

# **Determinants of canal boat tour participant behaviours: An explanatory mixed-method approach**

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## **Abstract**

Drawing on cumulative prospect theory (CPT), we measured the risk and motivational factors involved in ‘canal boat tours’ and used these to test conceptual models to predict canal boat tour participant’s behavioural intentions in France. Data were collected using face-to-face questionnaire surveys and subjected to rigorous analysis. In-depth interviews provided deeper insight into participants’ post-purchase behaviour. Assessment of the study results using two key features of CPT—diminishing sensitivity and risk aversion—confirmed that this theory can explain how risk and motivational factors interact to drive canal boat tour participants’ post-purchase behaviours.

**Keywords:** canal boat tours; motivations; psychological risk; service failure risk; safety risk

## **Introduction**

Water-based activities are one of the key types of tourism, and canal boat tourism is a popular leisure pursuit worldwide. It can be considered as an eco-friendly recreational activity in various countries where canals or rivers flow through cities (Thureau, Seekamp, Carver, & Lee, 2015). Canal- and river-based activities provide spectacular settings, recreational facilities, the experience of heritage and links with the natural environment, which can improve individuals well-being (Pretty et al., 2007). The recent interest in canals as a form of dynamic and interactive heritage has led to the growth of a commercial canal sector that includes the use of boating activities along canals, onshore recreation, accommodation, festivals, gastronomy and markets (Prideaux, 2017). The benefits of using canals as ‘eco-friendly’ activity may contribute to long-

standing modifications in consumer's attitudes towards environmental issues and nature and wider provision for pro-sustainability strategies (Pretty et al., 2007).

Travellers' behaviours in the cruise industry are well studied (Han et al., 2016, Ozturk and Gogtas, 2016, Sanz-Blas et al., 2017, Chang et al., 2017, Han et al., 2018; Han et al., 2019). Although the role of 'water-based leisure activities' is crucial in human life and 'canal boat travel' is a sustainable, global and epochal recreation activity, psychosocial analysis, which studies the marketing aspect of 'canal boat tours', has received minimum attention by scholars (Gon et al., 2016; Olya & Mehran, 2020; Lukovic, 2013). Recent study by Mehran and Olya (2020) uses complexity theory to support a cognitive-affective model predicting satisfaction, emotion and recommendation intention of canal boat tour participants. Nonetheless, to the best of authors' knowledge, the present study is the first study that investigate effects of risks and motivations on canal boat tour' participants' behavioural intentions (re-attend intention and recommendation intention).

Researchers have identified an association between perceived risk, motivation and the post-purchase behaviour of consumers (e.g. Al-Ansi et al., 2019; Fuchs & Reichel, 2011, 2016; Han & Hyun, 2018; Saxena & Gupta, 2018). In the tourism literature, motivation has received ample attention, as it helps to explain why people revisit certain destinations or leisure. However, while travel motivations have emerged as an influential factor affecting tourists' post-purchase behaviours, their impact is not homogenous, given the diversity of tourism activities and destinations (Doong, Wang, & Law 2012; Hong, Lee, Lee, & Jang, 2009; Lee, Fakfare, & Han, 2020; Moon & Han, 2019). Therefore, the complex association between perceived risks and motivations has prompted further investigation to explain the favourable post-purchase behaviour of consumers in tourism studies (Olya & Al-ansi, 2018). Despite the importance of the economic, social, environmental and psychological impacts of 'canal boat tours' on the

development of sustainable tourism, scant attention has been devoted to this contemporary global tourism phenomenon (Prideaux, 2017).

The literature has called for further research on the associations between motivational and risk factors on the one hand and behavioural outcomes on the other for several reasons. First, not all motivations have a positive or even a significant effect on favourable outcomes (Doong et al., 2012; Ryu et al., 2010). Second, not all risk factors negatively or significantly affect positive behavioural intentions (Kim & Chalip, 2004; Leuker et al., 2018; Fuchs & Reichel, 2011). Furthermore, there is a paucity of empirical research *combining* risks and motivations to predict the post-purchase behaviour of tourists (So, Oh, & Min, 2018). Finally, there is a need to apply a psychological theory (e.g. CPT) to explain the complex interaction between risk and motivation in formulating tourists' post-purchase behaviours, given the important role played by the psychological factors of perceived risk and motivation in individual decision-making (Schürmann, Frey, & Pleskac, 2019; Touré-Tillery & Fishbach, 2014; Wang et al., 2018).

This empirical study aims at applying CPT to explain the interaction of risk and motivational factors to predict the post-purchase behaviour of participants of this green activity. This empirical study used a mixed-methods approach to address the following research questions: Do the key principles of CPT support the interaction of risks and motivations in formulating the 'post-purchase behaviours' of 'tour participants'? What types of risk and/or motivations (i.e. sufficient factor) influence the 'post-purchase behaviours' of 'canal boat tour participants'? In response to this research question, we performed simple regression analysis. What recipes from combinations of risk and motivational factors stimulate favourable and unfavourable behavioural intentions of 'canal boat tour participants'? This study applies fsQCA to respond this research questions. What types of risks and/or motivations are necessary to achieve a high degree of intention to recommend and intention to continue to

participate in ‘canal boat tours’? NCA is conducted to resolve this research question. How ‘canal tour participants’ experience stimulates their post-purchase behaviours? This question is addressed by conducting an in-depth interview.

