Exploring the relationship between performance-related pay and risk behaviours:

The role of emotion and contextual evaluation in a case study of financial traders

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DECLARATION

"I certify that the work contained in this thesis, or any part of it, has not been accepted in substance for any previous degree awarded to me, and is not concurrently being submitted for any degree other than that of Doctor of Philosophy being studied at the University of Greenwich. I also declare that this work is the result of my own investigations, except where otherwise identified by references and that the contents are not the outcome of any form of research misconduct"

Student: _____ Date: _____

Supervisor: _____ Date: _____

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For me, doing this PhD has been about more than just performance-related pay, risk behaviours and traders. It has been a vehicle for self-discovery and personal growth. I know I come out the other side a stronger, more well-rounded person with a better awareness of who I am, where I am going and how I want to spend my days. That is a wonderful gift I am truly thankful for.

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ABSTRACT

This thesis explores one of the most strongly debated topics since the last financial crisis: the nature of the relationship between performance-related pay (PRP) and risk behaviours. Despite the conspicuous debate on this topic, we still do not fully understand how, when and why PRP influences risk behaviours. Extant PRP literature has produced mixed and inconclusive findings, primarily because it narrowly assumes that risk behaviours arise because of the incentive system. This overlooks the central role of cognitive perception and emotional experience in affecting risk behaviours. Thus, this thesis seeks to shed new light on this topic by exploring, both conceptually and empirically, how PRP influences risk behaviours via its effect on an individual's cognitive perception and emotional experience of the decision context. Insights are developed by qualitatively exploring the lived experiences of individuals in a context relevant to the PRP–risk behaviours debate; financial trading. Narrative interviews with 21 financial traders and an informant, reveal that risk behaviours are not directly influenced by PRP. Rather, findings of this study suggest that PRP targets influence risk behaviours indirectly by providing individuals with information on the performance-context. The way in which individuals then evaluate this information, cognitively and emotionally, influences their risk behaviours. Furthermore, cognitive perception and emotion appear to have an interrelated effect on risk behaviours. This study contributes to an enhanced understanding of the nature of the impact of PRP on risk behaviours within-individuals. Moreover, it contributes to the risk literature by developing insights on the interrelated impact of cognition and distinct emotions on risk behaviours.

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CHAPTER ONE: INTRODUCTION

1.1. Introduction

Nearly a decade after the most recent financial crisis, we still do not comprehensively understand how, when, or why performance-related pay (PRP) influences risk behaviours. Numerous scholars argue this is because of the narrow and somewhat naïve account of risk behaviours in PRP literature. Specifically, extant research narrowly assumes that risk-taking arises *because of* PRP, as it harnesses the self-interested, utility maximising tendencies of individuals. This thesis sets out to enhance understanding of the nature of the relationship between PRP and risk behaviours. It explores how the way in which PRP influences financial traders' thoughts and feelings about situations, motivates their risk behaviours. It achieves this by initially theorising why risk behaviours vary within individuals because of how situations are cognitively perceived and emotionally experienced. Namely, risk-taking has an evolutionary-derived function to ensure an individual's needs are met; situations which do not satisfy one's need motivate risk-taking. This further interacts with emotional states, whereby different emotions influence risk behaviours and augment or suppress the impact of need on behaviour.

This study adapts a narrative interviewing method to explore these concepts through the lived experiences of financial traders. This represents a novel progression over extant PRP–risk behaviours literature which assumes that risk-taking is a direct outcome of incentive arrangements, rather than an individual's subjective perception of the decision context. Furthermore, by examining the interrelated effect of cognition and emotion on risk behaviours, this study enriches risk behaviours literature, which primarily examines cognition and emotion relating to risk-taking separately. By pursuing this novel approach, findings of this study suggest that risk behaviours are indirectly influenced by how performance targets affect an individual's perception of the decision context and the different emotions the individual experiences. In this regard, this thesis contributes to developing a new perspective on how PRP systems influence risk behaviours.

