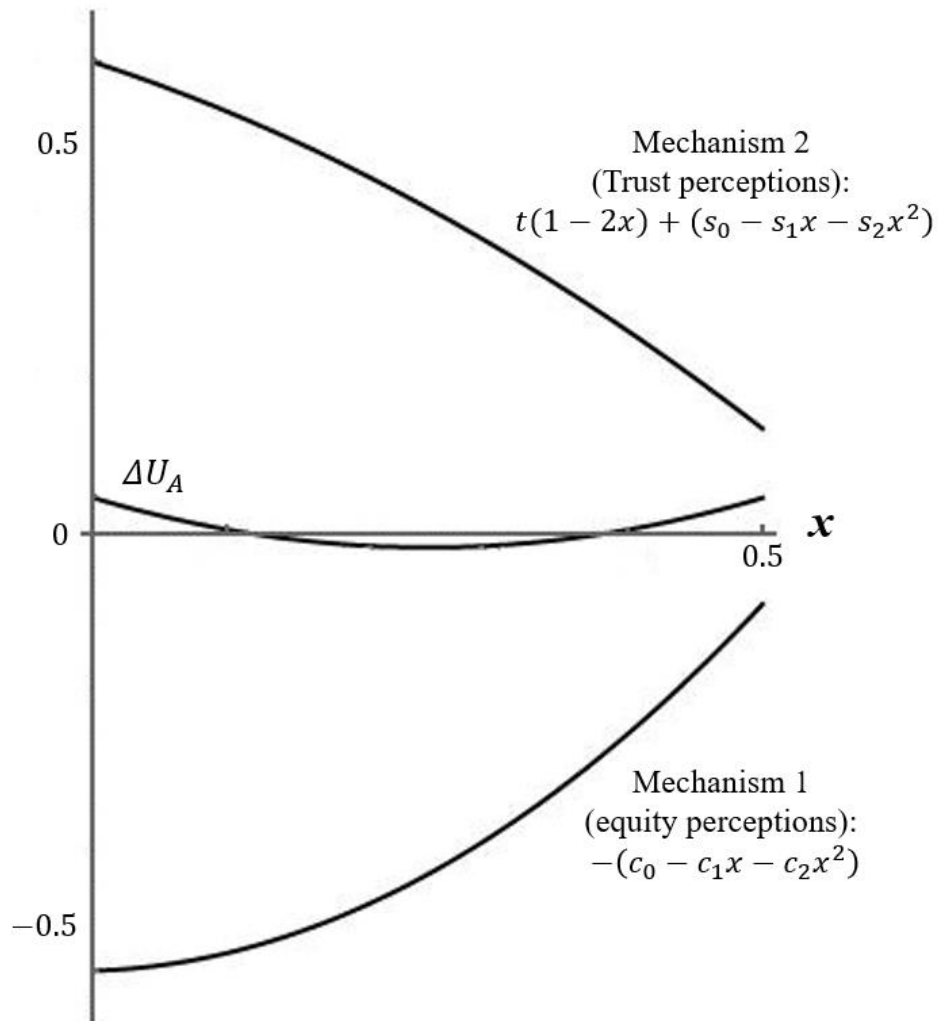
When investments are higher (smaller x), the bond between the firm and the customer is stronger, the firm is more trustworthy, and it is harder to terminate the relationship in terms of both taste preferences (i.e., travelling cost) and breaking the ties and moving the investments (i.e., switching cost).

The interplay of these two quadratic mechanisms determines post-complaint retention. Figure 6 illustrates the U-shaped form of $\Delta U_A(x)$ and the two opposing mechanisms.

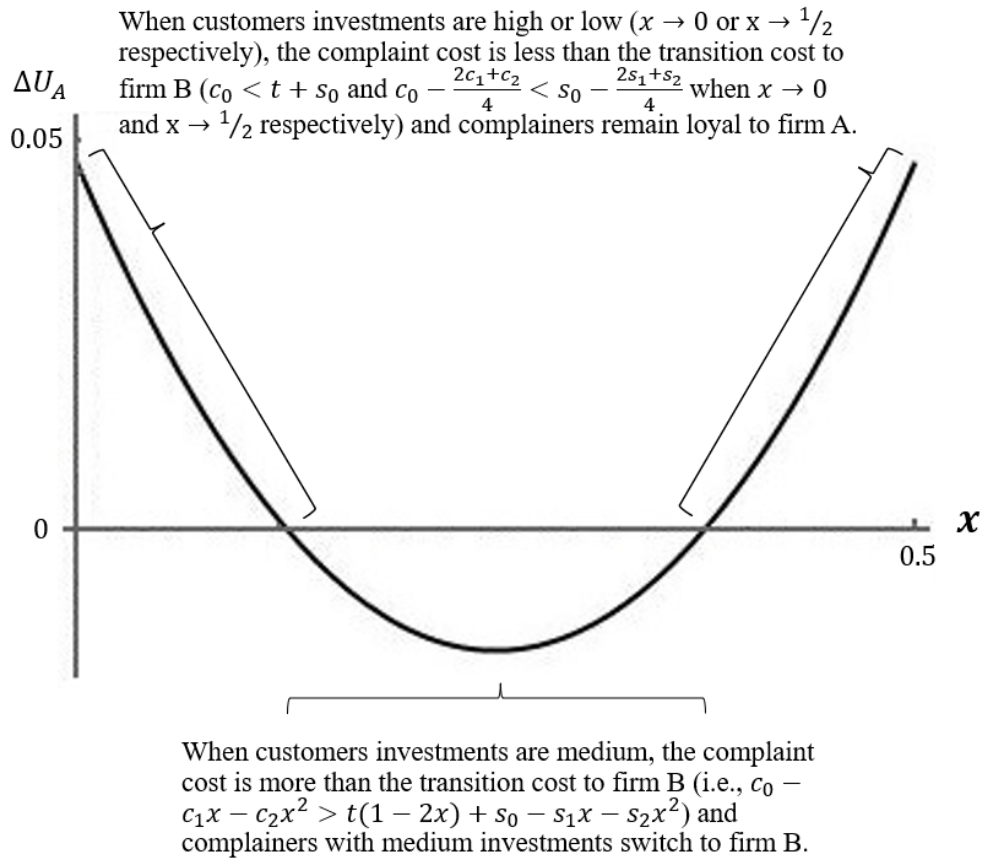
Figure 6: The Impact of Investments on Complainers' Retention (Study 2)

$$c_0 = \frac{11}{20}, s_0 = \frac{35}{64}, c_1 = \frac{1}{20}, s_1 = \frac{9}{20}, c_2 = \frac{7}{4}, s_2 = \frac{3}{4}, t = \frac{1}{20}, \gamma = \frac{1}{100}$$

a) Underlying mechanisms that drive complainers' retention



b) The net U-shaped effect of customer investments on complainers' retention



3.4 Study 3 (Empirical Analysis)

The objectives of Study 3 are twofold. First, I use a large-scale dataset from global financial services company to verify the U-shaped effect of complainers' investments on their retention (i.e., H_{4a}). Second, I assess how the level of complainers' investments impacts the effectiveness of reactive and proactive retention strategies (i.e., H₅ and H₆).

3.4.1 Data and Sample Preparation

The data source is a proprietary dataset of a leading global financial services company that is based in the U.S. The company provides products and services in consumer banking, corporate and investment banking, and treasury management. Although the company is a mega-bank with significant market share, there is a handful of competitors across the nation that ease switching and limit its monopoly power.

The data span from January 2014 to June 2017 and consist of monthly observations of a sample of customers who have joined the bank and complained during this time period. I focus on customers who have complained only once¹⁴. Since I am interested to study the long-term effect of proactive firm strategies, I only look at complainers (customers who have complained only once) that have at least six months of history prior to their complaint. From the sample, I remove complainers for whom I cannot measure the dependent variable¹⁵. I also restrict the

¹⁴ To eliminate the confounding effect of multiple complaints on subsequent customer behavior, from the initial sample, I remove customers who have complained more than once. This ensures that customers in the selected sample do not have any complaint history other than the one of interest.

