THE INFLUENCE OF MUSIC MODE AND TEMPO ON RISK TAKING BEHAVIOR

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ABSTRACT

Consumers continuously take decisions under risk when they purchase products or services. In marketing research, music serves as a consciously or non-consciously perceived atmospheric factor in consumption situations. Prior research gives evidence for a relationship between music and consumers' mood as well as for an effect of mood on risk-taking behavior. However, the question whether music plays a role in consumers' propensity to risk remains largely unexplored in an economic context. We develop an experimental research design considering the structural elements music tempo and music mode to gain empirical evidence for the relationship between music and risk- taking behavior in a financial service context.

Keywords: music mode; music mood; risk taking behavior; experimental design;

BACKGROUND

Since Raymond Bauer (1960) proposed that decision making in consumer behavior can be primarily considered as risk-taking, a substantial body of research has established a theory of risk-taking in consumer behavior (Mitchell, 1999; Taylor, 1974). Every time consumers take a purchase decision, they face a certain amount of risk arising from unanticipated and uncertain negative consequences (Dholakia, 2001). Especially in service settings risk is frequently perceived as high, as the intangible nature of services increases the level of uncertainty (Parasuraman, Zeithaml, & Berry, 1985; Yeung & Morris, 2006).

Music is one of the most researched context variables in marketing literature. Even when not listening to music actively, consumers perceive music in a variety of settings where it is frequently applied as an atmospheric tool (Areni, 1993; Milliman, 1982, 1986; Sherman, Mathur, & Belk-Smith, 1997). While previous marketing research has focused on the influence of music on consumers' emotions and behavioral responses, such as Gross sales data or time spent (Kim & Moon, 2009; Knoferle, Spangenberg, Herrmann, & Landwehr, 2012; Milliman, 1982, 1986), research on the influence of music on consumers' risk perceptions and behavior is largely underrepresented. Some models and theories focus on the influence of music on mood (Areni, 1993) for consequent action and risk behavior (Isen & Geva, 1987; Isen & Patrick, 1983). However, the influence of music on risk-taking behavior remains mainly unexplored.

The aim of our study, therefore, is to evaluate the effect of music on consumers' risk-taking behavior. There is some evidence from literature for this influence, with respect to car driving with music (Brodsky, 2001; Wiesenthal, Hennessy, & Totten, 2003), and gambling behavior (Dixon, Trigg, & Griffiths, 2007; Marmurek, Finlay, Kanetkar, & Londerville, 2007; Spenwyn, Barrett, & Griffiths,
2010). However, the effect of music on risk-taking behavior in financial service settings has not yet been tested. We apply alterations in two basic conditions of music, music mode and music tempo, to financial service settings to investigate whether different qualities of music exert an influence on individuals' propensity to risk.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Most research on the influence of music on consumers' behavior concentrates on how music affects individual mood states. Two contrary theories have emerged on the relationship between affect and risk preferences. The Affect Infusion Model postulates that individuals experiencing negative mood are involved in a systematic information processing that requires effort. This additional effort would finally lead to the avoidance of risk or to decisions that involve less risk. Conversely, individuals in a positive mood tend to engage in more risky decisions because they will emphasize the positive aspects of the situation (Forgas, 1994, 1995). According to the Mood Maintenance Hypothesis, individuals in a negative mood are inclined to take riskier decisions in order to correct their mood, while individuals in a positive mood are inclined to take less risky decisions in order to maintain their good mood. (Isen
& Patrick, 1983; Leith & Baumeister, 1996). These two theories suggest ambiguous effects of consumers' mood on risk-taking behavior. Yet, financial decisions are based on consumers' cognitive rather than affective processes (Christelis, Jappelli, & Padula, 2010). We therefore focus on a potential effect of music rather than on mood as an antecedent of risk-taking behavior. However, we control for consumers' mood.

Music mode and music tempo are two basic structural elements of music that are less context- dependent than other characteristics frequently encountered in research, such as perceived mood through music (e.g., J. I. Alpert & Alpert, 1990) or music appeal (e.g., Kellaris & Cox, 1989), which are subjective in nature. In marketing research, music mode and music tempo are particular important determinants of listeners' responses to music (e.g., J. I. Alpert & Alpert, 1990), especially in retail settings and purchase situations (Hevner, 1935, 1937). The context of our study extends these insights to decisions involving risk in financial service settings.

