



Influence of personality and risk propensity on risk perception of Chinese construction project managers

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Abstract

Construction project managers (CPMs) with different types of personalities make various assessments in risky situations and draw up different risk management strategies. This research presents the findings of an empirical study in China that investigated whether and how CPMs with different personality traits differed in the way they perceived project risk. A conceptual model was developed and four hypotheses were proposed concerning the relationships among personality traits, risk propensity, and risk perception using the Big Five personality model. The Partial Least Squares Structural Equation Modeling analyses of a sample of 152 imply that 1) Extraversion, Agreeableness, and Conscientiousness significantly influence risk propensity; 2) risk propensity negatively affects risk perception; 3) Extraversion, Agreeableness, and Conscientiousness have significant effects on risk perception; and 4) risk propensity fully mediates the relationship between personality traits and risk perception. The results were complemented by qualitative evidence from 5 semi-structured interviews with project managers. This research contributes to a better understanding of how CPMs perceive risk.

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1. Introduction

Complex characteristics and dynamic environmental conditions mean that construction projects can be filled with risks and uncertainties (Chapman, 1998; Nieto-Morote and Ruz-Vila, 2011). Even though there are generic professional guidelines related to project risk management (i.e. PMI, 2004), the construction industry often suffers from poor performance due to the inadequate handling of various risks (Bryde and Volm, 2009). The key to risk decision-making is risk assessment (Williams et al., 2008). Inadequate or inappropriate assessment of project risks may result in improper risk management decisions, which may lead ultimately to project failure (Keil et al., 2000). As major leaders of risk assessment and key decision-makers, construction project managers (CPMs) deal with various risk-related decisions during the

process of project implementation. Therefore, it is necessary to have a deep understanding of how CPMs assess project risk.

Risk perception is defined as “a decision-maker’s assessment of the risk inherent in a situation” (Sitkin and Pablo, 1992). Due to bounded rationality and difficulties in obtaining objective probabilities and frequencies in the construction industry, CPMs do not always rely on the computation results of mathematical models. Instead, they tend to use intuition, experience, or subjective judgments to deal with emergencies and risks (Taroun, 2014). The literature on project-risk perceptions has focused on the differences among various groups (Chen and Partington, 2004; Zou et al., 2007; Adams, 2008), or on quantitative risk perceptions combining the consequences of risks with their likelihood (Lehtiranta, 2014), but has paid less attention to the process of how decision-makers perceive risk.

Risk perceptions have been found to be associated with people’s beliefs, attitudes, judgments, and feelings (Akintoye and MacLeod, 1997). Individual characteristics have been considered as important factors affecting risk perception (Chauvin et al., 2007); these can include gender, age, education background,

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income levels (Sjöberg, 2000, 2003), self-efficacy (Jani, 2011), confidence, locus of control and classical personality factors (Mullet et al., 2005; Alexopoulos et al., 2009). Previous research has identified a series of factors affecting risk perception (e.g. Chauvin et al., 2007), but has rarely provided a comprehensive understanding of how people describe and perceive risk (Alexopoulos et al., 2009). Thus, this research aims to find out whether and how CPMs' personality traits influence risk perception in the construction context.

To investigate this possible influence, the study focused on two research questions: What is the relationship between personality and risk perception of CPMs? How do CPMs with different personalities differ in the way they perceive risk? Risk propensity was introduced as a mediating role between personality and risk perception. Our research linked personality traits, risk propensity and risk perception, in order to explore the relationship between personality traits and risk perception. The findings of this research will not only contribute to the literature on risk assessment and add knowledge to risk decision-making, it will also provide some future guidelines for both scholars and CPMs.

2. Literature review

2.1. Big five personality model

The Big Five personality model, also referred to as the Five-Factor model of personality, provides a parsimonious yet comprehensive taxonomy of personality (Zhao and Seibert, 2006; McCrae and Costa, 1990). This framework is a hierarchical one of 30 personality traits with five broad factors, namely Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience, and each represents personality at the broadest level of abstraction. The Big Five personality model enjoys considerable support and is regarded as the most widely and extensively used model of personality (McCrae and Costa, 1999). Therefore, this research studied personality traits based on the Big Five personality model.