¹⁵ The dependent variable is retention four months after complaint. Due to the right censored nature of the data, complainers who have not churned in four months after complaint and whose retention data four months after complaint is not available are removed from the sample.

sample to complainers with no more than six accounts¹⁶ and complaints that have been resolved in no later than ten days¹⁷. The final sample consists of 25,468 complainers.

Retention

Terminating relationship with a financial services firm could be time consuming as finding an alternative bank and closing or transferring accounts require time. Furthermore, customers with more relationship investments are likely to require more time to churn if they intend to churn.

To alleviate the concerns regarding the heterogeneity in the time required to close or move accounts and the direct influence of the extent of complainers' investments on the required time, the dependent variable in the model is whether a complainer is retained at the end of the fourth month after the complaint month. Given that all the complaints in the sample have been resolved in no later than ten days, each complainer has an approximate of at least three and a half months to leave the bank¹⁸. I assume this period is enough for a complaining customer to leave if they intend to leave. Note that violation of this assumption is expected to flatten, rather than steepen, the proposed U-shaped effect hypothesized in H_{4a} .

Investments

Similar to the reasoning for Study 1, I conjecture that count and decomposition of accounts

¹⁶ This is because less than 2.3% of complainers had more than six accounts and the tail is long.

¹⁷ I avoid considering complaints that take more than 10 days (i.e., the fourth quartile) to resolve as complaint resolution period can affect subsequent retention (i.e., longer complaints take more time to resolve and are presumably more complicated. Thus, they require the complainer to stay longer with the bank to be informed about the outcome of the complaint.) To minimize complainers' heterogeneity in the time they have after their complaint is resolved and when retention is measured, I dropped the fourth quartile. Key results are robust to changing the 25% threshold to 5% (i.e., 49 days being the maximum of the resolution period).

¹⁸ Note that there is a tradeoff between 1) allowing more time after the complaint to access retention and alleviate the concerns regarding customer heterogeneity in their required switching time, and 2) shrinking the sample size.

reflect the extent of customer investments into their relationship with the firm. As it is not empirically feasible to differentiate between all types of accounts, I choose number of bank accounts one month prior to the month of the complaint as an indicator for the extent of complainers' investments. I control for complainers' usage rate, total loan balance, and total asset balance both before and after complaint to account for the differences that can facilitate or impede switching among complainers with the same count of accounts. To investigate whether investments have a U-shaped effect on retention, I also add a quadratic term for number of bank accounts.

Compensation

To access the effectiveness of firm's compensation offers, I look at whether a complainer has been compensated for the complaint matter. Compensations are in the form of financial or cash-equivalent remuneration.

Loyalty Promotions

To capture the long-term proactive effect of loyalty program promotions, I utilize weighted average of the count of loyalty program promotions given to the customer in a six-month period before the complaint month with a depreciation rate r . I add the deprecation rate as I expect offers closer to complaint time to play a more salient role in complainers' decision making. To study the effect of firm's reactive strategies, I utilize the weighted average (with depreciation rate r) of the count of loyalty program offers made to the customer on or after the complaint month. The depreciation rate ensures that the effect of promotional offers decays over time.

Control Variables

To account for differences in customer demographics, I added customer age and customer tenure before complaint as control variables. To account for the differences among complainers with the same number of bank accounts, I control for their usage rate and dollar value of assets and loans. I control for customer usage rate (i.e., count of transactions) as well as total loan, and total asset balances both prior and after complaint¹⁹. Like loyalty program promotions, I construct distinct depreciating variables for each measure to ensure that the effect of each variable on complainers' retention decays over time. In terms of characteristics of the complaint, I include resolution period (i.e., how many days it has taken for the complaint to be resolved) as a measure of how complicated and time consuming it is to resolve a complaint²⁰. Tables 4 and 5 illustrate variable description and summary statistics of the sample respectively.

¹⁹ In Appendix C, I show that the key results are robust if I only control for the weighted average of usage rate, total loan and total asset balances rewarded in the six-month period before complaint.

²⁰ I would expect complaints that take longer to be resolved to be more complicated and potentially more severe.

Table 4: Variable Description (Study 3)

Variable	Description
retention	dummy variable indicating whether the customer has stayed with the bank at the end of the fourth month after the complaint month
<i>Customer Characteristics</i>	
customer age	customer age in years at the end of the month before the month of the complaint
customer tenure	customer tenure in years, measured at the end of the month before the month of the complaint
total transactions before (dep r)	weighted average of all transactions (ATM, in person, checks, direct deposit, bill pay, debit card, online, phone, mobile, or other transactions) the customer has made in the period of six months before the complaint month, depreciated with rate r
total transactions after (dep r)	weighted average of all transactions the complainer has made each in or after the complaint month. This variable spans from the complaint month to when the complainer churns or four months after complaint (whichever comes first), depreciated with rate r
total loan balance before (dep r)	weighted average of total loan balance in \$ amount across all loan accounts (e.g., credit card balance, student loan, personal loan, etc.) in the period of six months before the complaint month, depreciated with rate r
total loan balance after (dep r)	weighted average of total loan balance in \$ amount across all loan accounts; This variable spans from the complaint month to when the complainer churns or four months after complaint (whichever comes first), depreciated with rate r
total asset balance before (dep r)	weighted average of total asset balance in \$ amount across all asset accounts (e.g., savings, checking, certificate of deposit, investments, etc.) in the period of six months before the complaint month, depreciated with rate r
total asset balance after (dep r)	weighted average of total asset balance in \$ amount across all asset accounts; This variable spans from the complaint month to when the complainer churns or four months after complaint (whichever comes first), depreciated with rate r
<i>Complaint Characteristics</i>	
complaint severity	number of days between complaint open date and close date; how long it has taken for the bank to resolve the complaint
<i>Reactive Strategies</i>	
compensation	dummy variable indicating whether the complainer has received compensation.
loyalty promos after (dep r)	weighted average of the number of loyalty program promotions

the customer was given after complaint; This variable spans from the complaint month to when the complainer churns or four months after complaint (whichever comes first), depreciated with rate r

Proactive Strategies

loyalty promos before (dep r)

weighted average of the number of loyalty program promotions the customer was given in the period of six months before the complaint month, depreciated with rate r

Table 5: Descriptive Statistics (Study 3)