Theoretically, this study extends the current knowledge of tourist behaviour by using CPT to model the participant’ intentions to recommend and re-attend canal boat tour. This empirical study applied a mixed-methods (quantitative and qualitative) and multi-technique analytical approach (using regression, fsQCA and NCA) to investigate the main research questions. Practically, it contributes to the industry’s knowledge by illuminating the basic factors that either encourage or discourage tourists’ recommendation of, and repeat participation in, ‘canal boat tours’. The outcomes of this study provide a guideline assisting tour organisers, destination planners, local authorities and marketing agencies to manage different types of risk and motivation in order to generate favourable behavioural intentions in tourists while minimising participants’ unfavourable behavioural intentions.

## **Theoretical background**

### ***‘Canal boat tourism’***

In the literature, canal boating is recognised as a sub-category of leisure boat tourism. Canal boat tourism is defined as single-day boating or short trips along canals on small watercraft (Gon et al., 2016; Mehran & Olya, 2020). It considers as a niche form of ocean and sea cruise tourism (Bull, 1996). According to this conceptualisation, ‘canal boat tours’ tend to operate over short distances with small vessels and in smaller domestic markets. This categorisation is also reflected in recent publications on the topic, which have considered canals alongside the more developed arena of river tourism (Erfurt-Cooper, 2009).

Leisure boating might be a predominant form of leisure tourism in numerous destinations; nonetheless, it remains an under-explored research area (Lukovic, 2013; Gon et

al., 2016). For example, ‘canal boat tours’ is one of the principal attractions in Amsterdam (the Netherlands), Venice (Italy), Hamburg (Germany), Leeds and Birmingham (the UK), Disneyland Anaheim (California), Suzhou (China), Ottawa (Canada), Ghent (Belgium), Seville (Spain), Paris (France), Prague (Czech Republic), Dotonbori Osaka (Japan) and Damnoen Saduak (Thailand).

Canals are recognised as creating inland waterway holiday markets (Stocker, Harvey & Metcalf, 2016). Other studies have stressed the importance of tourists’ everyday practices on canal holidays (Kaaristo & Rhoden, 2017), canal landscape encounters (Coles, Millman, & Flannigan, 2013) and relaxing experiences of slow tourism in canal boats (Fallon, 2012). This study extends the current knowledge of canal boat tour participants’ post-purchase behaviour, which plays a critical role in sustainable destination management.

### ***Associations between motivation, risk and behavioural intentions***

Social motivation refers to the ways in which individuals’ motivations relate to one another (Wentzel, 1996). Defined as the need for affiliation, social motivation encompasses motives stemming from insecurity, rejection and social isolation. The social interaction aspect of canal tours includes sharing a boat and onshore experiences with fellow tourists, most of whom value slow, deep and meaningful engagement (Dickinson, 2009). Social and cultural engagement aspects also offer social value, as many canal tours offer a range of opportunities for engagement with local communities and culture via shore experiences, such as performance arts, local cuisine and so on (Erfurt-Cooper, 2009; Kim, Kim, & Wachter, 2013). For instance, in Strasbourg, tourists are encouraged to engage in onshore activities such as cycling around town to experience the local neighbourhoods.

The hedonic aspects of consumption refer to considerations of affect or pleasure (Voss et al., 2003). Hedonic value such as relaxation, having fun and spending quality time with little

involvement of technology is central to canal boating and provides an antidote to the pressures of modern life (Efurt-Cooper, 2009; Fallon, 2012; Kim et al., 2013). Canal tourism is recognised as a heritage experience as well as a nature-based recreational activity, suggesting that, beyond satisfying the hedonic need for rest, such tours can satisfy utilitarian needs related to learning about the rich heritage of canals. Furthermore, ‘canal boat tours’ offer a range of opportunities for unique sightings of historical landmarks, including canal-specific heritage sites such as locks, bridges, industrial buildings, aqueducts, shipyards and so on (Arnold & Reynolds, 2012; Prideaux, 2017).

Previous research has demonstrated that consumers’ social, hedonic and utilitarian motivations are likely to be associated with their repeat purchase intention (Ryu et al., 2010). For example, Alexandris and Kaplanidou (2014) stated that social motivation significantly influences tourists’ expenditure behaviour at events. However, other evidence suggests that the impact of motivation on ‘post-purchase behaviour’ is not homogenous. For instance, in a study of in-flight duty-free shopping, Doong et al. (2012) found that, whereas utilitarian motivation directly influenced purchase intentions, hedonic motivation had no significant or direct influence. In a different study, Ryu et al. (2010) investigated the relationship between utilitarian and hedonic values on the one hand and behavioural intentions on the other. While they found both types of value to influence behavioural intention, utilitarian value had the stronger effect.

With increasing global mobility, considerable attention has been paid to the discussion of risk issues, safety and security, which play vital roles in tourists’ decision-making and travel experiences (Yang & Nair, 2014). Perceived risk is highly subjective, as tourists are heterogeneous in terms of their risk perception (Reichel, Fuchs, & Uriely, 2009). In the tourism literature, much of the attention devoted to the concept of risk has demonstrated its negative impact on the behavioural intentions of risk-averse tourists, yet elevated perceptions of risk, in the case of risk-seeking tourists, can also result in a willingness to travel (Yang & Nair, 2014).