1) The first dimension is Extraversion or Introversion, which represents the extent to which individuals are assertive, energetic, and enthusiastic (Costa and MacCrae, 1992). Facets such as warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotions, are included in this dimension (McCrae and Costa, 1990). 2) Agreeableness assesses an individual's interpersonal orientation (Zhao and Seibert, 2006), which includes trust, straight forwardness, altruism, compliance, modesty, and tender-mindedness (McCrae and Costa, 1990). A high end of Agreeableness shows that individuals tend to have cooperative values and prefer positive interpersonal relationships, while people with a low end of this dimension are seen as manipulative and self-centered (Costa and MacCrae, 1992). 3) Conscientiousness indicates people's degree of persistence, hard work, and motivation in pursuing and accomplishing goals (Barrick and Mount, 1991; Zhao and Seibert, 2006). This dimension includes competence, order, dutifulness, achievement striving, self-discipline, and deliberation (McCrae and Costa, 1990). 4) The fourth dimension - Neuroticism, Emotional Stability, or Stability Emotionality - has six facets, anxiety,

angry hostility, depression, self-consciousness, impulsiveness, and vulnerability (McCrae and Costa, 1990). Less emotionally stable individuals tend to have lots of negative emotions, while less neurotic people can be characterized as calm and self-confident (Zhao and Seibert, 2006). 5) Openness to Experience indicates that someone is curious and tends to seek new experience and novel ideas (Zhao and Seibert, 2006). In this domain, fantasy, esthetics, feelings, actions, ideas, and values are the six facets (McCrae and Costa, 1990). Those who are high on this dimension are often described as innovative, creative, and imaginative, while those with low scores are considered as conventional and analytical.

2.2. Risk propensity

Risk propensity, also called risk-taking tendency or willingness to take risk, is defined as an individual's current tendency towards taking or avoiding risks (Sitkin and Pablo, 1992; Sitkin and Weingart, 1995). It can be expressed as the decision-makers' risk seeking or risk aversion attitudes. The nature of risk propensity has two main streams. The traditional view maintains that it is a stable and constant dispositional trait (Fischhoff et al., 1981; Ghosh and Ray, 1997). The other stream indicates that an individual's risk propensity varies with different decision contexts (Keil et al., 2000; MacCrimmon and Wehrung, 1990; Weber et al., 2002). Focusing on the important role of past experience, this construct is simultaneously persistent and changeable over time due to experience (Sitkin and Weingart, 1995). We adopted the conceptualization of risk propensity as "stable but changeable". For example, CPMs with risk seeking tendencies like trying new things, knowing well that some of them will bring risks. On the other hand, although a new method probably has a high promise of reward, those who always avoid risk are unwilling to be the first one to try it.

2.3. Risk perception

Risk perception was originally put forward by Bauer (1960), who introduced the concept into psychological studies of consumer behavior. According to Slovic (1987), risk perception refers to an individual's feelings and perceptions of outside, objective risks, influenced by intuitive judgment and subjective feelings. In this research, we adopted the definition of Sitkin and Pablo (1992), "a decision maker's assessment of the risk inherent in a situation" (p. 4). Other researchers, such as Sjöberg (2003), Klos et al. (2005), and Williams and Noyes (2007), have also proposed similar definitions, emphasizing subjective judgments and intuitive perceptions.

Risk perception is influenced by a variety of factors. It varies according to individual or organization levels, as different people may have various views or understandings of the composition, source, possibility, consequence or response of certain risks (Loosemore et al., 2006). In the domain of sociology, factors influencing risk perception can be divided into risk-related and perceiver-related factors (Bouyer et al., 2001). The latter includes demographic characteristics such as age, sex and educational background, and personality traits such as anxiety, values, etc.

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