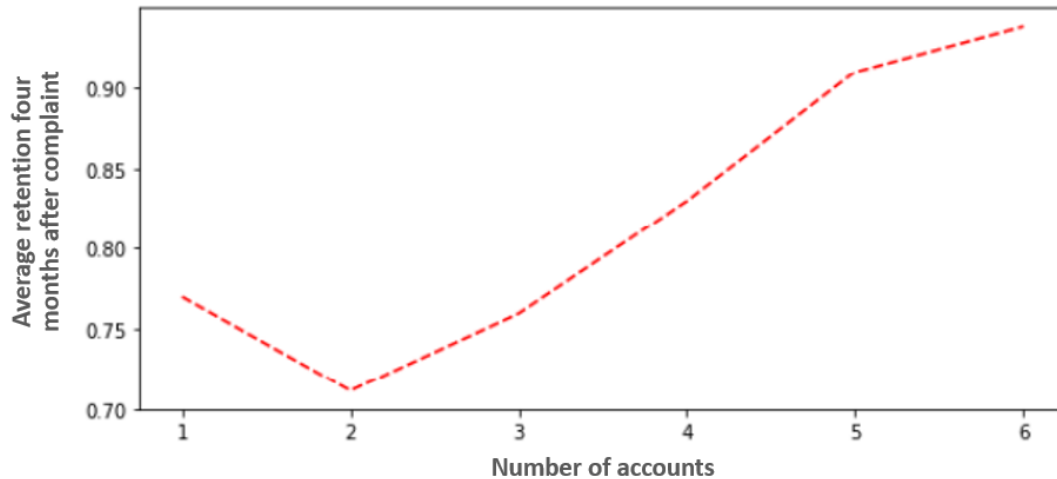
Variable	Mean	Median	Std
Retention	0.792	1	0.406
<i>Customer Characteristics</i>			
customer age (year)	40.261	36.923	15.645
customer tenure (year)	1.339	1.235	0.625
total transactions before (dep r)	28.271	17.821	32.983
total transactions after (dep r)	24.859	9.719	32.486
total loan balance before (dep r)	\$56456.603	\$71.275	\$133876.909
total loan balance after (dep r)	\$50955.301	\$0	\$129307.282
total asset balance before (dep r)	\$3359.075	\$108.044	\$112322.200
total asset balance after (dep r)	\$3301.498	\$35.797	\$114896.274
<i>Complaint Characteristics</i>			
complaint severity	1.687	0	2.710
<i>Investments</i>			
number of accounts	2.755	3	1.499
<i>Reactive Retention Strategies</i>			
compensation	0.069	0	0.254
loyalty promos after (dep r)	0.201	0	0.635
<i>Proactive Retention Strategies</i>			
loyalty promos before (dep r)	0.191	0	0.609

$r = .8$

Model-free Evidence

Figure 7 shows model free evidence for the U-shaped effect of number of accounts on retention four months after complaint. Figure 7 shows that complainers with two and three accounts have the lowest retention rate among all complainers.

Figure 7: The U-shaped Effect of Complainers' Investments on Their Retention (Model Free Evidence, Study 3)



3.4.2 Model and Results

Joint Estimation Using Copulas (Correction for Endogeneity)

My primary interest is to understand the effect of number of accounts on retention and the effectiveness of compensation and loyalty program promotions given before and after complaints on increasing complainers' retention. However, because I only have observational data, there are several potential sources of endogeneity (e.g., customers self-select into being a loyalty program member, complaint

cause is not the same across individuals, offering compensation or loyalty promotions to customers is not random). I use an instrument-free endogeneity handling model to control for endogeneity issues. I implement joint estimation using copulas proposed by Park and Gupta (2012) and implemented by Gui, Meierer, and Algesheimer (2019) to handle the endogeneity of the potentially endogenous regressors. The copula method does not require instrumental variables and therefore is greatly useful in this case²¹. The model is also applicable to random coefficient logit model. Further details related to the methodology of copula are relegated to Appendix C. I estimated the model with a depreciation rate of $r = 0.8$ ²².

For identification purposes, the endogenous regressors must be nonnormally distributed (Park and Gupta 2012), which a Shapiro–Wilk test shows to be the case (count of accounts: $W = .89$, $p < .001$; compensation: $W = .28$, $p < .001$; loyalty promotions before (dep .8): $W = .35$, $p < .001$; loyalty promotions after (dep .8): $W = .36$, $p < .001$).

Empirical Results and Discussion

Consistent with H_{4a} , I found that count of accounts has a U-shaped effect of retention. Figure 8 shows the U-shaped effect of number of accounts given the model estimates. While the main effect of compensation in increasing retention is positive and significant ($\beta = 9.638$, $p < .05$), this effect shrinks as count of accounts increase ($\beta = -1.589$, $p < .05$). Similarly, results show significant positive main effect ($\beta = 7.454$, $p < .05$) and significant negative interaction effect of loyalty program promotions rewarded after complaint on retention ($\beta = -1.224$, $p < 0.05$). This verifies the hypotheses that the effectiveness of

²¹ Past research has also identified the copula method as a practical endogeneity handling technique when valid instruments are not available to researchers (Rossi 2014; Datta, Ailawadi, and Van Heerde 2017).

²² To test the sensitivity of the results to the choice of the discount factor r , I estimated the model for a range of discount factors (i.e., .55, .6, .65, .7, .75, .85, .9, .95, .98, .99). Main results remained robust.

reactive retention strategies shrinks as investments increase (i.e., H_5). Concerning loyalty program promotions given before complaint, results suggest there is no significant main effect ($\beta = -.134$, $p > .05$), but verify a positive interaction effect ($\beta = 1.245$, $p < .05$). Therefore, consistent with H_6 effectiveness of the proactive strategy (loyalty program promotions rewarded before complaint) on retention increases with complainers' investments. Results are presented in Table 6.

Figure 8: The U-shaped Effect of Complainers' Investments on Retention (Model Estimates, Study 3)

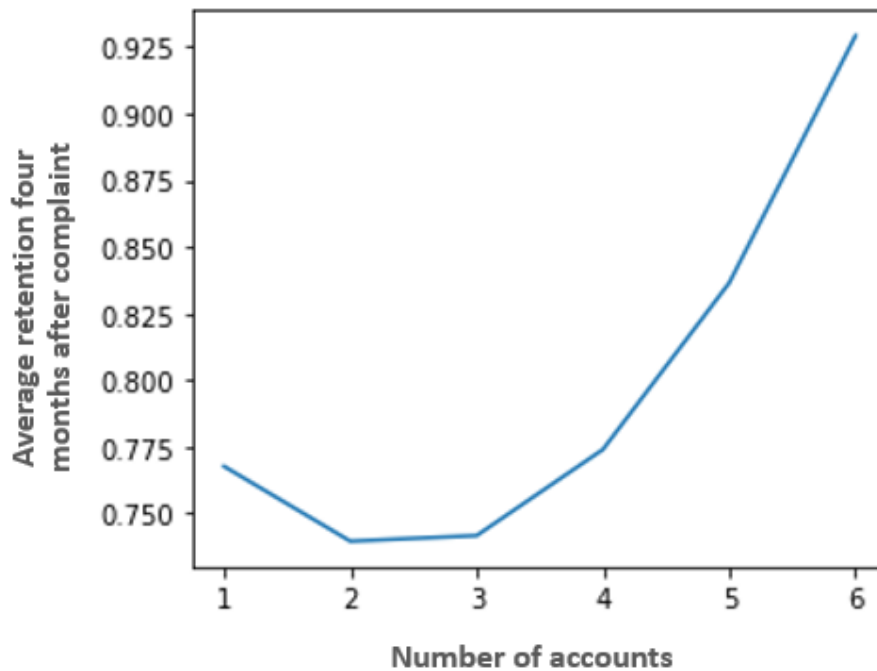


Table 6: Results (Study 3)

Variable	Coefficient	SE
constant	80.300**	4.127
<i>Customer and Complaint Characteristics</i>		
customer age (year)	0.080**	0.017
customer tenure	0.387	0.394
total transactions before (dep r)	-0.368**	0.015
total transactions after (dep r)	0.576**	0.015
total asset balance before (in \$10000, dep r)	-0.094	0.631
total asset balance after (in \$10000, dep r)	0.096	0.677
total loan balance before (in \$10000, dep r)	-1.630**	0.090
total loan balance after (in \$10000, dep r)	2.154**	0.091
complaint severity	-0.643**	0.097
<i>Customer Investments</i>		
number of accounts	-7.339**	0.840
number of accounts (p2)	1.510**	0.112
<i>Retention Strategies</i>		
<i>Reactive</i>		
compensation	9.638**	2.200
compensation *num acct	-1.589**	0.575
loyalty promos after (dep r)	7.454**	1.667
loyalty promos after (dep r) *num acct	-1.224**	0.353
<i>Proactive</i>		
loyalty promos before (dep r)	-0.134	1.698
loyalty promos before (dep r) *num acct	1.245**	0.377
<i>Endogeneity Variables</i>		
pstar. number of accounts	-0.197	0.697
pstar. Compensation	0.473	0.274
pstar. loyalty promos after (dep r)	0.946	2.501
pstar. loyalty promos before (dep r)	-5.238**	1.830

p2: to the power of two

r = 0.8

To ease reading, all numbers are multiplied by 100

Alternative Explanation

An alternative explanation for the U-shaped effect proposed is that it is easier for complainers with low levels of investments to reduce their usage but stay with the firm as switching is cumbersome even at low levels of investments. Intuitively, as the extent of investments increase *staying but disconnecting* (i.e., avoiding switching with decreasing usage) becomes less feasible. To investigate this explanation, in my sample, I compare usage rate (i.e., number of monthly transactions) of retained complainers with one account prior and after complaint. The average usage rate one month before the complaint month is less than the average usage rate either one, two, three or four month(s) after the complaint month, ruling out this explanation.