The safety risks associated with many tourist activities have attracted scholarly attention to marine tourism, cruise tourism, vacation sites, the modelling of behavioural decision-making, the determination of future travel behaviour and the re-visiting of intentions (De Nardi & Wilks, 2007; Han et al., 2018). Psychological risk reflects the anxiety or psychological discomfort anticipated from post-purchase affective reactions, such as worry and regret (Simpson & Siguaw; 2008; Stone & Grønhaug, 1993). Service failure risk, also known as functional risk, is related to the concern that a product or service will not function as desired or expected (Boksberger, Bieger, & Laesser, 2007; Horton, 1976).

On the one hand, there is general disagreement on the role of risk in tourism. Explaining the determinants of risk perception and predicting its effects on travel intention merit further empirical and theoretical examination (Yüksel & Yüksel, 2007). On the other hand, tourists' risk perceptions in water-related events are emphasised in the literature (Yang & Nair, 2014). Table 1 presents a number of relevant studies on the effects of perceived risk and motivation on tourist behaviour.

**Insert Table 1 here**

Although previous studies are important to our understanding of the relationships between perceived risk and motivation and travel behaviour, they also underscore the research gap in the context of water-based activities. We believe that CPT can explain the heterogenous interactions of risks and motivations in shaping the behavioural intentions of canal boat tour participants as they evaluate the risks involved as losses and the motivating factors as gains in their 'post-purchase behaviours'.

***Cumulative prospect theory (CPT)***

The impact of risk perception on individual behaviour is examined by utility theory (Fishburn, 1970) and its derivative theories, prospect theory (Kahneman & Tversky, 1972) and cumulative

prospect theory (Kahneman & Tversky, 1992). Utility theory is used in tourism research to explain the behaviour of consumers based on the premise that people can consistently rank their choices based on their preferences. Zhang and Tang (2018) applied utility theory to characterise travellers' risk-averse behaviours. Kahneman and Tversky (1979) developed prospect theory to address the drawbacks of utility theory in covering both risk and uncertainty) in explaining human behaviour.

Prospect theory is a psychological theory that frequently used to model consumer behaviour in the context of choices involving risk (Wolff & Larsen, 2017). Kahneman and Tversky (1992) later developed an extension of prospect theory known as cumulative prospect theory—a highly influential psychological theory which applies to uncertain as well as risky prospects with any number of outcomes and allows different weighting functions for gains and losses.

Cumulative prospect theory has consistently outperformed expected utility theory (EUT) in terms of its predictive accuracy, making it a more suitable candidate for describing how tour participants make decisions under conditions of risk and uncertainty (Carvalho, Dimitrov, & Larson, 2018). Van de Kaa (2010) concluded that the joint application of the assumptions of CPT might provide a better understanding of human choice behaviour across the entire spectrum of travel-related contexts. According to this meta-analysis, in choices made under conditions of risk or uncertainty, the non-linear weighting of probabilities in connection with loss aversion appeared to offer a better description of behaviour than EUT.

This study uses CPT as its core theory for explaining the proposed conceptual model, which involves using risks and motivations to predict the behavioural intentions of canal boat tour participants. The results of the fsQCA are assessed according to the major features of CPT, namely (1) diminishing sensitivity and (2) loss aversion. First, in respect of diminishing sensitivity in CBT, the value function is mildly concave for gains and mildly convex for losses,



which means that the marginal value of both gains and losses decreases with their magnitude (Van de Kaa, 2010).

Second, the principle of ‘loss aversion’ suggests that losses matter more than gains of the same magnitude: there exists ‘a distinctive fourfold pattern of risk attitudes: risk aversion for gains and risk seeking for losses of high probability; risk seeking for gains and risk aversion for losses of low probability’ (Kahneman & Tversky, 1992, p. 1). For example, a loss of £80 is felt more than a gain of £80. Because, in evaluating choices, people tend to be far more sensitive to losses than gains, individuals are more likely to choose a prospect, such as a destination or a joyful activity, that minimises loss. This is also related to the tendency of people to be risk averse in respect of gains. For instance, individuals typically prefer a sure gain of £500 to a 50 per cent chance of either £1,000 or £0, respectively.

In the context of this study, CPT applies to uncertain as well as to risky prospects with two distinct outcomes (the intention to revisit and recommend the Strasbourg canal boat tour), and it allows for different combinations of motivational factors with risk factors, reflecting the complexity of the interplay between tourists’ gains and losses. In addition, this study used CPT to predict solutions (the outcomes of interactions) among risk and motivational factors to address (1) risk aversion in relation to gains and risk seeking in relation to losses of high probability; and (2) risk seeking in relation to gains and risk aversion in relation to losses of low probability. Participants typically find losses more unpleasant than they find gains worthy of a gamble, so the value function that passes through a reference point is asymmetric; it is steeper for losses than for gains.

### ***Research model***

The research model of this study includes three perceived risk antecedents: service failure risk, psychological risk and safety risk; three motivational antecedents: social motivation, utilitarian

motivation and hedonic motivation; and two outcomes in relation to intentions: re-attendance and recommendations. Figure 1 illustrates the proposed conceptual model. The effect of the motivational configuration on the predicted intention to revisit and the intention to recommend is indicated by arrows A and B, respectively. The causal link between the perceived risk antecedents on the one hand and the intentions to re-attend and recommend on the other is indicated by arrows C and D, respectively. The effect of the combined risk and motivational factors on intentions to re-attend and recommend is indicated by arrows E and F, respectively. This study thus highlights the risk and motivational indicators that are necessary for attaining the favourable outcome.

