Customers' emotions in service failure and recovery: a meta-analysis

1 Introduction

For customers, service failure and recovery situations can trigger strong emotional reactions. After a service failure (e.g., an overbooked flight), a customer likely experiences anger, frustration, or even rage. If the company manages the failure and reestablishes the service promise (e.g., transporting the customer from point A to point B), the customer may experience relief, calmness, or even gratitude; if the failure is managed poorly, more anger, helplessness, and sadness may ensue. How emotions shape customers' attitudes and behaviors and what firms can do to manage emotions successfully are important issues.

The last 15 years of complaint-handling research have witnessed rapid growth in the number of studies addressing customers' emotional responses following service failure and recovery. These have typically focused on the relationship either between negative emotions following service failure and customer justice perceptions (e.g., Smith and Bolton 2002) or between customer justice perceptions and positive or negative emotions (e.g., Grégoire et al. 2010, Chebat and Slusarczyk 2005). This body of research suggests overall that emotions are key factors that precede and follow customers' reactions to service-recovery efforts and are related to relevant outcome variables such as loyalty, customer satisfaction, intention to return, word of mouth (WOM), and intention to complain.

Despite the significant number of empirical works, their insights have not been cumulative. Studies vary in the theories and emotion models applied, the timing of the occurrence of the emotion (after the failure *or* after the recovery effort), the service failure and recovery actions explored (e.g., compensation with monetary incentives or without monetary incentives), study design (i.e., experiments or field surveys), and culture considered. Thus, findings partly depend on the theoretical and methodological choices applied and on the characteristics of the service-recovery process.

This variety of approaches and methods suggests the need for a meta-analysis to integrate the evidence of accumulated empirical research. Previous meta-analyses in service failure and recovery domains have either neglected (Gelbrich and Roschk 2011, Orsingher et al. 2010) or only partially addressed (Van Vaerenbergh et al. 2014) the role of emotions. Our study is the first to offer a theoretical and empirical summary of the role of emotions in failure and recovery situations considering both negative emotions after service failure *and* negative or positive emotions after service recovery. Through this meta-analysis, we aim to do the following:

(1) Provide a summary conceptual framework describing the role of emotions within the whole process of service failure and recovery actions.
(2) Discuss how emotions have been conceptualized and measured in the service-recovery domain.
(3) Identify which constructs are more strongly related to emotions and whether and how methodological choices and culture moderate the relationships involving emotions.
(4) Assess which recovery actions enhance/attenuate the strength of positive/negative emotions after recovery with their correlates.

2 Conceptual framework

2.1 Emotions in service failure and recovery

Figure 1 presents the conceptual framework. It describes the sequence of actions undertaken by the firm and the customer in the failure – recovery situation. First, the service failure takes place. After the failure, the company can be reactive and start the recovery process after input from the customer who decides to complain to the service provider (customer-initiated complaint) or be proactive through a firm-initiated recovery process[1]. The framework shows that two specific moments can be powerful triggers of emotional reactions: service failure and service recovery. Emotions triggered

[1] The firm can proceed with a proactive recovery strategy in at least two different situations. First, if the company detects the failure before the customer is aware of it, immediately activates the recovery process, and informs the customer (the dashed arrow in Figure 1 represents this situation). Second, when the customer decides to complain to others (e.g., through online forums), or simply decides not to complain at all.

by service failure are negative and undesirable for the company and can be elicited by causal attributions of the service failure (see Van Vaerenbergh et al. 2014). Emotional reactions triggered by service recovery can be negative or positive depending on the recovery-process outcome and are elicited by customers' justice perceptions. Recovery emotions shape post-recovery outcome variables such as satisfaction, return intent, and WOM (t_4). As a whole, the model highlights the role of customers' emotional reactions in the service failure and recovery process and the domain of this meta-analysis.

[Figure 1 about here]

2.2 Models of emotion formation

The prevailing theory supporting the mechanism through which negative or positive service episodes trigger customer emotional reactions is cognitive appraisal theory (CAT; Lazarus 1966, 1991).[2] According to CAT, emotions are mental states arising from the cognitive appraisal of a service situation (Bagozzi et al. 1999, Smith and Bolton 2002). Thus, a customer's subjective appraisal of the situation following the failure or the recovery episode generates the emotional state.

