

# Chapter 86

## The Human Side of Supply Chains: A Behavioural Perspective of Supply Chain Risk Management

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### ABSTRACT

*The adoption of the behavioural approach for the study of OM and Supply Chain Management is still fairly novel. However, there is evidence that in order to improve supply chain management it is crucial to develop models that correctly describe human behaviour. Failure to account for behavioural components such as risk perception, time effects and social interaction may lead to models that are biased in their predictions. This chapter reviews extant behavioural research relevant to supply chain risk management. In particular, its implications for supply chain management are outlined, and opportunities for future developments of theory that is robust to behavioural effects are identified.*

### INTRODUCTION

In the past few years the attention towards supply chain risk management has increased significantly (Wagner and Bode, 2006). This attention has been triggered not only by the frequency and intensity of disruptions on a global scale but also by a number of events on the supply chain level,

which resulted in serious problems for the firms involved (Sheffi, 2005). Today's supply chains are more complex than they used to be. There are various reasons for supply chain complexity, such as higher levels of R&D and manufacturing outsourcing, supplier-supplier relationships in supplier networks, increased dependence on supplier capabilities, new technologies, regulatory requirements, shorter product life-cycles due to rapidly changing customer preferences, and

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international market and production expansion (Wagner and Neshat, 2010). Moreover, as firms try to reduce costs through the rationalization and reduction of the supply base, the aim to secure an interrupt flow of materials has become more difficult to achieve (Harland et al., 2003).

Some scholars contend that modern supply chain management initiatives have great potential to make operations leaner and/or more agile in a stable environment but simultaneously amplify the fragility of supply chains (Zsidisin et al., 2005), due to increasingly complex and technology oriented processes that make organizations more prone to disruptions (Lee, 2004; Lin et al., 2006).

Several streams of research have addressed the issue of how to ensure continuity of supply, identifying the factors that drive supply risk (Sheffi and Rice, 2005; Tang, 2006), evaluating the negative implications of supply risk (Hendricks and Singhal, 2005; Wagner and Bode, 2006), and providing frameworks for analysing and reducing supply disruption risk (Kleindorfer and Saad, 2005; Tang and Tomlin, 2008).

While these contributions have provided important insights and have deepened our understanding about causes, effects, and management of supply risk, to our knowledge only little research has been devoted to the investigation of behavioural aspects of supply risk management.

The classical approach to risk in operations management has been to see risk as resulting from the product of probability of loss times the potential loss, i.e. the expected value of the loss. The goal to minimise expected losses accounts to assuming that the decision maker is risk neutral. However, this assumption may deviate from reality since, depending on the environment or the payoffs at stake, a rational decision maker may be either risk seeking or risk averse (Bendoly et al., 2006).

In addition, decision makers not only have attitudes towards risk different from neutrality, but also may depart from the rational model of behaviour. The investigation of these issues has received little attention by OM research so far,

while, on the contrary, it has been an essential component of decision making research, at least since Simon (1957) and Kahneman and Tversky (1979). A large body of research is grounded in the evidence that, even when objective data could support rational decision-making, the subjective interpretation may bias the risk assessment process (Yates and Stone, 1992; Yates et al., 1994).

Thus, in the face of varying types and degrees of supply chain (SC) risk, managers' actions to protect against those risks and to reduce the vulnerability of the SC will likely depend on their individual characteristics, such as attitudes towards risk, on how perceptions of supply disruption risk are developed, and on the degree of confidence they assign to available risk information (Ellis et al., 2010).

Different approaches have been applied to the analysis of behavioural issues in OM. For instance, theoretical models have been developed providing suggestions on how managerial decisions are affected by risk attitudes and decision biases (Schweitzer and Cachon, 2000), and on how incentives should be modified to account for them (Croson et al., 2008). As far as empirical analysis is concerned, controlled human experimentation has become one of the most accepted methodologies for hypotheses testing, also in management and operations (Boyer and Swink, 2008). Experiments can supplement SC research by providing insights into how the human factor influences the SC management and by exploring how human characteristics interact with operational and organizational aspects, thus offering suggestions for theory revision and for improvement in management (Croson and Donohue, 2002).

The aim of this chapter is to provide an overview of the extant literature on the behavioural issues in supply chain management and to explore, on the basis of the stylised facts of behavioural research, some fruitful areas of application to supply chain risk management.

The remainders of the chapter is organised as follows. The next section provides an overview

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