1.2. Background and motivation

The primary motivation for this research is the recognition of an imbalance between what is known about risk behaviours and how PRP research conceptualises risk behaviours. We know, and readily recognise, that individuals are not rational, self-interested, risk-averse decision-makers (Thaler, 2000). However, this view pervades in much of the PRP literature; incentives are prescribed to harness self-interested tendencies as a means to encourage 'risk-averse' employees to take profit-enhancing risks for the firm (Gomez-Mejia et al., 2010; Martin et al., 2016). It is on the basis of this assumption that many explain the association between the excessive risk-taking of financial professionals and bonus pay systems (Bruce and Skovoroda, 2013; Gregg et al., 2012). Nevertheless, empirical research pursuing this direct link between PRP and risk-taking has produced inconclusive and mixed findings (Bannier et al., 2013; Efing et al., 2015; Hagendorff and Vallascas, 2011). Evidently, this one-sided, rational view of what affects risk behaviours hinders comprehensive understanding of this relationship (Cuevas-Rodríguez et al., 2012; Devers et al., 2008).

A more balanced approach is to first explore what does engender risk behaviours and then examine how PRP influences the factors which give rise to risk behaviours (Devers et al., 2008). This is the central vision of this study: to enhance knowledge, beyond the inconclusive findings of extant research, of the nature of the relationship between PRP and risk behaviours by providing a more representative account of how risk behaviours are influenced in this context. The central principle of PRP literature — that risk-taking arises because of incentive arrangements — does not hold up well against decades of research asserting risk behaviours are the outcome of highly idiosyncratic factors (Chng and Wang, 2015; Hoskisson et al., 2017; Wiseman and Catanach, 1997; Wiseman and Gomez-Mejia, 1998). Namely, extensive research within the fields of behavioural science finds that risk behaviours arise because of cognitive evaluation and emotional experience of the decision context (Kahneman and Tversky, 1996; Loewenstein and Lerner, 2003; Loewenstein et al., 2001; MacCrimmon and Wehrung, 1986). Hence, this study argues that exploring this topic from a behavioural perspective enhances understanding of the nature of the PRP–risk behaviours relationship.

Nevertheless, bridging the gap between the behavioural perspective of risk behaviours and the account of risk behaviours in the PRP literature is not without its challenges. The risk literature predominantly theorises risk behaviours as the outcome of cognitive processes (George and Dane, 2016; Kusev et al., 2017). However, an emerging body of research demonstrates the

centrality of distinct emotions in influencing risk behaviours (e.g. Druckman and McDermott, 2008; Lerner et al., 2015; Stark et al., 2016). Yet, the role of cognitive processes and emotional experience in affecting risk behaviours are mainly treated separately within the risk literature (Gutnik et al., 2006; Stark et al., 2016). Thus, there are shortcomings in both sets of literature. PRP literature simplistically assumes that risk-taking arises because of the incentive system, while the risk literature treats the role of cognition and emotion separately when they are arguably interdependent (Lakomski and Evers, 2010). This hinders the advancement of the understanding of risk behaviours, and moreover, understanding of the PRP–risk behaviours relationship. Thus, this study seeks to explore how the PRP–risk behaviours relationship can be better understood by how PRP makes an individual think *and* feel about the decision context, rather than as a direct outcome of its incentive or monitoring effect (Chng and Wang, 2015; Cuevas-Rodríguez et al., 2012; Wiseman and Catanach, 1997).

1.3. Research context

To explore the nature of the relationship between PRP and risk behaviours, this study required an environment where PRP is prevalent, and individuals make decisions involving risk and uncertainty. For this reason, the financial trading industry is the focus of this study's empirical field exploration because bonus systems are highly prevalent in this context (Oberlechner and Nimgade, 2005). Furthermore, decision-making under risk and uncertainty is inherent in the process of trading. Every decision traders make involves capital at risk and how they manage their risk behaviours directly impacts their profitability and performance (Locke and Mann, 2009). Moreover, given the debate surrounding the influence of PRP on the risk behaviours of financial service employees, such a research context is of contemporary interest (Drake and Kohlmeyer III, 2010).

This study conducted in-depth, narrative interviews with 21 financial traders. Eleven were bank traders, and ten were retail traders. Bank and retail traders trade similar markets and in the same manner. However, retail traders trade with their own personal accounts and thus are rewarded directly by how well they trade and perform. Bank traders trade on behalf of the bank and bank clients and are rewarded by a monetary bonus at the end of the year contingent on them achieving their performance target. Thus, the inclusion of both cases offered a useful setting to compare the influence of PRP on risk behaviours — retail traders perceive a direct link between their performance and how much they earn, while bank traders are rewarded based on the premise of PRP — thus differences in behaviour across both help elucidate the impact of PRP.