Music mode is the specific configuration of musical intervals used within a scale or a chord which provides the tonal substance of a song (cf. Knoferle, Spangenberg, Herrmann, & Landwehr, 2012). Prior research suggests an

effect of music mode (major vs. minor) on consumers' decision-making (Randel & Apel, 1986; Sadie, Tyrrell, & Levy, 2001), an effect that we also suggest for risk-taking behavior in financial settings. Therefore we state:

H1: Music mode has an influence on risk-taking behavior.

Tempo is the speed or rate at which a rhythm of a musical piece progresses (Bruner, 1990) and is measured in beats per minute (BPM). Tempo influences consumers' response behaviors (J. I. Alpert & Alpert, 1990; M. I. Alpert, Alpert, & Maltz, 2005). We test whether the second basic condition of music, music tempo (fast vs. slow), shows a main effect on consumers' risk-taking behavior in financial settings. We therefore, hypothesize:

H2: Music tempo has an influence on risk-taking behavior.

Previous research moreover suggests an interaction effect of music mode and music tempo on consumers' response behaviors (Caldwell & Hibbert, 2002; Chebat, Chebat, & Vaillant, 2001; Kellaris & Rice, 2006). Several studies (Bruner, 1990; Husain, Thompson, & Schellenberg, 2002; Kellaris & Kent, 1991; Knoferle, Spangenberg, Herrmann, & Landwehr, 2012) find different consumer responses to different music mode-tempo combinations. Transferring these findings to decisions involving risk leads to our third hypothesis:

H3: There is an interaction effect of music tempo and music mode on risk-taking behavior.

METHODOLOGY

Recent comparable empirical research has been conducted in in-door shopping settings (e.g. Knoferle, Spangenberg, Herrmann, & Landwehr, 2012). Our experiment is done in a laboratory setting to reduce external influences. We also introduce a new context – a financial service setting – to test the effect of music on risk taking behavior.

Participants and design

Participants were 427 students at the University of Innsbruck (mean age 23 years; 216 women and 211 men) who received a small give-away.

A 2 (music mode: major vs. minor; between subjects) x 2 (music tempo: fast vs. slow; between subjects) experimental design was conducted with risk-taking behavior as dependent variable. Additionally, we controlled for personal mood before and after being exposed to the music stimulus, thus also mood improvement, familiarity with the perceived music, liking of the perceived music, perception of test duration, music taste, musicality, gender, age and a general sensation-seeking attitude.

Materials and procedure

Our music stimuli were classical and mainstream compositions played on piano: major vs. minor and fast (130 beats per minute; BPM) vs. slow (80 BPM).

The experiment took place at individual computer workstations. Participants were asked to take a seat and put on the headphones. They were randomly assigned to one of the four groups. First they completed a short questionnaire. We assessed actual mood with three items based on Howard, Gengler and Jain (2012) (α =.84), once at the beginning and then at the end of the experiment. Risk attitude measured the participants' willingness to engage in risky activities and was operationalized using a risk attraction (1995). We assessed sensation seeking with eight items suggested by Hoyle et al. (Griffin, Babin, & Attaway, 1996) (α =.76). Next music started to play. The participants were asked to adjust the volume to a comfortable level. If the duration for performing the tasks was longer than the duration of the melody, the melody started again. As the sample was composed of business students, we selected a vignette from the Common Dilemma Questionnaire (CDQ) by Kogan and Wallach (2002)

to measure risk behavior. The vignette uses a hypothetical situation where participants have to invest money in shares that imply different levels of risks (1 = high risk; 6 = low risk). The participants were instructed to read the statement and then take their decision. The answers reflect the extent to which one's decision was more or less risky. After finishing the task, participants' mood was reassessed.

Next, the manipulation check was carried out, including questions about the perceived tempo and perceived mode of music that the participants listened to. Finally the participants specified whether they liked the music and how much time they thought passed since music started to play. Moreover the participants were asked to state whether they felt influenced by the music (if yes, to which extent).