Within this common framework, complaint-handling studies have adopted two models of emotion formation. The first is the discrete model, which assumes that emotions are best represented as different discrete constructs having unique effects on cognition and judgment. For example, anger occurs when a person sees another as a source of injury, and regret results when one's negative outcome is attributed to one's own actions (Bagozzi et al. 1999). The second is the dimensional model, which assumes valence as the basis for predicting the influence of emotions on customer outcomes. Thus, anger and regret, for example, fall indistinctly into the same category—negative emotions—because they share the same negative valence (Barrett 1998, Lench et al.

[2] Although CAT is the prevailing emotion theory in service failure/recovery research, other theories are used: notably, affect control theory (Chebat and Slusarczyk 2005), affect-balance theory (Schoefer and Diamantopoulos 2008, 2009), and emotional contagion theory (Du et al. 2011).

2011). We contend that the model used to conceptualize emotions can moderate the strength of the relationship between emotions and their correlates.

2.3 Moderator variables

We identified several moderator variables that can account for between-study differences in effect sizes. Moderators can be distinguished into two classes accounting for different types of service-recovery actions: methodological and managerial. Table 1 lists these moderators, describes and motivates them, and summarizes how each is operationalized and its frequency in our sample of studies.

[Table 1 about here]

3 Method

3.1 Data collection and coding

To identify publications to include in the meta-analysis, we first examined those cited in previous literature reviews of emotions in service recovery. Second, we conducted a keyword search on online databases such as ProQuest, EBSCO, and Google Scholar. We used different combinations of the keywords "emotion", "affect", "service recovery", "service failure", "complaint handling", and "double deviation". Third, we conducted an issue-by-issue search for major marketing journals. Fourth, we searched working papers to retrieve the "fugitive literature" (Rosenthal 1995), scanning the web and the websites of marketing conferences (e.g., Association of Consumer Research, EMAC, QUIS and Frontiers), and contacted the authors to ask for their paper if necessary. Additionally, we posted a request for papers on some mailing lists. Our search for relevant studies covered the period between 1984 and early 2019. Most studies (94%) were published 20 years after the first study including emotions in service failure (Folkes 1984).

This search generated 93 papers. We excluded theoretical papers lacking empirical analyses, and we contacted the authors of 17 different papers to ask for missing information. Ten supplied that information. We also excluded papers lacking sufficient information (Hedges and Olkin 1985,

Rosenthal 1991). This yielded a set of 72 usable papers providing data from 89 independent samples (see Table A1 online Appendix).[3]

Of the retrieved studies, 44% provided detailed information about the type of failure. The most common service failures were long waits and delays, failures in the core service (e.g., cold food, flight cancellation), an unpleasant atmosphere (e.g., noisy hotel room), and poor staff behavior (e.g., inattentive waiter or rude employee). Forty-five percent of the studies focused on service failures only and did not consider recovery actions. Of the studies considering recovery actions, only 39% provided details about the type of service-recovery action. The most common were apologies, cash compensations (e.g., immediate discounts or discounts on future purchases), product or service replacement, promptness in the response or clarity in the explanation of the procedures (e.g., time needed to manage the recovery), explanations, and empathic behavior of the employee (e.g., sincere attitude in resolving the problem).

3.2 Meta-analytic procedure

We selected the correlation coefficient as the effect-size metric for the meta-analysis. If this metric was not reported, we converted into correlation coefficients other available statistics such as *F*-values with one *df*, or t-tests or chi-squared tests (Rosenthal 1991, Hunter and Schmidt 2004), or used the approach described by Peterson and Brown (2005) to impute *r* given knowledge of the standardized multiple-regression coefficients. In total, we included in this meta-analysis 450 effect sizes on 40 bivariate relations between the focal variable of interest (emotions) and its antecedents/consequences (13 negative emotions after failure, 16 negative emotions after recovery, and 11 positive emotions).

[3] Three different papers displayed the same context, sample size, and sociodemographic characteristics. There was abundant evidence that these papers employed the same sample, albeit investigating partially different variables. Thus, using the correlation matrix provided by the authors, we included their study only once, to avoid a fictitious increase in the number of retrieved studies.