To further enhance the dependability of this study's conceptual framework and findings, an additional interview was undertaken with an informant. The informant was a psychologist who has coached thousands of financial traders on their behaviour, emotions and performance. As such, the detailed and informed insights provided by this individual were utilised to cross-check the central tenets of this thesis' conceptual framework and to substantiate the researcher's interpretation of traders' behaviour.

1.4. Aims

The primary aim of this thesis is to enhance understanding of the PRP–risk behaviours relationship by accounting for the role of contextual evaluation and emotional experience in influencing risk behaviours. This aim is driven by a recognition that extant research is largely dominated by the theoretical tenets of agency theory, yet the outcomes of this literature are mixed, conflicting and far from unequivocal (Bannier et al., 2013; Chng et al., 2015; Hagendorff and Vallascas, 2011; Patrick and Motaze, 2013). Several scholars argue this is because PRP research predominantly retains a simplistic conceptualisation of risk behaviours (Cuevas-Rodríguez et al., 2012; Devers et al., 2008, 2007). Driven by agency theory tenets, it assumes that individuals will default to risk-aversion and will pursue personal goals rather than those of the organisation unless provided with an incentive to align their risk-taking with that of the organisation. (Chng et al., 2015; Sanders and Hambrick, 2007; Boučková, 2015; Cuevas-Rodríguez et al., 2012). Hence, extant PRP research assumes that risk-taking arises because of the PRP system, and consequently, is less concerned with exploring what is influencing risk behaviours (Cuevas-Rodríguez et al., 2012; Wiseman and Catanach, 1997). As such, there is growing recognition that extant PRP research is not best placed to explore how, why or when PRP influences risk behaviours (Chng et al., 2015; Cuevas-Rodríguez et al., 2012; Devers et al., 2008; Hoskisson et al., 2017). Indeed, Gomez-Mejia et al. (2010, p. 225) note that "models of compensation that assume agents are universally risk-averse may lack descriptive validity and prescriptive power."

Risk behaviours are complex and highly idiosyncratic, varying within-individuals because of how they cognitively perceive and emotionally experience the decision context (Kusev et al., 2017; Nosić and Weber, 2010). A growing body of literature proposes that risk behaviours are influenced by an interactive effect between cognition and emotion (De Martino et al., 2006; Druckman and McDermott, 2008; George and Dane, 2016; Gutnik et al., 2006; Seo et al., 2010). Although this is increasingly acknowledged, a theoretical framework which accounts

for both cognitive and emotional effects on risk behaviours has not been forthcoming (Kong-Hee, 2012). Therefore, to address shortcomings in the PRP literature, and to improve on extant inconclusive findings, this thesis must also address the shortcomings in the risk literature. As such, a further aim of this study is to develop a conceptual framework which draws from and integrates both cognitive and emotional perspectives, to study risk behaviours in the context of PRP.

The development and application of this conceptual framework is implicitly informed by the middle-range thinking perspective of Laughlin (1995, 2004). Middle-range thinking argues that a single theory cannot fully explain or capture phenomena; theory can only provide a partial understanding (Broadbent et al., 2001). For this reason, theory should initially be adopted to provide a 'skeletal' framework to inform and support the researcher as they seek to make sense of the research topic. By adopting this 'middle-range', the researcher is neither constrained by or bound to strict theoretical predictions (as is arguably the case with extant PRP research informed by agency theory), nor do they lack theoretical insights to support their understanding. Rather, a middle-range approach ensures the research is clear and explicit in its theoretical approach, whilst retaining an openness to new insights which emerge from the field. In this manner, empirical investigation is used to provide the 'flesh' to the theoretical skeleton, by highlighting what is meaningful and areas where theory may be lacking and thus requiring modification (Laughlin, 1995).

In this regard, this thesis integrates risk-sensitivity theory (RST) with the appraisal-tendency framework (ATF). RST proposes that individuals' risk behaviours are motivated by how they cognitively frame their current state in respect of their desired goal state (Mishra, 2014). It posits that risk-taking is motivated by innate evolutionary needs and drives (McDermott et al., 2008; Rode et al., 1999). When in a situation of high need, meaning desired needs or goals are not met, individuals are more willing to take a risk than those in a low need situation (i.e. desired needs are met) (Mishra et al., 2012a; Mishra and Fiddick, 2012; Mishra and Lalumière, 2011).