Chapter 4

Conclusion

Customer complaint management is an inevitable challenge for many businesses. In this dissertation, I proposed a conceptual model on how and why complaints decrease retention and what firms can do either before or after receiving complaints to retain their complaining customers. Testing the framework with a multi-method research approach, I showed that customer investments have a U-shaped effect on post-complaint retention resulting from two underlying moderated mediation mechanisms. This research has theoretical and managerial implications for academic scholars and business practitioners who seek to understand and deal with customer complaints.

Theoretical Implications

Theoretically, I utilized equity theory and attribution theory in the context of market exchanges to find the underlying drivers of complaint churn and investigate how the extent of complainers' investments affects the likelihood that they remain loyal to the firm. Building on these theories, I identified two mediating mechanisms, decreased perceptions of equity and decreased perceptions of trust, through which complaints negatively affects post-complaint retention. I found that as complainers' investments into their relationship with the focal firm increase, it moderates equity and trust perceptions in opposite

directions resulting in a net U-shaped effect of investments on retention.

On the one hand, as complainers' investments increase, they carry more expectations from the firm in return to their investments and thus investments exacerbate the negative influence of complaints on equity perceptions. On the other hand, however, as investments increase, complainers' connections to the firm strengthen such that they tie to the firm and the firm becomes part of their extended self. As a result, complainers become reluctant to evaluate the firm negatively (i.e., investments mitigate the negative effect of complaints on trust evaluations.)

Furthermore, I demonstrated that while at low to medium levels of relationship investments, complainers evaluate their relationship mainly through a transactional lens (i.e., asking themselves "what did I do in this relationship and what did the firm do in return? Is it commensurate?"), at higher levels of investments they evaluate their relationship mainly through a relational lens (i.e., "Is the firm reliable and trustworthy?") Thus, at low to medium (medium to high) levels of customer investments, equity (trust) perceptions are the lead mechanism driving post-complaint decisions. Given the adverse (mitigating) effect of customer investments on equity (trust) perceptions, the overall effect of complainers' investments on their retention is a curvilinear U-shaped effect with complainers with medium investments being the most likely ones to churn.

Managerial Implications

I utilized this theoretical framework to drive applicable managerial insights for practitioners in charge of identifying the 'most likely to churn' complainer segments and designing and implementing strategies to deal with the threat of complaint churn. Building upon this theory, I posit that the extent of complainers' investments divides complainers into three regions or segments across the low to high investments

spectrum: the transactional or equity-driven segment, the switching segment, and the relational or trust-driven segment. As complainers' investments increase, importance and salience of equity (trust) perceptions in their decision-making decrease (increase) and they gradually move across the three-region investments spectrum. Therefore, the recipe to remedy their impaired equity (trust) perceptions changes. Consistent with this conceptualization, experimental data in the context of banking confirmed that complainers with medium levels of investments manifest *maximum switching behavior* due to suffering from both low equity and low trust perceptions.

Analyzing an individual-level dataset of complainers of a financial services firm, I showed that while the effectiveness of reactive—executed after receiving a complaint—firm strategies (compensation and loyalty program promotions given after complaint) decrease with the extent of complainers' investments (i.e., number of bank accounts), proactive strategies implemented ahead of complaints (loyalty program promotions distributed before complaints) become more effective as count of bank accounts increase. Although I have only tested the effectiveness of these specific strategies and that I have focused on the banking sector, the reader should note that these findings apply readily to the effectiveness of other retention strategies that tap predominantly on complainers' equity or trust perceptions. These finding highlight three important insights:

- 1) Organizations need to acquire adequate *market knowledge* to gain a deep understanding of what contributes towards customer investments, firm investments and what 'medium level of investments' translates to in their industry. The notion of low vs. medium vs. high levels of customer investments and the specified regions in Figure 1 depend on the nature of the market and is on businesses to study the market and gain the contextual information.
- 2) The *temporal dynamics* of complaint management plays a central role in determining their

effectiveness and their operating path. Reactive strategies typically happen immediately after a complaint, apply only to complainers, and have a short effective period. Consequently, they are less effective in holding the walls against complainers' negative trust (e.g., benevolence, competence, reliability, dedication) judgements. It may be *'too late'* for a firm to show its benevolence, genuine care, and trustworthiness when a dissatisfied customer has voiced its dissatisfaction through complaining. In complainers' mind such immediate reactive strategies mainly impair equity perceptions interpreted as the firm's last chance to reciprocate *fairly* and invest into its relationship with the customer.

3) Organizations should be cautious when making their 'low-investments customers' increase their investments (i.e., *the perils of customer investments for customers with low investments*). Unless the chance of a customer complaining is minimal, attempts to increase investments of a customer with low investments should happen with care. If a complaint has happened or is likely to happen and the potential complainer has low investments, it might be better not to append to investments as they ironically decrease odds of retention. From an organization point of view, boosting customer investments of a prospect or actual complainer with low investments is a double-edged sword. On the one hand, it strengthens the tie between the customer and the firm and entails positive flow of investments to the organization. On the other hand, however, it implies higher expectations from the organization, which if left unmet adversely influences the firm when a negative dissatisfactory experience such as a complaint event happens. Thus, in the transactional region attempts to increase investments is only recommended if: i) odds of complaint are negligible, ii) if a big enough jump in the level of investments is expected such that the complainer moves from the transactional region to the relational region but not to the

switching region, or iii) if the firm can ensure that it is reciprocating in return maintaining a balanced relationship with the customer.

Future Directions

There are several directions along which future scholars can extend this research. First, I recommend future research to extend this research by testing the proposed model in business sectors other than banking to verify generalizability. Second, I believe that firm strategies that are proactively implemented ahead of customer complaints (e.g., loyalty promotions awarded months before complaint) not only can suppress the negative effect of complaint on retention if complaint events happen but also are effective to reduce the number of complaints received. While the goal of this research was to understand and tackle complaints that *have already happened*, I encourage future research to investigate if and how this framework can be utilized in prediction and prevention of complaint events. Third, given my objective to discover the role of customer investments as the focal moderating construct and scarcity of research on the intersection of customer investments and switching costs, I abstracted away from comparing and contrasting customer investments and switching costs. I encourage future research to deepen our understanding of the association between these two constructs and assess the extent to which findings of this research can contribute to the literature of switching costs. Fourth, I encourage future research to assess the generalizability of this findings around post-complaint retention to other managerially important matrices (e.g., post-complaint customer satisfaction, WOM).

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Appendix A

Study 2: Analytical Model

Proof of Lemma 1

I solve the game using backward induction. At the second stage, I find the customer that is indifferent between choosing firms A and B . Setting $U_A^{nc} = U_B^{nc}$ and solving for x leads to:

$$x_m^{nc} = \frac{P_B - P_A + t}{2t}$$

where the subscript m represents the marginal or indifferent customer. At the first stage, firms set prices that maximize their profit:

$$\pi_A = P_A(x_m^{nc}) = P_A\left(\frac{P_B - P_A + t}{2t}\right)$$

$$\pi_B = P_B(1 - x_m^{nc}) = P_B\left(\frac{P_A - P_B + t}{2t}\right)$$

Solving for $\frac{\partial \pi_A}{\partial P_A} = 0$ and $\frac{\partial \pi_B}{\partial P_B} = 0$ with respect to P_A and P_B , leads to $P_A^* = P_B^* = t$ and $x_m^{nc*} = \frac{1}{2}$.