We adjusted effect sizes for corrections due to measurement and sampling errors. We weighted each correlation coefficient by an attenuation factor calculated as the product of the square root of the reliability of the independent variable, the reliability of the dependent variable, and the sample size (see Hunter and Schmidt 2004, p. 115).[4]

We then calculated the average pooled effect size, and the standard errors to compute 95% credibility intervals (Geyskens et al. 2009), to assess the strength and the variability of each relationship involving emotions. We also investigated the need for moderator variables through the Q-test of homogeneity of variance of pooled effect sizes (Hedges and Olkin 1985).[5]

Finally, we investigated whether differences in methodological characteristics of a study and managerial actions used to recover the failure might cause variation in reported effects through a multivariate and multilevel moderator model. The dependent variable r_{EC} is the vector of the retrieved adjusted correlation coefficients between emotions (E) and their correlates (C), and the independent variables are the moderators, included in Table 1. We controlled for heterogeneity both within and between individual studies by incorporating random effects (Bijmolt and Pieters 2001, Berkey et al. 1995, Harbord and Higgins 2008, Borenstein et al. 2010). Equation (1) describes the moderator model estimated:[6]

$$r_{EC_{ij}} = \theta + \sum_{k=1}^{K} \beta_k X_{kj} + \sum_{i=1}^{I} \beta_i C_{ij} + u_j + \epsilon_j \quad (1)$$

where j denotes the study and k the specific moderator variable. X_{kj} is the vector of moderator variables. In line with other meta-analyses, we included dummy variables to control for the type of construct correlated with emotions. C_{ij} is the vector of control dummy variables indicating the type

[4] We used the Cronbach's alpha value of each construct involved to indicate the reliability of dependent and independent variables. When alphas were unavailable or a study used a single-item measure (11% of the retrieved effect sizes), we used the average reliability for that construct across all studies.

[5] We used a combination of alternative approaches to assess homogeneity (Q-test, 75% rule, credibility interval, and residual standard deviation). We report only a portion of these heterogeneity tests in Table 2.

[6] We estimated three alternative moderator models. First was an overall moderator model including all retrieved effect sizes. Because we have both positive and negative emotions, we included the absolute value of r_{EC} as dependent variable as well as a dummy controlling for the valence. Second, we estimated two separate moderator models distinct for positive and negative emotions. The purpose of this additional analysis is to investigate the moderating impact of different recovery actions on the strength of the observed relationships. Distinct models for positive and negative emotions are more appropriate in this situation, as they contribute to gaining managerial insight.

of construct correlated with emotions, where *i* indicates the type of construct (e.g., justice). Random-effects meta-analysis allows the true effects, θ_j, to vary between studies by assuming that they have a normal distribution around a mean effect θ. The error terms u_j and ϵ_j are assumed to have a normal distribution with a mean of zero and variances of σ_u^2 and σ_ϵ^2 respectively.

4 Results

Our analysis has two steps. First, we provide descriptive statistics about pairwise relationships between emotions and their correlates. Second, we report the results of the moderator model described in Equation (1).

4.1 Pairwise relationships results

Table 2 reports the results of the analysis of the pairwise relationships and presents average effect sizes. Results for negative emotions are distinct between emotions following a failure episode (columns labeled *F*) and those following a recovery action (columns labeled R).

[Table 2 about here]

For negative emotions after a failure, the strongest correlation is with overall satisfaction ($r_{adj} = -0.44$), followed by overall justice ($r_{adj} = -0.42$) more than any single justice dimension. Negative emotions following recovery are also strongly related to these constructs, and with overall justice ($r_{adj} = -0.63$) and satisfaction with recovery ($r_{adj} = -0.47$).

For positive emotions after failure, the strongest correlations are again with overall justice ($r_{adj} = 0.71$) and satisfaction with recovery ($r_{adj} = 0.56$). Of the justice dimensions, procedural justice has the highest coefficient ($r_{adj} = 0.54$), and of the customer outcomes, coefficients are highest for trust ($r_{adj} = 0.49$) and loyalty ($r_{adj} = 0.48$).

Taken together, these results show that emotions after failure and recovery influence different aspects of consumer perceptions: emotions experienced after a failure are more strongly associated

with the overall assessment of justice and overall satisfaction with the firm. This is an important finding because it shows that negative emotional reactions after a failure strongly influence customers' evaluation of the firm as a whole. By contrast, negative emotions after a poor recovery are more strongly related to transaction-specific satisfaction as well as to overall justice.

