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## Risk Management as a Tool to Optimise Revenue during Black Swan Events

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### Learning outcomes

After reading this chapter, you should be able to:

- Explore the role of a senior revenue manager.
- Assess forecasting and its effectiveness during periods of heightened uncertainty.
- Appraise the nature of a Black Swan (complex) event.
- Appreciate the value of integrating risk management and revenue management.

### ■ Introduction

This chapter will explore the interrelationship between revenue management and risk management, specifically in relation to events of low predictability and high consequence. Senior revenue managers implement pricing strategies and distribution channel management. Both practices are influenced by the demand forecast which revenue managers adjust regularly. Their possible risk universe will be scoped and risk prioritization discussed. The chapter is divided into two parts: Part One provides the theoretical underpinning of risk management strategies and its possible integration into revenue management. Part Two explores survey results showing which elements senior revenue managers may already utilise intuitively and how these may be incorporated into a more systematic approach.

## ■ Theoretical underpinning

Risk management strategies can neutralize or minimise threats and maximise opportunities posed by complex Black Swan events. To this end, risk response, risk process initiation, risk assessment, risk response planning, risk response, recovery, signal detection, communication, and learning can be implemented.

Increasingly leading to profit optimisation, revenue management has evolved from maximising the yield of the core product, to focusing on the total contribution drawn from all revenue opportunities (total revenue management). As both an art and science, revenue management aims to leverage predictable duration and variable prices to manage customer behaviour considering finance, marketing, sales and channel strategies. Revenue managers establish the availability of product ranges for specific market segments by incorporating rate fences (or restrictions) to minimise revenue dilution. These might include booking lead time, preferred inclusions, desire for flexibility (to freely modify, or cancel reservations). Revenue management has evolved from optimising yield (focusing on price and inventory control) to being a more strategic function that integrates finance, marketing and operations functions. The driver of this evolution has primarily been the emergence of the Internet and the buying power it has transferred to the consumer.

Effective strategic revenue management has become critical to the success and longevity of hospitality organisations in both booming economic times and during recessionary periods. Low cost airlines demonstrated how revenue management significantly raises load factors and profits. Aggressive cost management (including cost of acquisition) combined with yield management and customer relationship management has emerged as a highly competitive model that customers responded to positively.

A critical element of a successful revenue management strategy is an accurate forecast as a means to achieve better decision-making by reducing uncertainty. Monitoring and prompt adaptation to fluctuating market conditions further improves performance. The level of forecast accuracy is determined by the level of detail (if compiled manually, then the forecast cannot be detailed), data availability, quality, relevance and the type of uncertainty. Unexpected events can have significant negative impact on forecast accuracy, generating missed opportunities (Taleb, 2007). The identification of patterns and precise relationships can enable accurate forecasts incorporating precise uncertainty levels. As a contrast to predicting the outcome of simple actions like coin flipping or throwing a dice that involve independent events, predicting human behaviour is more complex. When variables are not independent of one another (as in real life) predictability is low and uncertainty levels cannot be reliably assessed. Statistical models scientifically assess potential losses and opportunities so as to improve decision making

without however completely assessing the correctness of decisions (Makridakis & Taleb, 2009a). Paradoxically, although simple models do not always fit well with reality, they have been found to predict the future better than complex or sophisticated statistical models. Also, 'expert judgment' has been proven to be no more accurate than opinions of knowledgeable individuals. In general, averaging either the predictions of several individuals or the forecasts of two or more models improves forecast accuracy. Thus forecasts can be differentiated as those which can be modelled and incorporated into probabilistic predictions that assume normal distribution e.g. everyday events that re-occur, such as the time it takes a person to get to work each morning on *normal* days, also known as subway uncertainty.

Management science is rooted in the belief that order is the predominant force, following the premise that all things can be known. This belief is flawed as basic assumptions surrounding human decision making behaviour (related to cause and effect of human interactions and markets, that humans make rational choices and that all human actions are intentional) are only true within some contexts. This is further exacerbated by the fact that commonly available tools and techniques further multiply the instances where these assumptions prove to be untrue. Emergent order, where no director or designer is in control, represent a natural phenomena (rather than the result of poor investigation, inadequate resources, or lack of understanding) which can positively enhance business performance (Kurtz & Snowden, 2003).

"In the domain of emergent order, the goal to predict (and thereby control) the behavior of systems not yet studied (but similar to those that have been studied) under conditions not yet extant and in time periods not yet experienced" is difficult if not impossible to achieve— but other goals are achievable". Kurtz and Snowden, (2003, p.3).

Rare and unique events are difficult to model effectively. Within this category are 'Black Swans' which are events/crisis with low predictability and high consequence such as a plane crash. Historically, humans have demonstrated a tendency to underestimate the probability of rare events although aware of the risk that these can occur (Makridakis, Hogarth & Gaba, 2009).

An unexpected crisis can have serious consequences on the firm's commercial advantage, reputation and consumer trust. The need for business resilience has risen as a consequence of the increasing complexity of the political, economic, social environment. Black Swan (or complex) events are becoming less and less rare; firms are increasingly faced with dynamic and complex hazards and threats i.e. natural disasters (floods, tsunami, earthquakes), terrorist attacks, and financial crises (Paraskevas, 2012a). Such a surprising, unexpected event could often have been predicted by combining certain small pieces of information (signals or flags)