Proof of Lemma 2

I solve the game using backward induction. First consider the case that no complaint happens. Setting $U_A^{nc} = U_B^{nc}$ and solving for the customer indifferent between choosing firms A and B leads to:

$$x_m^{nc} = \frac{P_B - P_A + t}{2t} \quad (\text{A.1})$$

Now, consider the case when firm i 's customers complain. I solve for $\Delta U_i = 0$ to find the customer(s), if any, who are indifferent between staying with firm i and switching to firm j .

$$\begin{aligned} \Delta U_i(x) &= U_i^c(x) - U_i^s(x) \\ &= (V - P_i - t|x - x_i| - (c_0 - c_1|x - x_i| - c_2|x - x_i|^2)) \\ &\quad - (V - P_j - t|x - x_j| - (s_0 - s_1|x - x_i| - s_2|x - x_i|^2)) \\ &= -(c_0 - c_1|x - x_i| - c_2|x - x_i|^2) + (s_0 - s_1|x - x_i| - s_2|x - x_i|^2) + t(1 - 2|x - x_i|) + (P_j - P_i) \end{aligned} \quad (\text{A.2})$$

Using basic algebra, one can see that $\Delta U_i(x) < 0$ when $x \in (x_{m_1,i}^{c*}, x_{m_2,i}^{c*})$. Any identification of model parameters such that $0 < x_{m_1,A}^c < x_{m_2,A}^c < x_m^{nc} < x_{m_1,B}^c < x_{m_2,B}^c < 1$ leads to the interior equilibrium where customers located at $x \in (x_{m_1,A}^c, x_{m_2,A}^c)$ ($x \in (x_{m_1,B}^c, x_{m_2,B}^c)$) switch to firm B (A) when complaints happen.

$$x_{m_1,A}^c = \frac{s_1 + 2t - c_1 - \sqrt{4(s_2 - c_2)(-c_0 - P_A + P_B + s_0 + t) + (s_1 + 2t - c_1)^2}}{2(c_2 - s_2)} \quad (\text{A.3})$$

$$x_{m_2,A}^c = \frac{s_1 + 2t - c_1 + \sqrt{4(s_2 - c_2)(-c_0 - P_A + P_B + s_0 + t) + (s_1 + 2t - c_1)^2}}{2(c_2 - s_2)} \quad (\text{A.4})$$

$$x_{m_1,B}^c = 1 - \frac{s_1 + 2t - c_1 + \sqrt{4(s_2 - c_2)(-c_0 - P_B + P_A + s_0 + t) + (s_1 + 2t - c_1)^2}}{2(c_2 - s_2)} \quad (\text{A.5})$$

$$x_{m_2,B}^c = 1 - \frac{s_1+2t-c_1-\sqrt{4(s_2-c_2)(-c_0-P_B+P_A+s_0+t)+(s_1+2t-c_1)^2}}{2(c_2-s_2)} \quad (\text{A.6})$$

At the second stage, firms maximize their expected profit:

$$\pi_A = P_A \{ (1 - \gamma) x_m^{nc} + \gamma (x_m^{nc} - (x_{m_2,A}^c - x_{m_1,A}^c)) + \gamma (x_{m_2,B}^c - x_{m_1,B}^c) \} \quad (\text{A.7})$$

$$\pi_B = P_B \{ (1 - \gamma) (1 - x_m^{nc}) + \gamma ((1 - x_m^{nc}) - (x_{m_2,B}^c - x_{m_1,B}^c)) + \gamma (x_{m_2,A}^c - x_{m_1,A}^c) \} \quad (\text{A.8})$$

At the first stage, firms set prices P_A and P_B that maximizes their profit. Substituting

$x_m^{nc}, x_{m_1,A}^c, x_{m_2,A}^c, x_{m_1,B}^c, x_{m_2,B}^c$ from (A.1) and (A.3) to (A.6) into (A.7) and (A.8) leads to:

$$\pi_A = P_A \left\{ \frac{P_B - P_A + t}{2t} - \gamma \frac{\sqrt{4(s_2-c_2)(-c_0-P_A+P_B+s_0+t)+(s_1+2t-c_1)^2}}{(c_2-s_2)} + \gamma \frac{\sqrt{4(s_2-c_2)(-c_0-P_B+P_A+s_0+t)+(s_1+2t-c_1)^2}}{(c_2-s_2)} \right\} \quad (\text{A.9})$$

$$\pi_B = P_B \left\{ \frac{P_A - P_B + t}{2t} - \gamma \frac{\sqrt{4(s_2-c_2)(-c_0-P_B+P_A+s_0+t)+(s_1+2t-c_1)^2}}{(c_2-s_2)} + \gamma \frac{\sqrt{4(s_2-c_2)(-c_0-P_A+P_B+s_0+t)+(s_1+2t-c_1)^2}}{(c_2-s_2)} \right\} \quad (\text{A.10})$$

Maximizing profit functions in (A.9) and (A.10) with respect to P_A and P_B leads to the interior equilibrium outcome presented in Table 3.

Robustness Checks

Timing

In the main model, I assumed that complaints happen early in the game such that the price and traveling cost a switching complainer pays for the initial firm is negligible. In this section, I relax the assumption that complaint event happens early in the game. To reflect this change, assume that the game starts at time $t = 0$ ends at time $t = 1$ and the complaint event and switching decisions happen at time $t_c < 1$. In this case:

$$U_i^c(x) = V - P_i - t|x - x_i| - Cost_i^c(x)$$

$$U_i^s(x) = V - t_c P_i - (1 - t_c) P_j - t(t_c|x - x_i| + (1 - t_c)|x - x_j|) - Cost_i^s(x)$$

$$\Delta U_i(x) = U_i^c(x) - U_i^s(x)$$

$$= -(c_0 - c_1|x - x_i| - c_2|x - x_i|^2) + (s_0 - s_1|x - x_i| - s_2|x - x_i|^2) + (1 - t_c)(t|x - x_j| - t|x - x_i| + (P_j - P_i)) \quad (\text{A.11})$$

I solve the game using backward induction. First consider the case that no complaint happens. Setting

$U_A^{nc} = U_B^{nc}$ and solving for the customer indifferent between choosing firms A and B leads to:

$$x_m^{nc} = \frac{P_B - P_A + t}{2t} \quad (\text{A.12})$$

Next, I solve for $\Delta U_i = 0$ to find the customer(s), if any, who are indifferent between staying with firm i

and switching to firm j .

$$x_{m_1,A}^c = \frac{s_1 + 2t(1-t_c) - c_1 - \sqrt{(c_1 - s_1 - 2t(1-t_c))^2 + 4(c_2 - s_2)(c_0 - s_0 + (P_a - P_b - t)(1-t_c))}}{2(c_2 - s_2)} \quad (\text{A.13})$$

$$x_{m_2,A}^c = \frac{s_1 + 2t(1-t_c) - c_1 + \sqrt{(c_1 - s_1 - 2t(1-t_c))^2 + 4(c_2 - s_2)(c_0 - s_0 + (P_a - P_b - t)(1-t_c))}}{2(c_2 - s_2)} \quad (\text{A.14})$$

$$x_{m_1,B}^c = 1 - \frac{s_1 + 2t(1-t_c) - c_1 + \sqrt{(c_1 - s_1 - 2t(1-t_c))^2 + 4(c_2 - s_2)(c_0 - s_0 + (P_b - P_a - t)(1-t_c))}}{2(c_2 - s_2)} \quad (\text{A.15})$$

$$x_{m_2,B}^c = 1 - \frac{s_1 + 2t(1-t_c) - c_1 - \sqrt{(c_1 - s_1 - 2t(1-t_c))^2 + 4(c_2 - s_2)(c_0 - s_0 + (P_b - P_a - t)(1-t_c))}}{2(c_2 - s_2)} \quad (\text{A.16})$$