Results in Table 2 also indicate that positive emotions following recovery can affect key outcome variables such as overall satisfaction, loyalty, and trust. Among the dimensions of fairness, positive emotions are associated more strongly with procedural than with distributive and interactional dimensions. Again, these findings highlight that fair procedures – an experiential aspect of the recovery experience – can trigger positive emotions for customers.

Inspecting the results in Table 2 also shows show that even if negative emotions hurt the company, their impact is less powerful, on average, than that of positive emotions. Presumably, the service-recovery process helps mitigate the damage from negative emotions following failure. This result parallels the findings of the service-recovery paradox (SRP; e.g., De Matos et al. 2007), although SRP studies do not consider customer emotions and focus in comparing successful recoveries and the absence of a service failure.

Finally, Table 2 reports the results of the homogeneity analysis. Although only 11 of 40 chi-square tests are significant, all credibility intervals are sufficiently wide (> 0.11) or include zero (Sagie and Koslowsky 1993). This suggests the presence of moderator variables, which leads to the moderator analysis below.

4.2 Moderator analysis results

Table 3 presents the results of the random-effects meta-regression model estimated to evaluate the impact of possible moderators. Panel A displays the findings of the methodological and cultural moderators that have been widely used in previous meta-analyses (e.g., Geyskens et al. 1998) and that can apply to all relationships, and Panel B reports the findings of managerial moderators that account for different types of recovery actions. Managerial moderators apply only to the

relationships involving emotions following the firm's recovery actions (66% of our sample of effect sizes).

[Table 3 about here]

Results in Panel A show four significant coefficients. First, the coefficient associated with the type of emotion model (dimensional model) is significant and positive. This is an interesting and important result showing how emotions are conceptualized and, as a consequence, measured influences the strength of the relationships with their correlates. Interestingly, our sample is heterogeneous for the type of emotion model used: 57% of the retrieved studies used a dimensional model, and 43% used a discrete model to conceptualize emotions (see Table 1). This different conceptualization of emotions also translates into different approaches to measure emotions. Dimensional models use multi-item scales where each item represents a specific emotion type from a different emotion category. For example, a measure of negative emotions includes feelings of being upset, angry, sad, in a bad mood, and annoyed (Schoefer and Diamantopoulos 2008). By contrast, discrete models tend to measure emotions using multi-item scales where each item represents different *nuances* of the same category of emotions. For example, measures of anger include the extent to which a customer feels angry, mad, or furious (Gelbrich 2010), and measures of frustration, the extent to which customers feel frustrated, disturbed, or annoyed (Gelbrich 2010). The inspection of the retrieved studies shows that within the discrete model, anger is the emotion most frequently considered (62%), followed by frustration (8%), regret (7%), and helplessness (6%). By contrast, for positive emotions, most studies are anchored in a dimensional model (92.7%). Pleasure (70%) and gratitude (30%) are the only positive emotions considered as discrete constructs. The significant coefficient associated with the type of emotion model used leaves room for the question of whether emotional reactions are better captured through a dimensional or a discrete view of emotions. Although emotions measured using a dimensional model show on average stronger effect sizes, discrete emotions can have different action tendencies and behavioral consequences (e.g., Frijda and Zeelenberg 2001, Roseman et al. 1994). At present, it is unclear

which set of emotions is associated with specific service failures and recovery efforts (e.g., anger, sadness, and/or frustration due to flight cancellation) and whether each discrete emotion has a differential impact on relevant outcome variables.

Table 3 also shows that the research method and respondent type significantly moderate the relationships between emotions and their correlates. In line with other meta-analyses in the service-recovery area (e.g., Gelbrich and Roschk 2011), we find that using controlled hypothetical scenarios (i.e., experiments) increases on average the magnitude of the relationships. We also find that using a student sample increases, on average, the size of the correlations between emotions and the other constructs. Finally, among the culture moderators, only uncertainty avoidance significantly moderates the relationships with emotions' correlates, producing on average larger effect sizes. Individuals from high uncertainty avoidance cultures tend to show higher stress and anxiety levels and are, in general, more emotional (Hofstede 1997). Consequently, emotions shape more strongly customers' perceptions of failure and recovery situations.