**Insert Figure 1 here**

## **Material and methods**

### ***Research design***

This empirical study used a mixed-methods approach through a systematic eight-step process. In the initial stage, the questionnaire was prepared and then piloted with 20 respondents to confirm the clarity of the scale items and identify potential issues emerging during the data collection procedure. According to the report of the pilot study, slight modifications were made to the wording of two items to enhance the readability of the questionnaire. In addition, respondents were provided with instructions regarding the design of the questionnaire to prevent any ambiguity or difficulty in understanding. Second, canal tour participants after completing a tour activity were asked to fill the questionnaire. Third, the collected data were screened and digitised. In the fourth stage, a set of preliminary analyses was performed to test the reliability and validity of the study measures.

Fifth, a symmetrical statistical test (i.e. regression analysis) was performed to investigate the effects of the risk and motivational factors on the model outcomes (i.e. the intention to

recommend and to re-attend ‘canal boat tours’). Sixth, configurational modelling using fsQCA was conducted to explore the configurations of risk and motivational antecedents that were sufficient to predict the favourable outcomes. Seventh, with the application of NCA, this study investigates the necessary antecedents of the study outcomes. In the final stage, the results were assessed with reference to two major components of CPT. Finally, in the follow-up qualitative model, this study used an explanatory design to interpret the quantitative results (Harrison, 2013). In-depth individual interviews were organised and conducted in order to obtain deeper insight into the solutions obtained from the combination of risk and motivational factors in predicting both favourable and unfavourable outcomes (Please see the Appendix A). Findings from in-depth interviews with selected canal boat tour respondents then supplemented the results from fsQCA.

### ***Measurement analysis***

The planned survey measured three risk antecedents and three motivational factors associated with canal boat participant’s behavioural intentions. The applied measures were taken from existent scales used in past research (Arnold & Reynolds, 2012; Boksberger et al., 2007; Glover & Benbasat, 2010; Hwang & Lee, 2019; Hwang & Park, 2018; Kim et al., 2013; Prayag et al., 2017; Reisinger & Mavondo, 2006; Simpson & Siguaw, 2008; Xu et al., 2018), which were modified based on the situation of our research. Recommendation intention was measured by the means of three items from Prayag et al. (2017) and re-attend intention was measured by the means of two items adapted from Huang and Hsu (2009).

Three items were extracted from Simpson and Siguaw (2008) and Stone and Grønhaug (1993) to measure psychological risk and Reisinger and Mavondo (2006) provided three items for measuring safety risk. Service failure risk was measured using five items based on Boksberger et al. (2007) and Glover and Benbasat (2010). Boksberger et al. (2007, p. 92)

defined ‘functional risk [as] the perceived likelihood of a service failure and/or inferior service quality’. Hence, service failure risk was used in this study as an alternative to functional risk, which suited the setting of this study. Hedonic motivation was evaluated by means of three items and social motivation was evaluated by the means of two items, both from Kim et al. (2013). Two items for measuring utilitarian motivation were adopted from Arnold and Reynolds (2012) and Kim et al. (2013). All adapted items were measured by the application of a seven-point Likert scale.

### ***Data and procedures***

A field survey using a non-probability convenience sampling approach was chosen to approach canal boat participants in Strasbourg, France. Questionnaires were distributed to ‘canal boat tour participants’ immediately after their tour experience and taken from respondent upon completion. Study participants were encouraged to read the short description of the research aim provided in the first page of questionnaire. Data collection spanned six weeks beginning on 3 January 2017 and ending on 14 February 2017. Three hundred participants were invited to participate in the survey, and 240 questionnaires were retrieved from respondents. A total of 202 valid survey questionnaires were obtained from the pool of 240 retrieved cases and were then prepared to supplementary analysis using ‘SPSS 22.0’, ‘AMOS 22.0’ and ‘fsQCA 2.5’ software (Olya & Gavilyan, 2017).

Of the 202 participants, 93 (49%) were female. The remaining 109 respondents (51%) were male. The average mean age of respondents was 37. According to the results of the descriptive statistics, 4.9 percent (10 respondents) had not completed high school, 3.9 percent (8 respondents) had a high school diploma, 26.3 percent (53 respondents) had a partial college degree, 46 percent (93 respondents) had a college degree and 18.9 percent (38 respondents) held a postgraduate degree. The annual income of 31.2 percent (63 respondents) was under \$25,000,

while 54.5 percent (110 respondents) had an income of between \$25,001 and \$40,000, 11.9 percent (24 respondents) had an income of between \$40,001 and \$60,000, 1.9 percent (four respondents) had an income of between \$60,001 and 80,000 and 0.5 percent (one respondent) had an income exceeding \$80,000. With regard to marital status, 54.4 percent (110 respondents) were single and 41.8 percent (92 respondents) were coupled. The participants were asked to confirm whether they had previously participated in a ‘canal boat tour’. Eighty-seven percent of participants (175 participants) confirmed that this tour had been their first time, while the remaining 13 percent (27 participants) had previously attended similar tours.

To triangulate the survey findings, we conducted an in-depth interview study involving a cross-case investigation of tour participants with experience of ‘canal boat tours’ in five different destinations (Harrison, 2013). In other words, each solution was explored qualitatively to confirm the validity of the surveys. A total of 20 participants who had extensive prior experience of ‘canal boat tours’ were invited to explain the conditions under which they would recommend and re-attend based on their motivations and their perceptions of the risks involved in ‘canal boat tours’. Of the 20 interviewees, 60 percent (12 participants) were female and 40 percent (8 respondents) were male. Interviewees had a mean age of 34 and an average annual income of approximately \$37,500. Six were college graduates and a further 14 held postgraduate degrees. The interviewees shared their experiences of ‘canal boat tours’ in France, Belgium, the Netherlands, the United Kingdom and the United States.