At the second stage, firms maximize their expected profit:

$$\pi_A = P_A (x_m^{nc} + \gamma(1-t_c)((x_{m_2,B}^c - x_{m_1,B}^c) - (x_{m_2,A}^c - x_{m_1,A}^c))) \quad (\text{A.17})$$

$$\pi_B = P_B ((1 - x_m^{nc}) + \gamma(1-t_c)((x_{m_2,A}^c - x_{m_1,A}^c) - (x_{m_2,B}^c - x_{m_1,B}^c))) \quad (\text{A.18})$$

Substituting x_m^{nc} , $x_{m_1,A}^c$, $x_{m_2,A}^c$, $x_{m_1,B}^c$, $x_{m_2,B}^c$ from (A.12) to (A.16) into (A.17) and (A.18) and

maximizing with respect to P_A and P_B leads to the interior equilibrium outcome presented in Table A.1.

Table A.1: Interior Equilibrium When Customers Complain with Probability γ .

Conditions	Equilibrium Value
	$s_1 + 2t(1 - t_c) - c_1 > 0$ $s_1 + 2t(1 - t_c) - c_1 + \sqrt{(c_1 - s_1)^2 + 4(s_0 - c_0)(s_2 - c_2) + 4t(1 - t_c)(-c_1 - c_2 + s_1 + s_2 + t(1 - t_c))} < c_2 - s_2$ $\text{and } (c_1 - s_1)^2 + 4(s_0 - c_0)(s_2 - c_2) + 4t(1 - t_c)(-c_1 - c_2 + s_1 + s_2 + t(1 - t_c)) > 0$
Outcome	Equilibrium Value
x_m^{nc*}	$\frac{1}{2}$
$x_{m_1,A}^c$	$\frac{s_1 - c_1 + 2t(1 - t_c) - \sqrt{(c_1 - s_1)^2 + 4(s_0 - c_0)(s_2 - c_2) + 4t(1 - t_c)(-c_1 - c_2 + s_1 + s_2 + t(1 - t_c))}}{2(c_2 - s_2)}$
$x_{m_2,A}^c$	$\frac{s_1 - c_1 + 2t(1 - t_c) + \sqrt{(c_1 - s_1)^2 + 4(s_0 - c_0)(s_2 - c_2) + 4t(1 - t_c)(-c_1 - c_2 + s_1 + s_2 + t(1 - t_c))}}{2(c_2 - s_2)}$
$x_{m_1,B}^c$	$1 - \frac{s_1 - c_1 + 2t(1 - t_c) + \sqrt{(c_1 - s_1)^2 + 4(s_0 - c_0)(s_2 - c_2) + 4t(1 - t_c)(-c_1 - c_2 + s_1 + s_2 + t(1 - t_c))}}{2(c_2 - s_2)}$
$x_{m_2,B}^c$	$1 - \frac{s_1 - c_1 + 2t(1 - t_c) - \sqrt{(c_1 - s_1)^2 + 4(s_0 - c_0)(s_2 - c_2) + 4t(1 - t_c)(-c_1 - c_2 + s_1 + s_2 + t(1 - t_c))}}{2(c_2 - s_2)}$
$P_A^* = P_B^*$	$\frac{1}{\frac{1}{t} + \frac{8\gamma(1 - t_c)^2}{\sqrt{(c_1 - s_1)^2 + 4(s_0 - c_0)(s_2 - c_2) + 4t(1 - t_c)(-c_1 - c_2 + s_1 + s_2 + t(1 - t_c))}}}$
$\pi_A^* = \pi_B^*$	$\frac{2}{\frac{1}{t} + \frac{16\gamma t(1 - t_c)^2}{\sqrt{(c_1 - s_1)^2 + 4(s_0 - c_0)(s_2 - c_2) + 4t(1 - t_c)(-c_1 - c_2 + s_1 + s_2 + t(1 - t_c))}}}$

Pay Structure

In the main analytical model, I assumed customers pay the price as they use firm offering. In this appendix, I relax this assumption and show that the main results are robust when switching complainers pay the full price to their focal firm.

Consider firm i 's complainers. While $U_i^c(x)$ remains unchanged, $U_i^s(x)$ changes to:

$$U_i^s(x) = V - P_i - P_j - t|x - x_j| - (s_0 - s_1|x - x_i| - s_2|x - x_i|^2) \quad (\text{A.11})$$

I solve for $\Delta U_i = 0$ to find the customer(s), if any, who are indifferent between staying with firm i and switching to firm j .

$$\begin{aligned} \Delta U_i(x) &= U_i^c(x) - U_i^s(x) \\ &= (V - P_i - t|x - x_i| - (c_0 - c_1|x - x_i| - c_2|x - x_i|^2)) \\ &\quad - (V - P_i - P_j - t|x - x_j| - (s_0 - s_1|x - x_i| - s_2|x - x_i|^2)) \\ &= -(c_0 - c_1|x - x_i| - c_2|x - x_i|^2) + (s_0 - s_1|x - x_i| - s_2|x - x_i|^2) + t(1 - 2|x - x_i|) + P_j \quad (\text{A.12}) \end{aligned}$$

Solving for marginal customers and driving the profit functions:

$$\begin{aligned} x_{m_1,A}^c &= \frac{s_1 - c_1 + 2t - \sqrt{4(s_2 - c_2)(-c_0 + P_B + s_0 + t) + (s_1 + 2t - c_1)^2}}{2(c_2 - s_2)} \\ x_{m_2,A}^c &= \frac{s_1 - c_1 + 2t + \sqrt{4(s_2 - c_2)(-c_0 + P_B + s_0 + t) + (s_1 + 2t - c_1)^2}}{2(c_2 - s_2)} \end{aligned}$$

$$x_{m_1,B}^c = 1 - \frac{s_1 - c_1 + 2t + \sqrt{4(s_2 - c_2)(-c_0 + P_A + s_0 + t) + (s_1 + 2t - c_1)^2}}{2(c_2 - s_2)}$$

$$x_{m_B,B}^c = 1 - \frac{s_1 - c_1 + 2t - \sqrt{4(s_2 - c_2)(-c_0 + P_A + s_0 + t) + (s_1 + 2t - c_1)^2}}{2(c_2 - s_2)}$$

$$\begin{aligned} \pi_A = P_A \left(\frac{P_B - P_A + t}{2t} - \gamma \frac{\sqrt{4(s_2 - c_2)(-c_0 + P_B + s_0 + t) + (s_1 + 2t - c_1)^2}}{(c_2 - s_2)} + \right. \\ \left. \gamma \frac{\sqrt{4(s_2 - c_2)(-c_0 + P_A + s_0 + t) + (s_1 + 2t - c_1)^2}}{(c_2 - s_2)} \right) \end{aligned} \quad (\text{A.13})$$

$$\begin{aligned} \pi_B = P_B \left(\frac{P_A - P_B + t}{2t} + \gamma \frac{\sqrt{4(s_2 - c_2)(-c_0 + P_B + s_0 + t) + (s_1 + 2t - c_1)^2}}{(c_2 - s_2)} - \right. \\ \left. \gamma \frac{\sqrt{4(s_2 - c_2)(-c_0 + P_A + s_0 + t) + (s_1 + 2t - c_1)^2}}{(c_2 - s_2)} \right) \end{aligned} \quad (\text{A.14})$$

Although, there is no closed-form solution for P_i^* , using basic algebra, one can see that $P_i^* < t$.