Results in Panel B show that managerial actions can moderate the magnitude of the relationship between emotions following the recovery effort and perceived justices and customer outcomes (e.g., satisfaction, WOM). More specifically, the magnitude of the relationship between positive emotions and customer outcomes is smaller when the recovery action does not include monetary compensation and is greater when the firm clearly indicates the time needed to manage the recovery. Presumably, consumers weigh negatively the absence of distributive justice following a recovery and positively procedural justice, in the form of a clear execution time of the recovery.

Finally, the magnitude of the relationships involving negative emotions following service recovery is affected by monetary compensation. More specifically, effect sizes are on average less negative when the firm provides cash payment, such as a refund or discount. Possibly, consumers weigh compensation heavily after negative emotions because they weigh distributive justice more heavily after negative emotions.

Taken together, these findings indicate that providing cash compensation does not help generate stronger relationships for positive emotions and related constructs. However, such compensation reduces the average impact of negative emotions after recovery. Presumably, consumers feel that money covers their loss, at least partially. However, cash compensation does not make them forget their negative experiences and emotions: complainers are less angry but not happier. Recovery actions that imply a product or service replacement without providing a refund or monetary compensation significantly reduce the average impact of positive emotions after recovery and are not effective in reducing the impact of negative emotions. Complainers may consider a product or service replacement alone (e.g., replacement of a wrong order at a restaurant with the correct one), rather than compensation, to be due them. This could explain why the impact of positive emotions is lower and the impact of negative emotions is not reduced. Finally, giving complainers information about the time needed to manage the relationship significantly increases the impact of positive emotions. This may be due to an increase in cognitive control over the recovery process that can enhance the role of positive emotions.

5. Discussion

5.1 Theoretical and managerial implications

Service failure and recovery are likely to generate intense customers' emotional reactions. This meta-analysis offers the first comprehensive empirical synthesis of the role of emotions in service-failure/recovery studies.

First, we develop a conceptual framework that vividly demonstrates the importance of understanding emotions in *both* service failure *and* recovery situations. This study complements Van Vaerenbergh et al.'s (2014) meta-analysis, which focused on service-failure attributions and considered only negative emotions after failure. More specifically, our conceptual framework and our results show that service failure and recovery can be powerful triggers of different types of emotional reactions. This means that customers who experience a service-recovery process are

likely to get “emotional twice”. Our work is the first to explore this issue. Both academicians and managers should pay particular attention to this phenomenon. Getting emotional twice means that researchers should consider in their frameworks the combined effect of emotions triggered by failure *and* recovery on customer satisfaction. Our results show that the magnitude and variation of the relationship between emotions and their correlates differ between emotions triggered by the service failure and those triggered by recovery. The joint effect of different combinations of failure-recovery emotional reactions should be considered because it can enhance a negative relationship or trigger “service recovery paradox” effects, thanks to positive emotions after recovery.

Second, our analysis shows that authors tend to use both discrete and dimensional models to conceptualize emotions. The use of dimensional models assumes that the set of single discrete emotions equally affects relevant outcome variables; by contrast, discrete models assume a differential impact of each emotion (e.g., anger, sadness, frustration, joy, surprise). This means that current knowledge of the impact of emotions following failure and recovery situations is based on different underlying assumptions, and our results empirically show that these underlying assumptions produce a systematic difference in the average strengths of the effect sizes.

Third, our meta-analysis highlights what recovery-actions managers should consider when addressing customers’ negative emotions or when seeking to enhance the positive effects deriving from positive emotions. We show that negative emotions can be attenuated only through monetary compensation, such as discounts, cash-back, and refunds. Cash compensation can attenuate the negative consequences of emotions such as anger, frustration, and rage, but it lacks the power to enhance the positive effects of emotions such as happiness and joy after a recovery. By contrast, managers seeking to take advantage of positive emotions need to work on other dimensions related to the design of service recovery, such as waiting time. Specifying the time needed to manage a recovery can be an effective tool to take advantage of positive emotions. This result, coupled with the strong relationship between procedural justice and positive emotions, highlights the importance of devoting particular attention to planning and communicating the time required for recovery

procedures. Attributes such as procedure accessibility, timing, and clarity affect customers' emotional states.