### *Analytical approaches*

Prior to testing the measurement model, the normality of the data was checked using skewness and kurtosis for all scale items. As a statistical remedy, Harman’s single-factor test was applied to assess the potential common method variance (Podsakoff et al., 2003). Thereafter, by the application of Cronbach’s alpha and composite reliability the reliability of the constructs was

assessed. By the means of exploratory factor analysis (EFA), the scale configuration of the items was explored and the results were then confirmed confirmatory factor analysis (CFA). To check construct validity, average variance extracted (AVE), maximum shared squared variance (MSV) and average shared square variance (ASV) for each construct were calculated (Hurley et al., 1997). A set of fitness indices—the  $\chi^2$  statistic and its fraction over the degree of freedom, comparative fit index (CFI), incremental fit index (IFI), parsimony goodness-of-fit index (PGFI) and root mean square error of approximation (RMSEA)—was computed to assess the fitness of the CFA model against the empirical data (Browne & Cudeck, 1993; Joreskog & Sorbom, 1984).

The five significant objectives of this research paper were evaluated as follows. First, the net effect of risk and motivational factors on the recommendation intention and re-attend intention of ‘canal boat participants’ was investigated by performing simple regression analysis. According to Olya and Han (2019), simple regression analysis is a powerful approach to investigate sufficient and net effect of predictors on the study outcome. Second, using fsQCA, this study explored causal models constructed from a range of risk and motivational configurations to predict intentions to recommendation and re-attend the tour (Olya & Gavilyan, 2017; Ragin, 2008). Third, NCA was used to investigate essential risks and motivations for predicting two favourable behavioural outcomes (Dul, 2016). Fourth, the results from the testing of the models were evaluated based on CPT. Fifth, a deeper understanding of the interactions between risks and motivations leading to the favourable behavioural intentions of participants of the tour was obtained using qualitative methods.

## **Results and discussion**

### ***Data normality and psychometric properties of the measures***

In this study, the two numerical parameters of skewness and kurtosis were used to test the normality of the data. No violation of normality was indicated. According to the Table 1, the

results of Cronbach's alpha and composite reliability are superior to the cut-off level (.7). These results indicate that the study measures are reliable. According to the EFA results, lambda values range from .696 to .933 (Bagozzi & Yi, 1988). According to the results of Harman's single-factor analysis, no general factor was emerged which means the measures were not seriously affected by the common method variance (Podsakoff et al., 2003).

The results of the CFA confirm that no need to remove any item to have valid measures (fit indices:  $\chi^2 = 426.726$ ,  $df = 202$ ,  $\chi^2/df = 2.113$ , CFI = .940, IFI = .941, PGFI = .618, RMSEA = .074 [Table 2]). The results of convergent and discriminate validity confirm the construct validity of the items. The average variance extracted values for the all constructs were above the recommended threshold of .5 (Hair et al., 1998). This finding demonstrates convergent validity. The average variance extracted for all factors was larger than the corresponding maximum shared squared variance and the average shared square variance, demonstrating discriminant validity of the constructs (Fornell & Larcker, 1981).

**Insert Table 2 here**

### ***Results of regression analysis***

According to the regression analysis results, the net effect of antecedents to predict the two favourable outcomes are shown in Table 3. Social motivation increases canal boat travellers' intention to recommend ( $\beta = .266$ ,  $p < .001$ ), whereas it has no impact on their intention to re-attend such tours. Utilitarian motivation boosts intention to re-attend ( $\beta = .472$ ,  $p < .001$ ) and to recommend ( $\beta = .511$ ,  $p < .001$ ). Similarly, hedonic motivation enhances intention to re-attend ( $\beta = .516$ ,  $p < .001$ ) and to recommend ( $\beta = .519$ ,  $p < .001$ ). Among the risk factors, safety risk decreases canal boat travellers' intention to re-attend ( $\beta = -.516$ ,  $p < .05$ ).

The relationship between risks and the behavioural intentions of consumers has been found to be heterogeneous in the literature (Olya & Al-ansi, 2018). As shown in Table 3, not all types of risk and motivation (e.g. psychological risk, service failure risk) play a significant role

in the intentions of canal boat tour participants to re-attend or recommend tours, despite the literature supporting their impacts on tourist behavioural intention (e.g. Boksberger et al., 2007; Park & Tussyadiah, 2017). According to the results of the present study the positive impacts of social, utilitarian and hedonic motivations on tour participants' intention to recommend is in accordance with Kim et al. (2013), who found these three motivations to contribute to the continued engagement intention of mobile users.

The results of the regression analysis show the net effects of the risk and motivational antecedents on the two examined behavioural intentions of the tour participants. However, exclusively count on the results of symmetric modelling of may contribute to misrepresented implications about tourists' attitudes and behaviours (Mehran and Olya, 2019; Woodside, 2017). In other words, regression results of the present study were insufficient to explain how combinations of the risk and motivational antecedents form the two favourable outcomes. Because regression analysis does not reveal causal effects of combinations of risks and motivations and necessary antecedents of behavioural intentions of the tour participants. As Olya and Mehran (2017) indicated, in symmetrical analyses, normality of data, linear associations of links (if it is assumption of analysis), multicollinearity and disregarding contrarian cases are the issues that may overlooked which may cause presenting misleading results and implications. Furthermore, configurational modelling, beyond symmetrical analysis, can help explaining tourist's behaviours in complex conditions in multifaceted industry of tourism (Olya, 2018).