However, RST does not recognise that individuals' reactions to their environment are also shaped by the emotions they experience, hence the inclusion of the ATF. The ATF theorises how distinct emotions influence risk behaviours because of the contextual information they make salient (Han et al., 2007; Lerner and Keltner, 2000). For instance, fear arises when individuals are uncertain as to what has happened, while anger arises when individuals are certain about what has happened and believe someone else is responsible (Lerner and Keltner,

2001). As such, fearful people perceive situations are unpredictable and become risk-averse, while angry people are found to take risks because they perceive future situations are predictable and they seek to overcome those hindering them (Beisswingert et al., 2015; Lerner and Keltner, 2001).

However, this thesis also recognises that individuals often seek to manage their emotions. As such, it further seeks to examine the impact of emotion regulation strategies in modulating the effect of emotions on risk behaviours. For instance, emerging literature finds that emotion regulation can lead to an increase in risk-taking behaviours (Heilman et al., 2016, 2010; Szasz et al., 2016). These perspectives are integrated to conceptualise how and why risk behaviours vary because of cognitive and emotional factors. The inclusion of diverse perspectives is all the more pertinent given several scholars have highlighted a need for the integration of multiple theoretical perspectives to remedy the limiting effect of the simplistic assumptions underlying extant PRP research (Devers et al., 2008; Hoskisson et al., 2017). By doing so, this thesis aims to both enhance theoretical representation of risk behaviours in the risk literature and advance understanding of the PRP–risk behaviours relationship.

In sum, this study seeks to provide a more representative account of how risk behaviours are influenced, through the development of integrated theoretical perspectives, with the view of transposing this knowledge to better understand how PRP affects risk behaviours. Thus, this thesis addresses issues in two different sets of literature through the primary aim of ameliorating understanding of the PRP–risk behaviour relationship.

1.5. Research questions

Based on the aims of this study and the identified gaps within extant PRP and risk behaviours literature, the research questions are as follows:

RQ1: How does PRP influence an individual's evaluation of the decision context?

> This question encourages exploration of which aspect of PRP influences individual subjective perception of the decision context. It seeks to develop insights on how PRP can influence an individual's perception of the decision context, in terms of high and low need, and also how it can trigger the experience of different emotions. Based on findings from studies which explore the impact of goals on risk-taking, performance targets are expected to influence subjective perception. They provide an individual with

a point from which to evaluate the decision context and thus signal the favourability of an individual's current state.

RQ2: How do situational characteristics influence need framing[1] and stimulate emotions?

This question guides exploration into the features of the decision context which influence an individual's perception of high and low need and trigger specific emotions. This provides insights on an individual's subjective perception of the decision context and the particular contextual factors which influence this perception.

RQ3: How do need levels and emotions influence risk behaviours?

This question builds on the previous question to explore how contextual evaluation, need levels and specific emotions interact to influence risk behaviour. It specifically seeks to understand why these factors influence within-person variance of risk behaviours.

RQ4: To what extent do emotion regulation strategies impact risk behaviours?

This question is focused on identifying the emotion regulation strategies that individuals may employ to manage their emotions. Specifically, this question aims to gain insight on the extent to which emotion regulation influences risk behaviours.

1.6. Contributions

1.6.1. Contribution to body of knowledge on the PRP–risk behaviours relationship

This study contributes to knowledge on the nature of the relationship between PRP and risk behaviours by revealing factors which influence how, when and why risk behaviours are influenced. Many scholars have argued that such insights are lacking within the PRP literature, which focuses on whether or to what extent PRP impacts risk-taking (Chng and Wang, 2015; Devers et al., 2007; Shaw and Gupta, 2015). In this regard, this study advances understanding of this relationship by demonstrating, conceptually and empirically, that PRP targets influence the within-person variance of risk behaviours by triggering innate evolutionary needs and emotional states. This provides a rationale for why risk behaviours are triggered, because of innate need mechanisms, and how, because of contextual evaluation and emotional experience. Furthermore, this contributes to knowledge on when risk-taking is likely, due to perceptions of

[1] Need framing refers to the central tenet of RST that an individual's perception of need (i.e. extent of disparity between current state and desired state) influences how they view a situation.

high need or because of distinct emotions. As such, this study contributes to a growing body of knowledge asserting that PRP–risk behaviours research can be advanced by drawing from the extensive behavioural science literature on risk behaviours (Cuevas-Rodríguez et al., 2012; Devers et al., 2008; Gomez-Mejia et al., 2010; Martin et al., 2016; Wiseman and Catanach, 1997).