5.2 Future research directions

This meta-analytic study of the role of emotions in the service-recovery domain suggests several avenues for further research. We identify five main challenges that can represent an incentive for scholars willing to pursue research in this domain. For each challenge, we outline key research questions. Table 4 summarizes the research agenda and the extent of research progress.

[Table 4 about here]

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Table 1 Moderator Variables

Moderators		Description	Operationalization and frequency	Motivation
Methodological	**Emotion model**	Describes whether emotions are conceptualized as discrete *or* dimensional	1= dimensional (57%) 0 = discrete (43%)	Dimensional models tap into a wider spectrum of positive and negative emotions than discrete models. Conversely, discrete models tap accurately into specific emotional reactions; therefore, we expect that the use of a discrete vs. a dimensional model can moderate the relationship.
	Number of items	Describes the number of items used to measure emotion constructs	Number of items (mean = 4.5, *SD* = 2.2)	Brown and Peterson (1993) showed that multi-item scales should yield, on average, larger effect sizes than single-item scales. Similarly, we propose that more items can lead to higher effect sizes.
	Research method	Describes whether studies use an experimental design *or* an observational study	1 = experimental design (53%) 0 = field survey (47%)	Experimental manipulations of variables permit more control over potential confounds than traditional surveys. Experiments should produce, on average, larger effect sizes than surveys (Farley et al. 1995).
	Type of respondent	Describes whether the sample is made of students *or* non-students	1 = students (11%) 0 = non-students (89%)	Student samples have different consumption experiences and different cognitive structures (Burnett and Dunne 1986). The distinction between student and non-student samples has been widely used in meta-analytic studies (e.g., Szymansky and Henard 2001).
	Cultural orientation	Describes the cultural orientation of the country in which the data are collected	Based on Hofstede's (2011) scores of the six dimensions of national culture	Extant literature suggests that cultural orientation shapes emotional reactions (e.g., Markus and Kitayama 1991, Matsumoto 2006, Triandis 1995).
Managerial	**Compensation with money**	Describes whether the firm's recovery action includes a tangible remuneration in cash such as a discount (e.g., 50%), cash-back, refunds, etc.	1 = Recovery strategy includes monetary compensation (10%) 0 = all other cases (90%)	Recovery actions come in various forms. We expect that the different actions undertaken by the firm to manage the recovery can moderate the magnitude of the relationships between emotions and their correlates.
	Compensation without money	Describes whether the firm's recovery action includes non-monetary compensations such as gifts, new products or services (e.g., new haircut), equivalent product, or service, etc.	1 = Recovery action does not include a cash remuneration (13%) 0 = all other cases (87%)	
	Waiting time communication	Describes whether the firm's recovery action specifies the time needed to manage the recovery (e.g., 20-minute wait)	1 = Recovery action specifies the time needed to solve the problem (8%) 0 = all other cases (92%)	

Table 2 Descriptive statistics and the influence of positive and negative emotions on related constructs