### ***Configurational testing results***

The fsQCA calculated algorithms to predict favourable and unfavourable behavioural outcomes. Contrary to the symmetrical methods, causal recipes to have high behavioural intentions in this service are not similar to the mirror opposites of causal solutions to have low behavioural intentions. The results of the fsQCA emerging from combinations of risk and motivational



conditions are provided in Tables 4–6. Table 4 shows solutions, combined from the risk and motivation elements, to stimulate intentions to recommend and re-attend in the tour. According to the results, participants with high levels of utilitarian and hedonic motivations were most likely to recommend the tour (coverage: .794, consistency: .966). The interview findings support this result:

Boarded boat with fun atmosphere and lovely thing to do! ... Great way to see the city and points of interest ... It is exciting to have a sight of the old quarters from water level and in the circumstances this trip has to be undertaken ... This gives an overview of the city and a very nice way to explore most of the tourist spots. Because of these, I would definitely recommend tourists to take the canal ride.

Algorithm for achieving intention to re-attend the tour is similar to solutions for the recommendation intention (coverage: .781, consistency: .938).

The canal boat tour was a lovely and relaxing way to see the city. You can take pictures and enjoy listening to the sailor speaking about the history of the city. We enjoyed our boat tour through the canals ... because it gives you the opportunity to see areas that may be only seen best from the water and can be a relaxing counterpoint to the miles of walking... Definitely I will take this tour whenever I have the chance.

Concerning risk configuration, a low level of safety risk was found to lead to high degrees of intention to re-attend (coverage: .927, consistency: .798) and recommend the tour (coverage: .919, consistency: .803).

The boat sounds comfortable, safe, and we can get all information about the city. Generally, I feel safe even in rainy and cold days, So worth it! A must! [I] usually take canal tours when I travel and would surely encourage my friends to try this.

**Insert Table 4 here**

Tables 5 and 6 present the fsQCA results from the combinations of motivation and risk configurations to predict both favourable and unfavourable behavioural outcomes. The results of Table 5 show that a high intention to re-attend was explained by four causal solutions (coverage: .737, consistency: .952) (see E in Table 5). All four models that predict the conditions required to generate an intention to recommend are similar to the causal models for intention to re-attend (cf. E & F in Table 5). Model 1 shows that a low level of social motivation, a high level of utilitarian motivation, a high level of hedonic motivation, a low level of service failure risk and a low level of safety risk together lead canal boat tour participants to intend to re-attend and recommend such tours. If tour operators design their packages to reflect these conditions, participants are more likely to continue to participate in and attend canal tour activities and are more likely to recommend such activities:

Nice to sit back and enjoy the lovely view along the canal where I can take some great photos! Well worth the experience ... The boats have headsets to give the tour in a bunch of languages ... good English accent ... [information] about the history and architecture of the city and how the canals were a key to the development and trade of the city ... The boats are completely enclosed which is great in inclement weather, or when the sun

is beating down ... after walking the entire city, we were glad to see it from another angle. We would do it again and highly recommend. (M2, E and M2, F, Table 5)

Model 2 indicates that a combination of high social, utilitarian and hedonic motivations with low levels of psychological and safety risk results in participants' intending to re-attend and recommend 'canal boat tours'. One interview provided a supportive narrative for this causal recipe:

We were lucky to do the canal boating on a beautiful sunny day, so we were not nervous about rain. Service operator makes sure any children get good safe seats on board. People on board were very friendly and our tour guide had some interesting stories to tell. We liked his [quiet sense of humour]. Very relaxing and enjoyable way to see the city from a different perspective. We thoroughly enjoyed our canal trip and would highly recommend it.

Model 3 indicates that high levels of social, utilitarian and hedonic motivational factors with high levels of psychological, safety and service failure risk also lead participants to recommend and continue to participate in 'canal boat tours'. One interviewee's comments conformed to this causal model:

You remind me [of] an exciting and a sad memory together [laughter] ... it was a sunny day in summer ... we had only three hours in Strasbourg ... one of our friends suggested [a] canal boat tour to relax together, see the area around and have fun ... It was a busy

day and we had to wait in the line for half an hour ... when we were about to drop off the boat, I found the boat slippery [laughter]. As my friend made one of her prank[s] ... suddenly my phone dropped in [the] water and it was so terrifying if I wanted to take it ... I had no way out but to forget my phone..... anyway, it was fun and a memorable experience hanging with my friends; I would suggest ride the canal boat as a must take tour. (Table 5, Model 3)

Model 4 explains the behaviour of those participants who were willing to recommend and re-attend canal boat tour activities while having high social motivation but low utilitarian and hedonic motivation in addition to perceiving high levels of service failure, psychological and safety risk. These participants might be recognised as risk-seeking tourists who would accept these challenges for the sake of social desirability and the satisfaction of friendships norms, which compel them to recommend and continue to participate in such leisure activities.

### **Insert Table 5 here**

As shown in Table 6, a low intention to re-attend results from two causal recipes (coverage: .482, consistency: .828) (see E, Table 6). Model 1 shows that low levels of social, utilitarian and hedonic motivation combined with high levels of psychological and service failure risk and low safety risk lead canal boat participants to avoid revisiting the activity. This recipe results in participants not experiencing the tour as sufficiently enjoyable or worthy of repetition.