RESULTS

A 2x2 ANOVA was conducted to evaluate the effects of music mode and tempo on risk-taking behavior in a financial setting. The results for the ANOVA indicated a significant interaction between music mode and tempo, $F(1, 419) = 7.768$, $p = .006$. While follow-up analyses to the interaction effect showed that there were no significant differences between tempo conditions in major music (slow tempo: $M = 3.41$, $SD = 1.71$; fast tempo: $M = 3.69$, $SD = 1.63$), $t(209) = 1.213$, $p > .05$, we found significant differences between tempo conditions in minor music, $t(214) = 2.555$, $p = .011$, where risk taking behavior was higher for fast tempo ($M = 3.29$, $SD = 1.64$) compared to slow tempo ($M = 3.87$, $SD = 1.74$). No main effects were found, thus, only H3 is confirmed.

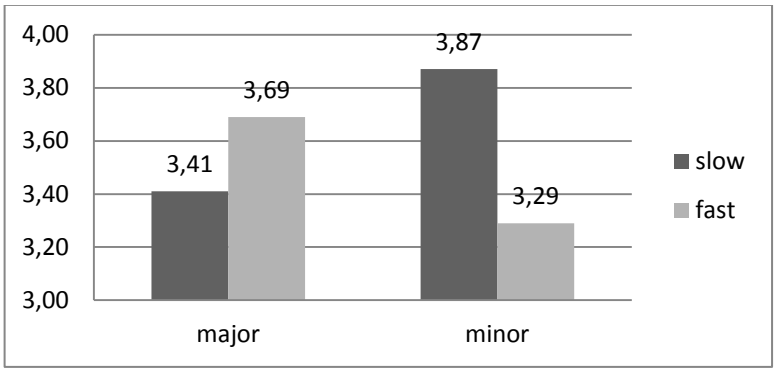

FIGURE 1: INTERACTION EFFECT OF MUSIC MODE AND TEMPO ON RISK BEHAVIOR (1 = HIGH RISK; 6 = LOW RISK)

An ANCOVA yielded the same result and showed that none of our control variables had a significant influence on risk taking behavior.

DISCUSSION AND IMPLICATIONS

While this study provides no statistically significant support for the proposition that music mode and music tempo independently influence risk-taking behavior, our research reveals an interaction effect of mode and tempo on a financial decision involving different levels of risk.

This interaction effect determined an increased risk-taking behavior for fast music compared to slow music in minor – but not in major – mode, and thus confirms H3. The significant difference in risk behavior for minor music in fast tempo and slow tempo can be explained by the assumption that listeners mostly associate minor mode music with sadness. Fast minor mode music consequently might cause irritation. This result is in line with the findings by Hunter, Schellenberg and Schimmack (1964) who consider the combination of minor mode with fast tempo as atypical and inducing mixed emotional responses, such as happiness and sadness at the same time.

Contrary to the results of Knoferle, Spangenberg, Herrmann and Landwehr (2012) who found increased sales volume for the combination of minor mode music with slow tempo, i.e., a rather typical combination, risk-taking behavior in our study is rather influenced by an atypical combination of music mode and tempo.

Our findings also offer managerial implications. According to economic utility, individuals show rational behavior when they make risky decisions and expect returned tradeoffs. The outcomes of this experiment suggest that this is not completely true. Taking risky decisions can be influenced by music, more specifically dissonant music mode and tempo combinations. From a financial service provider's perspective, the risk-taking behavior of both financial advisors and clients can be influenced through the choice of background music. This also involves ethical considerations.

The study entails several shortcomings. The sample consisted exclusively of students. Further research should thus confirm the results for the general population. Also, for both musical genres, classic and mainstream, however, while tempo was manipulated, the selected instrumental songs were different for major and minor mode. The selection of genres could be extended. Further expert manipulation of the music stimuli would probably exclude biases such as familiarity, music and preferences, etc., and thus lead to higher accuracy of results. Finally, we cannot answer the question whether the effect of music on risk-taking behavior varies with specific store or work environments. The interactive effect of mode and tempo on customers' or employees' responses and their consequent risk-taking behaviors could differ.

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