Moreover, this study highlights the importance of an individual's perception and emotional experience of the decision context in influencing their risk-related decisions. This is important, as it indicates that understanding PRP's influence on risk behaviours requires exploration of how PRP makes an individual think and feel about their immediate decision context. Hence, this study advances understanding of the nature of the relationship between PRP and risk behaviours beyond the narrow understanding of extant research; that risk behaviours vary because of incentive arrangements. This study develops this understanding through the application of an original conceptual framework and novel methodological approach, which in turn further support the theoretical and methodological contributions of this study.

1.6.2. Contribution to theory

This thesis makes a significant contribution to the advancement of knowledge on risk behaviours by developing a conceptual framework which integrates cognitive and emotional perspectives on risk behaviours. Much of the research on risk behaviours derive from a cognitive perspective, despite the recognition that emotions are central to the variance of risk behaviours (Druckman and McDermott, 2008; George and Dane, 2016; Kusev et al., 2017). Thus, there have been calls to integrate cognitive theory with emotional theory to advance the study of risk behaviours. While some existing studies have studied the impact of cognition and emotion on risk behaviours simultaneously (e.g. Campos-Vazquez and Cuilty, 2014; Habib et al., 2015; Seo et al., 2010), this study makes a notable contribution by developing a conceptual framework which depicts how cognition and emotion interact. Namely, it theorises how specific emotions (e.g. fear, anger, happiness) interact with different perceptions of need (i.e. high need vs. low need) to trigger within-person variance of risk behaviours. In addition, the conceptual framework further theorises the impact of emotion regulation on risk behaviours, by conceptualising how emotion regulation strategies modulate the effect of emotions on risk behaviours. Thus, this study contributes to the advancement of risk behaviours theory by presenting a conceptual framework which integrates the key behavioural factors known to influence risk behaviours.

Furthermore, through the integrated application of RST and the ATF, this study contributes to the separate development of each theory. With regards to RST, existing research notes that little is understood about how need requirements are constructed in a real-world environment. By applying RST in the field to explore traders' risk behaviours, this study contributes insights on how need is constructed and the contextual factors which influence their construction. Namely, an individual's goals, either internally or externally derived (e.g. targets), influence and construct an individual's framing of need level. Moreover, RST is presented as a cognitive construct in the literature. Yet, findings from this study reveal that risk behaviours cannot be understood singularly by the cognitive perspective of RST. Rather, it appears that emotions can also augment or override the influence of need on risk behaviours. Hence, this study contributes to the development of need perceptions as being more multifaceted than currently considered in RST literature. Furthermore, existing applications of the ATF have predominantly focused on the influence of fear and anger, and to a lesser extent happiness, on risk behaviours. This study contributes to the advancement of the ATF by using it to explore the effects of different positive (in addition to negative) emotions on risk-taking behaviour and by highlighting the nuanced characteristics of each emotion which impact its effect on risk behaviours. Findings suggest that happiness, excitement/euphoria and pride lead to risk-taking. Such findings are particularly significant given the young and developing nature of the ATF (Kugler et al., 2012), where there have been calls to suggest further ways in which the ATF can be expanded (Cavanaugh et al., 2007; Han et al., 2007; Shiv, 2007). This study has demonstrated how the ATF can be applied to understand the influence of individual evaluation of the PRP context on the specific emotions they experience, and why this motivates different risk behaviours.