It suffices to show that there exists analytical conditions such that $\Delta U_i(x)$ is concave in x and solving for $\Delta U_A(x) = 0$ and $\Delta U_B(x) = 0$ leads to four marginal customers located on the Hotelling line (i.e., $0 < x_{m_1,A}^c < x_{m_2,A}^c < x_m^{nc} < x_{m_1,B}^c < x_{m_2,B}^c < 1$). Given that $0 < P_i^* < t$, denote by $\Delta U_i^L(x) = -(c_0 - c_1|x - x_i| - c_2|x - x_i|^2) + (s_0 - s_1|x - x_i| - s_2|x - x_i|^2) + t(1 - 2|x - x_i|)$ and $\Delta U_i^U(x) = -(c_0 - c_1|x - x_i| - c_2|x - x_i|^2) + (s_0 - s_1|x - x_i| - s_2|x - x_i|^2) + t(1 - 2|x - x_i|) + t$ as strict lower and upper bounds of $\Delta U_i(x)$ corresponding to $P_j = 0$ and $P_j = t$ in (A.12) respectively. For any parameter space such that $\Delta U_i^L(x)$ and $\Delta U_i^U(x)$ are concave in x and solving for $\Delta U_i^L(x) = 0$ and $\Delta U_i^U(x) = 0$ leads to four marginal customers located on the Hotelling line, the key findings remain robust.

Appendix B

Study 1: Controlled Experiments

In this Appendix:

- **B.1:** I provide more details about the complaint manipulation implemented in Studies 1a and 1b.
- **B.2:** I specify the exclusion criteria applied to participants.
- **B.3:** I show the outcome models of the Hayes Process model obtained in each Study.
- **B.4:** I utilize an OLS model to test for the main and interaction effects of complaint and investments on the DV (i.e., intention to stay) using *continuous* investments measures from the survey data.
- **B.5:** I present the correlation matrices.
- **B.6:** I present the descriptive statistics (mean comparisons) for participants in the control (noncomplainer) condition to ensure that the proposed U-shaped effect of customer investments on their intention to stay does not occur in the control condition.

B.1 Complaint Manipulation

As the independent variable in the conceptual model (complaint) consists of two elements (the complaint *cause* followed by the complaint *action* taken by the customer), I need to manipulate both elements of the construct across conditions. Incurring \$25 service fees is the complaint cause and customer calling the customer service to complain about the service fees is the complaint action.

To control for the effect of firm retention strategies (i.e., the moderator in the conceptual framework), I designed the condition such that the firm refuses the complainer request. This ensures that the effect captured (if any) is not due to the firm response rather is caused by the *joint effect* of the two elements (complaint cause + complaint action) of the independent variable, complaint. *Note that disentangling the causal effect of complaint cause from that of complaint action is out of the scope of this paper.*

Complaint Condition

Participants in the complaint condition read:

“You call Chase bank customer service to complain about some fees you have been charged.

You tell the representative that Chase bank has charged you a total of \$25 service fees and you do not understand why. After explaining your situation, you strongly ask for a refund.

The representative checks their system. Then, tells you they are sorry, however they cannot refund you.

You stop complaining and end the call.”

Control Condition

Participants in the complaint condition read:

“You call Chase bank customer service to ask questions about Chase bank’s service fee rules.

You tell the representative that you know that Chase bank charges fees but are not fully familiar with the service fee rules. You want to know the fees which might affect you.

The representative checks their system. Then, answers the questions, and gives you the information you need.

You thank the representative and end the call.”

B.2 Exclusion Criteria

If any of the following applies to a participant, they are removed from the sample of Study 1.

- Failing to complete all survey questions.
- Providing unrelated or inaccurate responses (e.g., copy and pastes) or response in contradiction to the provided information in one or more of survey the questions.
- Failing to pass one or more attention checks.

B.3 Hayes Process Outcome Models

Table B.3.1: Hayes Process Outcome Models, Study 1a

Outcome: Intention to Stay

Variable	Coefficient	SE
Constant	6.42	6.25
Complaint	-1.79	2.74
Customer loyalty	2.82**	1.22
Customer tenure	0.18	0.20
Usage rate	2.13*	1.16
Real Complainer	-4.13	2.57
Equity	0.52***	0.04
Trust	0.16***	0.04

Outcome: Equity Perceptions

Variable	Coefficient	SE
Constant	64.55***	7.47
Complaint	-20.11***	7.19
Customer loyalty	2.86**	1.18
Customer tenure	-0.25	0.20
Usage rate	3.03**	1.17
Real Complainer	-9.88***	2.58
Investments	-1.40	3.23
C*Investments	-0.08**	4.55

Outcome: Trust Perceptions

Variable	Coefficient	SE
Constant	46.42***	6.52
Complaint	-38.38***	6.52
Customer loyalty	8.34***	1.07
Customer tenure	-0.21	0.18
Usage rate	-1.29	1.06
Real Complainer	-4.89**	2.34
Investments	0.73	2.92
C*Investments	9.00**	4.12

P<0.01***, p <0.05**, p<0.1*

Table B.3.2: Hayes Process Outcome Models, Study 1b**Outcome: Intention to Stay**

Variable	Coefficient	SE
Constant	22.34***	7.12
Complaint	-1.32	3.15
Customer loyalty	-0.21	1.30
Customer tenure	-0.23	0.21
Usage rate	2.76**	1.31
Real Complainer	-1.25	2.86
Equity	0.30***	0.05
Trust	0.39***	0.05

Outcome: Equity Perceptions

Variable	Coefficient	SE
Constant	63.05***	8.05
Complaint	-34.03***	8.74
Customer loyalty	2.67*	1.38
Customer tenure	-0.39	0.23
Usage rate	-0.68	1.42
Real Complainer	-2.38	3.10
Investments	1.09	3.91
C*Investments	-1.20	5.51

Outcome: Trust Perceptions

Variable	Coefficient	SE
Constant	44.84***	8.20
Complaint	-34.27***	7.92
Customer loyalty	6.30***	1.25
Customer tenure	-0.10	0.21
Usage rate	0.08	1.29
Real Complainer	3.11	2.81
Investments	4.92	3.54
C*Investments	10.59**	4.99

P<0.01***, p<0.05**, p<0.1*

B.4 OLS Model to Test the Main and Interaction Effects

Since I have measured perceptions of investments, I can also utilize the Ordinary Least Squares (OLS) model to test the main effect of complaint and investments (as a continuous measure) and their interaction on DV (Intention to stay). Tables B.4.1 and B.4.2 presents the results of the OLS model for studies 1a and 1b respectively and show that the key results are robust to operationalizing investments as a *continuous* rather than a categorical variable.

Table B.4.1: OLS Model to Test the Main and Interaction Effects, Study 1a

DV: Intention to Stay

Variable	Coefficient	SE
Constant	46.41***	6.95
Complaint	-12.68**	5.15
Customer loyalty	6.50***	1.34
Customer tenure	0.15	0.23
Usage rate	3.58***	1.31
Real Complainer	-9.47***	2.89
Investments	-0.09	0.06
C*Investments	-0.21***	0.08

P<0.01***, p<0.05**, p<0.1*

Table B.4.2: OLS Model to Test the Main and Interaction Effects, Study 1b

DV: Intention to Stay

Variable	Coefficient	SE
Constant	68.71***	8.50
Complaint	-41.24***	6.87
Customer loyalty	2.48*	1.45
Customer tenure	-0.34	0.24
Usage rate	2.65*	1.48
Real Complainer	-0.68	3.24
Investments	-0.05	0.08
C*Investments	0.32***	0.09

P<0.01***, p<0.05**, p<0.1*

B.5 Correlation Matrices

Table B.5.1: Correlation Matrix, Study 1a

	Equity	Trust	Investments	Int to Stay
Equity	1	0.16	-0.18	0.50
Trust		1	0.17	0.17
Investments			1	-0.14
Int to Stay				1

Table B.5.2: Correlation Matrix, Study 1b

	Equity	Trust	Investments	Int to Stay
Equity	1	0.27	-0.04	0.36
Trust		1	0.26	0.52
Investments			1	0.33
Int to Stay				1

B.6 Descriptive Statistics for Noncomplainers

Table B.6.1: Descriptive Statistics for Noncomplainers

	Investments			
	Study 1a		Study 1b	
	Low	Medium	Medium	High
Equity	77.5	76.08	73.34	74.5
Trust	73.92	74.8	75.64	80.37
Investments	47.78	63.04	63.45	73.93
Int to Stay	73.21	76.45	76.17	82.17

The difference between intention to stay among noncomplainers in the low ($M_{1a} = 73.21$) and medium investments conditions ($M_{1a} = 76.45$) is insignificant ($p > .1$), demonstrating that the U-shaped effect does not occur in the control condition.