Proposed Relationship	Number of Raw Effects		Total N		Adj. Average *r*		Q Test (*df*)		95% Credibility Interval Lower Bound		UpperBound	
Negative Emotions	**F**	**R**	**F**	**R**	**F**	**R**	**F**	**R**	**F**	**R**	**F**	**R**
Negative Emotion—Failure Severity	*4*	9	*1034*	4931	*0.41*	0.19	*3.61*	18.18	*0.06*	-0.10	*0.77*	0.48
Negative Emotion—Attribution of Stability	*3*	2	*740*	122	*0.25*	0.32	*2.60*	9.31	*-0.06*	0.27	*0.56*	0.37
Negative Emotion—Attribution of Controllability	*4*	3	*1117*	2561	*0.34*	0.11	*4.37*	15.92	*-0.05*	0.01	*0.73*	0.22
Negative Emotion—Attribution of Locus	-	2	-	122	-	0.37	-	2.97	-	0.33	-	0.42
Negative Emotion—Attribution of Blame	-	7	-	1367	-	0.30	-	345.99	-	0.23	-	0.38
Negative Emotion—Distributive Justice	*9*	26	*3417*	11052	*-0.20*	-0.30	*7.76*	117.97[a]	*-0.50*	-0.75	*0.10*	0.15
Negative Emotion—Procedural Justice	*7*	21	*2006*	8896	*-0.11*	-0.34	*5.48*	25.33	*-0.26*	-0.71	*0.03*	0.03
Negative Emotion—Interactional Justice	*14*	24	*4678*	10418	*-0.22*	-0.29	*15.66*	28.51	*-0.65*	-0.68	*0.20*	0.10
Negative Emotion—Overall Justice	*4*	6	*1032*	1241	*-0.42*	-0.63	*1.34*	12.27[b]	*-0.62*	-0.87	*-0.23*	-0.38
Negative Emotion—Satisfaction with Recovery	*11*	19	*3230*	5313	*-0.26*	-0.47	*9.23*	26.95[c]	*-0.79*	-0.90	*0.27*	-0.04
Negative Emotion—Overall Satisfaction	*17*	10	*5332*	4421	*-0.44*	-0.45	*23.93[c]*	33.72[a]	*-1.03*	-0.91	*0.14*	0.01
Negative Emotion—Positive WOM	*39*	17	*12160*	5615	*-0.33*	-0.39	*45.09*	21.70[c]	*-0.83*	-0.72	*0.17*	-0.06
Negative Emotion—Return Intent	*26*	15	*7612*	4906	*-0.33*	-0.36	*26.54*	14.47	*-0.64*	-0.81	*-0.03*	0.09
Negative Emotion—Complaining	*38*	6	*14436*	2394	*0.27*	0.11	*37.65*	3.98	*-0.13*	- 0.10	*0.68*	0.32
Negative Emotion—Loyalty	*3*	5	*1197*	2000	*-0.15*	-0.38	*2.63*	4.18	*-0.66*	-0.82	*0.36*	0.07
Negative Emotion—Trust	-	5	-	1611	-	-0.44	-	8.24[c]	-	-0.87	-	0.00
Positive Emotions												
Positive Emotion—Failure Severity		3		3350		-0.11		4.64		-0.31		0.09
Positive Emotion—Distributive Justice		16		5091		0.46		20.16		-0.01		0.93
Positive Emotion—Procedural Justice		14		4130		0.54		19.11		0.16		0.92
Positive Emotion—Interactional Justice		15		4280		0.46		16.41		0.02		0.89
Positive Emotion—Overall Justice		4		1060		0.71		11.11[a]		0.00		0.98
Positive Emotion—Satisfaction with Recovery		15		4574		0.56		26.45[b]		0.12		1.00
Positive Emotion—Overall Satisfaction		2		2742		0.50		4.66[b]		0.31		0.69
Positive Emotion—Positive WOM		7		2564		0.41		11.34[c]		-0.03		0.86
Positive Emotion—Return Intent		10		3528		0.40		11.04		-0.19		0.99

Positive Emotion—Loyalty	4	1810	0.48	4.20	0.01	0.94
Positive Emotion—Trust	4	1477	0.49	5.95	0.01	0.97

[a] Significant at 1%, [b] Significant at 5%, [c] Significant at 10%
F=Failure, **R**=Recovery

Table 3 Analysis of moderators: Meta-regression parameter estimates

PANEL A

Moderator	Unstandardized Coef. (SE)	p
Dimensional model	0.081 (0.027)	0.003
Experimental design	0.073 (0.025)	0.003
Students	0.139 (0.037)	0.000
N of emotional items	0.006 (0.024)	0.815
Squared N of emotional items	-0.004 (0.002)	0.096
Power distance	-0.002 (0.001)	0.261
Individualism	0.000 (0.002)	0.922
Masculinity	0.002 (0.002)	0.374
Uncertainty avoidance	0.005 (0.001)	0.000
Long-term orientation	0.001 (0.001)	0.158
Indulgence	0.001 (0.002)	0.431
Constant	0.068 (0.242)	0.778
N = 450, *Adj.* R^2 = 31%		

PANEL B

Moderator	Unstandardized Coef. (SE)		p-value	
	Positive Emotions	Negative Emotions	Positive Emotions	Negative Emotions
Compensation with money	0.002 (0.106)	-0.196 (0.074)	0.988	0.008
Compensation without money	-0.289 (0.095)	0.065 (0.056)	0.002	0.251
Waiting time communication	0.593 (0.115)	0.076 (0.109)	0.000	0.488
Constant	0.719 (0.102)	0.593 (0.105)	0.000	0.000
Positive emotions model: N = 88, Adj R^2 = 24%				
Negative emotions model: N = 139, Adj R^2 = 6%				