Model 2 shows that low levels of social motivation and safety risk combined with high levels of utilitarian and hedonic motivations and psychological risk result in low levels of

intention to re-attend such tours. This causal recipe helps tour planners to be aware of the roles of psychological risk and a lack of social motivation in canal tours, which could result in unfavourable outcomes. In this regard, one interviewee stated that:

I can honestly say the rain was the only downside to the trip! The beautiful surroundings are really shown off on this canal cruise and you get to see quite a lot of the city. But the sad story was my [anxiety] about [a] possible incident like flood or boat crash in whole trip or the possibility of becoming ill after the water got in my mouth and nose ... [maybe] bad ride ... also [made me] nervous ... too much ups and down on a boat make me sick ... [oh] ... disgusting experience! ... unfortunately, I was [alone] in a boat, [my] friends preferred to go for a walk, this got me upset ... won't try it anymore and suggest my friends to try it neither.

The fsQCA results indicate three causal recipes for predicting low intention to recommend canal boat tour activities (coverage: .703, consistency: 0.791) (see F in Table 6). Models 1 and 2 are similar to the causal models for intention to re-attend (cf. E and F in Table 6). Model 3 indicates that low intention to re-attend is achieved when participants have low levels of social, utilitarian and hedonic motivation combined with high levels of perceived service failure, psychological and safety risk.

**Insert Table 6 here**

### ***NCA results***

NCA results is shown in Table 7 which reveal essential risks and motivations to achieve the favourable behavioural intentions of the tour participants. An antecedent with a consistency

value greater than .9 is considered as a necessary condition (Dul, 2016). Psychological risk and safety risk are two conditions necessary for attaining the two favourable ‘post-purchase behaviour’ outcomes. While motivational factors emerged as sufficient factors (Table 3: regression results), they were not necessary in order to predict participants’ behavioural intentions. This means that motivational factors would positively affect participants’ intention to recommend and re-attend, but that their absence does not mean that the favourable behavioural intentions would not occur. In terms of necessary conditions, the following extract from an in-depth interview is illustrative:

It was Christmas time. Tony [his friend] and I were patrolling around the [name] canal. It was really cold; we saw a long queue for tickets but covered boats would be a good choice [for] that circumstance. The boat was very crowded and we could hardly breathe ... [there] was a funny man who was telling an experience of his boat crash. You could see the [worried] faces [laughter]. Near the lock, our boat suddenly had a slow jump, I mean up and down; some were screaming and we were laughing [my and Tony’s favourite situation] ... facility-wise the boat was not well equipped but during the trip our adrenalin was high [smile]; it was an enjoyable experience. Yes, I might experience boat tours again.

To understand the causal complexities in marketing research, “single necessary conditions are genuinely important in business; both theoretically and practically” (Dul 2016, p. 1516). Consequently, necessary risks and motivations to obtain high intentions to recommend and re-attend the tour could help managers to develop helpful plan to manage this activity strategically. For example, canal boat tour operators must highlight the safety and psychological

risks, given that they are crucial criteria contributing in favourable participant behavioural intentions.

**Insert Table 7 here**

### *Assessment of cumulative prospect theory*

According to the diminishing sensitivity tenet of CPT, participants' diminishing sensitivity to losses is lower when their gains are higher. For example, if hedonic and utilitarian motivations are high and service failure and safety risk are low, participants demonstrate favourable behavioural intentions (E: M1 and F: M1 in Table 5) and might overlook the shortcomings in relation to the social value of this activity for the sake of other motivational factors. Similarly, high social, utilitarian and hedonic motivation combined with low psychological and safety risk would cause participants to display favourable behavioural intentions (cf. E & F, Table 5, M2).

Accordingly, in a situation where participants have high levels of motivation (hedonic, utilitarian and social) and perceive high levels of risk, some participants will become less sensitive to losses as the amount of value to be gained rises, elevating motivation and leading them to demonstrate favourable behavioural intentions. These participants might be considered to be risk-seeking or adventurous participants, who see the risks involved in the activity as a motivator (E: M3 and F: M3 in Table 5). Comparable to the M3 group, the M4 group (which constitutes a minority, having low raw coverage of .187 and .189) would recommend and continue to participate in canal boat tour activities with high perceived risk (safety, service failure and psychological) and low hedonic and utilitarian motivations but high social motivation. Participants who belong to this category might accept the challenges for the sake of social desirability and the satisfaction of friendships norms. This means that, in contrast to other participants, the value of the gain would rise with social motivation and other factors, leading

them to recommend and continue to participate in the leisure activity (E: M4 and F: M4 in Table 5).

While each of these models or recipes explains the conditions required to elicit intentions to re-attend and recommend from participants, the coverage of the model indicates the number of participants who belong to the given causal model. In other words, the higher the coverage value, the larger the number of participants who will conform to a specific model. For example, in relation to the re-attend intention, the raw coverage of M1 is .665 and the raw coverage of M4 is .187, which represents the views of 20 and 3 participants, respectively (see E in Table 5). Similarly, in relation to the intention to recommend, the raw coverage of M1 is .668 and the raw coverage of M4 is .189, which describes the ‘post-purchase behaviour’ of 26 participants and 3 participants, respectively (see F in Table 5).