Appendix C

Study 3: Empirical Analysis

In this Appendix:

- **C.1:** I provide more details about the methodology of copula and how it can handle endogeneity concerns in Study 3.
- **C.2:** I show robustness checks pertaining to control variables in Study 3.

C.1 Methodology of Copula

Consider estimating a linear model such that some covariates are exogenous, but some covariates are potentially correlated with the structural error term. Denote by Y_i , customer i 's outcome of interest and assume that is a linear function of exogenous covariates, X_i , and endogenous covariates, P_i . Denote by ξ_i the structural error term, and by α and β , the model parameters.

$$Y_i = X_i' \beta + P_i \alpha + \xi_i$$

Park and Gupta (2012) assume that the (unobserved) marginal distribution of the structural error term is

normal and argue that the model estimates are fairly robust to misspecification of the marginal distribution of the structural error term.

The marginal distribution of the endogenous regressors are obtained from observed data using a nonparametric Kernel density function. According to the Sklar's theorem (Sklar 1959), given the marginal distributions of endogenous regressor and the structural error term, $H(p)$ and $G(\xi)$ respectively, there exists a Copula function C that defines the joint distribution of $H(p)$ and $G(\xi)$.

$$F(p, \xi) = C(H(p), G(\xi)) = C(U_p, U_\xi)$$

where $U_p = H(p)$ and $U_\xi = G(\xi)$ are the marginal distribution functions. Park and Gupta (2012) use Gaussian copula to estimate the joint distribution and density functions using U_p and U_ξ . This Copula method can then extract the endogenous component of the structural error term from the exogenous component. Formally:

$$\begin{aligned}\xi_i &= \sigma_\xi \cdot \rho \cdot P_i^* + \sigma_\xi \cdot \sqrt{1 - \rho^2} \cdot \omega_i \\ Y_i &= X_i' \beta + P_i \alpha + \sigma_\xi \cdot \rho \cdot P_i^* + \sigma_\xi \cdot \sqrt{1 - \rho^2} \cdot \omega_i\end{aligned}$$

The addition of P_i^* as a regressor, leaves ω_i uncorrelated with all the other regressors and the model can be estimated to obtain the unbiased model parameters.

C.2 Robustness Checks

Control Variables

In the mail model, I added control variables for usage rate (total transactions), total loan and total asset balances for the period after the customer complaint. As a robustness check, I also estimated the model without adding control variables for the period *after* the customer complaint. Results are presented in Table C.2.1.

Table C.2.1: Robustness Check (Study 3)

Variable	Coefficient	SE	Coefficient	SE
constant	77.980**	4.226	80.300**	4.127
<i>Customer and Complaint Characteristics</i>				
customer age (year)	0.077**	0.017	0.080**	0.017
customer tenure	0.168	0.416	0.387	0.394
total transactions before (dep r)	0.043**	0.009	-0.368**	0.015
total transactions after (dep r)			0.576**	0.015
total asset balance before (in \$10000, dep r)	0.014	0.047	-0.094	0.631
total asset balance after (in \$10000, dep r)			0.096	0.677
total loan balance before (in \$10000, dep r)	0.332**	0.021	-1.630**	0.090
total loan balance after (in \$10000, dep r)			2.154**	0.091
complaint severity	-0.730**	0.095	-0.643**	0.097
<i>Customer Investments</i>				
number of accounts	-4.453**	0.899	-7.339**	0.840
number of accounts (p2)	0.941**	0.119	1.510**	0.112
<i>Retention Strategies</i>				
<i>Reactive</i>				
compensation	11.420**	2.417	9.638**	2.200
compensation *num acct	-1.907**	0.623	-1.589**	0.575
loyalty promos after (dep r)	9.537**	1.592	7.454**	1.667
loyalty promos after (dep r) *num acct	-1.307**	0.338	-1.224**	0.353
<i>Proactive</i>				
loyalty promos before (dep r)	-2.870	1.759	-0.134	1.698
loyalty promos before (dep r) *num acct	1.552**	0.384	1.245**	0.377
<i>Endogeneity Variables</i>				
pstar. number of accounts	-1.279	0.749	-0.197	0.697
pstar. Compensation	-0.225	0.292	0.473	0.274
pstar. loyalty promos after (dep r)	-3.361	2.373	0.946	2.501
pstar. loyalty promos before (dep r)	-3.630**	1.703	-5.238**	1.830

p2: to the power of two

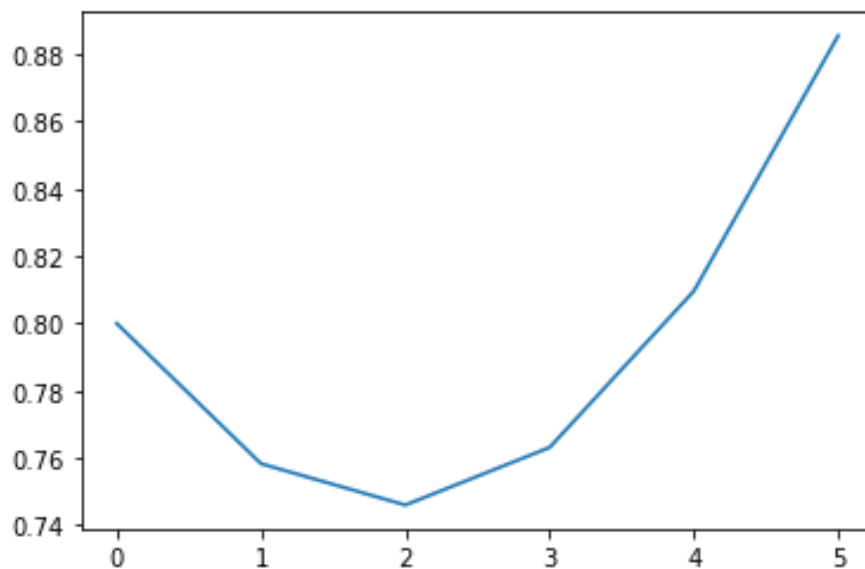
r = 0.8

To ease reading, all numbers are multiplied by 100

Number of Accounts as a Measure of Investments

As a robustness check for the choice of number of accounts as a measure of customer investments, I show model-free evidence in Figure C.2.1 that log transactions (dep $r = .8$), that is *log of the weighted average of count of monthly transactions in the six-month period before complaint (depreciated with $r = .8$)*, also has a curvilinear U-shaped effect on post-complaint retention. This provides visual support that the U-shaped effect is also generalizable to other measures of customer investments. Retention (same DV as the one discussed in the main model) is regressed on log transactions (dep $r = .8$) and the quadratic term.

Figure C.2.1 Model-free Evidence (Log of Transactions as a Measure of Investments)



$$\text{Retention} \sim \beta_1 \text{ Log transactions} + \beta_2 \text{ Log transactions (p2)}$$