Note: Dummy variables to control for the type of relationship were included.
Panel A: 16 dummy variables expressing the type of relationship: WOM, return intent, loyalty, satisfaction with complaint handling, overall satisfaction, distributive justice, procedural justice, interactional justice, overall justice, trust, attribution, severity, complaint, failure, double deviations, and negative emotions.
Panel B: 10 dummy variables expressing the type of relationship: WOM, return intent, loyalty, trust, satisfaction with complaint handling, overall satisfaction, distributive justice, procedural justice, interactional justice, and double deviations (for negative emotions only).

Table 4 Research agenda of emotions in the service-recovery domain

Research Topic	**Research questions**	**Comments**	**Amount of Research progress**
Discrete emotions	• What is the impact of specific discrete emotions on customer outcomes? Can we identify differences in the impact of discrete emotion of the same valence? • What is the most accurate way of measuring discrete emotions following failure and recovery, open-ended responses, scales or a combination of both methods? • Should emotions be measured in real-time, i.e. during and after service failure and recovery?	Some studies offer indications about the role of anger, sadness, gratitude, and pleasure, but no study considers basic discrete emotions such as worry, disgust, shame or excitement, surprise, and pride. These emotions can have a differential impact on relevant outcomes such as customer satisfaction, WOM, loyalty, etc. Additionally, specific discrete emotions can motivate particular types of behaviors (Robinson et al. 2006).	Medium
Carryover effects of negative emotions following a failure	• What is the combined effect of both emotions following failure and emotions following recovery actions? • Is there a carryover effect of negative emotions after failure on emotions after the recovery? • Are emotions experienced during the service recovery different from those experienced after this process?	The conceptual framework proposed in this work has never been tested jointly. Research has overlooked the combined effect of emotions triggered by service failure and service recovery, and if these emotions differ during and after the recovery process.	Low
Customers' subsequent responses to the company's actions following service failures and recoveries	• Which emotions are more likely to trigger "bright" vs. "dark" type of consumer reactions? • After experiencing which combination of emotions customers are more likely to forgive the company after failure and/or recovery? • Do process and outcome failure trigger different emotional reactions?	Many emotions differ in their action tendencies and motivational goals, and more research is needed on the link between emotional reactions and behavior towards the company following double deviations. Similarly, very few studies have explored positive reactions (reparatory behaviors, when a consumer is willing to cooperate to resolve the problem) following double deviation.	High
Monetary compensations and emotions	• What are the type and the level of optimal monetary compensation to manage the emotional reactions of complainers effectively? • Is there a non-linear relationship between emotions and related constructs depending on the level of monetary compensation? (e.g., 20%, 30%, 50% discounts). • Does overcompensation boost the strength of the relationship between positive emotions and relational and behavioral outcomes? (e.g., trust, satisfaction, behavioral loyalty, WOM).	Results indicate that compensation involving monetary compensation (e.g., a 50% discount on future purchases) reduces the impact of negative emotions. This result deserves future investigation to understand if non-linear effects depending on the specific level of discount exist. Research in the complaint-handling domain has investigated the incremental effect of overcompensation on post-complaint satisfaction (see Gelbrich and Roschk 2011), but without considering emotions in their empirical studies.	High

Research Topic	Research questions	Comments	Amount of Research progress
Segmentation and emotional reactions	• Are there customer segments that react to the same service failure by displaying different emotions? • Are there customer segments that react to the same recovery action by displaying different emotions?	No formal research investigates whether the role of segmentation in this domain and whether different types of failure trigger different types of emotional reactions: for example, whether a flight cancellation is more likely associated with anger or sadness, and whether we can observe differences across segments.	Low
Managerial actions to deal with negative emotions following a failure	• What is the best recovery action for a customer who displays a specific type of emotion after failure? • Are recovery actions equally effective for different types of discrete emotions?	No research investigates whether the display of specific negative emotions after a failure would require a different recovery action. For example, should a customer display anger and a customer displaying anxiety be handled with the same recovery action, e.g., a remuneration in cash for future purchases?	Low

[a] Amount of research progress made regarding each topic. The range is from low to potentially high.

Fig. 1: Conceptual Framework