Based on the NCA findings, low psychological risk and low safety risk are necessary conditions for attaining the favourable outcomes, whereas motivational factors are unnecessary for obtaining the outcomes. This is in line with the principle of loss/risk aversion, which suggests that ‘losses loom larger than gains’ (Kahneman & Tversky, 1979) (Table 6). In other words, the possibility of physical or psychological losses has a more influential impact on behavioural intention than potential gains such as social, hedonic and utilitarian motivational factors, which might also be uncertain. The literature analysing the relation between risks and potential benefits (e.g. Uriely & Reichel, 2013; Yang & Nair, 2014; Olya & Al-ansi, 2018) is in agreement with this study’s findings, indicating that tourists’ ‘post-purchase behaviour’ demonstrates that the risks associated with tourist activities outweigh their benefits (i.e. gains or motivations). Loss aversion in this study explains the finding that four participants may give greater weight to the risks (losses) involved in ‘canal boat tours’ than the perceived gains (motivations). Hence, the number of participants who were not willing to recommend this activity belonging to the M3 group is larger than the groups of participants whose



recommendation intentions belong to the M2 and M1 groups, as shown by the raw coverage:  $M3 > M2 > M1$  (see Table 6, F, M1, M2, M3).

## **Conclusion and implications**

### ***Theoretical significance***

This empirical study adopted cumulative prospect theory to understand how combinations of perceived risk and motivational factors drive the ‘post-purchase behaviours’ of canal boat tour participants. A mixed-methods approach was applied to explore the conditions under which canal boat tour participants would intend to recommend and re-attend this green activity based on their evaluations of different types of risks and motivations. This study attempted to extend the current knowledge of travel and tourism in two ways. Initially, CPT was used to explain the interactions between risks and motivations in formulating the ‘post-purchase behaviours’ of canal boat tour participants. According to the assessment of the study findings using two principles of CPT (i.e. diminishing sensitivity and risk aversion), this theory was able to explain the ‘post-purchase behaviour’ of canal boat tour participants. The findings from qualitative interviews also confirmed the outcomes of the configurational model testing, supporting the principles of CPT.

Second, this empirical study investigated the net effect (i.e. sufficiency) of risks and motivations on the prediction of the ‘post-purchase behaviours’ of canal boat tour participants. According to the regression results, the tour participants’ intention to re-attend such tours was influenced by social motivation, utilitarian motivation, hedonic motivation and safety risk. Their intention to recommend such tours was associated with social motivation, hedonic motivation and safety risk. This study also explored causal solutions (i.e. sufficient combinations of risk and motivation factors) to explain the conditions giving rise to favourable and unfavourable ‘post-purchase behaviours’ of tour participants. FsQCA as a set theoretic analytical approach

enables the exploration of causal recipes resulting in low levels of intention to recommend and re-attend, which aided in the assessment of the risk aversion feature of CPT in light of the study findings. Furthermore, this study identified psychological and safety risks as two factors that must be managed by tour organisers, destination planners and marketing operations and DMOs to improve the behavioural intentions of the tour participants. The application of in-depth interviews along with questionnaire-based surveys offered deeper insight into the heterogeneous interactions of risks and motivations in predicting the behaviour of tour participants.

### ***Implications***

This research focused on the consumer-side view of ‘canal boat tours’ as a green business, which has thus far received little attention from academics and practitioners. As a contemporary global phenomenon, ‘canal boat tour’ is a pleasurable and eco-friendly recreation activity that can contribute to psychological well-being and play a key role in determining consumer perceptions of destinations worldwide. Thus, further empirical study is required to comprehend participants’ perspectives required for sustainable planning of this eco-friendly recreation activity. We believe that awareness on the part of both service providers and tourists about such ‘green’ activities has been on the rise. In addition, the outcome of this research can be amended by investigating side effect of this activity on the consumers. For example, conducting experimental studies that investigate potential effects of attending in such tours on mental health and wellbeing of tour participants can provide new insights of tourism impacts on our society.

However, stakeholders must promote public awareness of this pro-environmental recreational activity by highlighting its possible advantages and managing the risks involved in the activity. To promote social motivation among tour participants, DMOs could recommend other shareholders (e.g. tour organisers, advertising companies and destination planners) to run festive and events related to ‘canal boat tour’ to support tranquil and wholesome touristic

escapade. Likewise, focusing on the heritage identity of the tours to boost utilitarian motivation and encouraging the romantic characteristics of canal boating as a hedonic motivation could encourage participants to engage in, recommend and re-attend this enjoyable and relaxing activity. The perceptions of participants in relation to the activity's psychological and safety risks could be mitigated by providing training and detailed instructions prior to and during the tour.

This research has some limitations concerning the usage of the data, collected in a cross-sectional survey that tested the conception of participants toward a tour in Strasbourg, France. The authors recommend the collection of longitudinal data from various destinations. This study involved the assessment of risks and motivations relating to 'canal boat tours'. According to the NCA results, unlike motivational factors, risks factors are crucial considerations in this activity. Aside from risk assessment, it is necessary to research the risk management and risk communication of canal tour boat operators to ensure the sustainability of this leisure activity. Therefore, some other construct regarding to the risk management of the tour need further investigation in future research. While this is the first study that modelled users' behaviour, further research could study the views of other stakeholders (e.g. green businesses) regarding this activity. We encourage assessment of the sustainability of such water-based leisure activities in comparison to other conventional and unconventional luxury tourism services and products.

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