1.6.3. Methodological contributions

A further contribution is the novel application of this study's methodology. It applies a qualitative approach, within an interpretivist paradigm, to explore a topic dominated by quantitative, positivist approaches. Exploring the PRP–risk behaviours relationship qualitatively enabled this study to reveal aspects of the relationship overlooked by extant quantitative research. Specifically, the role of cognitive evaluation, emotional experience and emotion regulation in affecting risk behaviours. This study took a further novel approach in adapting the narrative interviewing method for the exploration of PRP and risk. In doing so, it contributes to advancing the capacity of narrative interviewing to deal with subjective concepts, such as risk, and for understanding how individuals experience and interpret risk and

PRP. This development further demonstrates how a narrative method can be applied to study organisational mechanisms such as PRP and provides future research with a structural basis to work from. Furthermore, the interpretivist paradigm of this study enabled understanding of how individuals experience PRP and risk, by giving voice to their subjective understanding. This further supported the uncovering of how RST and ATF concepts are constructed in a naturalistic setting. In sum, the novel methodological approach enabled this study to develop the previously discussed contributions to knowledge and theory.

The following section sets out the chapter structure of this thesis.

1.7. Chapter structure

LITERATURE REVIEW

Chapter two: Performance–related pay and risk behaviours

This chapter reviews the literature on PRP and risk behaviours. It explores what is known about the relationship between PRP and risk, and more importantly what is not. It presents the dominant theoretical and methodological approaches of the extant research. In addition, it explores inconsistencies within the literature and discusses the limitations of extant research examining the relationship between PRP and risk behaviours.

Chapter three: Understanding risk behaviours: The Framing Effect

This chapter moves beyond the context of PRP research and begins this study's exploration of how, when and why risk behaviours are influenced. It reviews the predominant approach of the risk literature to understand risk behaviours: the framing effect. The framing effect posits that risk behaviours vary within-individuals because of cognitive perceptions of the decision context. This chapter then reviews the principal theory for understanding the framing effect: prospect theory (Kahneman and Tversky, 1979). Recognising the limitations of prospect theory this chapter further presents the efficacy of risk-sensitivity theory (RST) for overcoming these limitations. Originating in evolutionary ecology, it is proposed to provide an origin for the preferences observed and captured by prospect theory. However, this chapter further reveals the limitations of only considering risk behaviours as the outcome of cognitive processes.

Chapter four: Understanding risk behaviours: The Role of Emotions

This chapter continues the review of the literature on risk behaviours by highlighting the importance of emotion in influencing risk behaviours. This chapter first reviews the predominant approach of the emotions literature to examining risk behaviours: the valence-based approach. The valence-based approach contrasts negative and positive emotions, seeking to explore whether positive or negative emotional states influence risk behaviours. However, this chapter also discusses how limiting such an approach is, as it overlooks the difference between emotions of the same valence (i.e. fear and anger). As such, it presents the appraisal-tendency framework (ATF) and associated literature, which examines how distinct emotions influence risk behaviours. Specifically, individuals are proposed to evaluate the decision context along a set of appraisal dimensions, which trigger distinct emotions, which in turn, influence risk behaviours in future situations. The role of emotion regulation is also introduced in this chapter. Review of this literature identifies that different emotion regulation strategies can influence risk behaviours. Some lead to an increase in risk-taking and others to a decrease in risk-taking. The literature review, across this and the prior two chapters reveal what is known about the PRP–risk behaviours relationship and how risk behaviours are understood to be influenced.

RESEARCH DESIGN

Chapter five: Conceptual Framework

This chapter presents the conceptual framework of this study. The conceptual framework is developed by presenting how PRP targets influence risk behaviours through the mechanisms of RST and the ATF. This provides a framework to understand how PRP influences how an individual thinks and feels about the decision context and why this affects risk behaviours. This chapter concludes with further explanation of the research questions this study seeks to explore, both conceptually and empirically, in the following chapters.

Chapter six: Methodology and Research Approach

This chapter presents the research methodology and research approach. It begins with a discussion of the interpretive paradigm guiding the research. An interpretivist paradigm is chosen due to its emphasis on developing understanding from the subjective experiences of participants. This is specifically important in the context of this study as risk behaviours are considered an outcome of subjective perception. This chapter further presents and justifies the choice of a qualitative research approach, encompassing a narrative interviewing method. The

value of a qualitative approach for uncovering the contextual and individual influences on the PRP–risk behaviours relationship is discussed. The narrative method is then explained, and its strength for overcoming difficulties which arise when exploring a subjective phenomenon, such as risk, is presented. This chapter concludes with a discussion of ethical considerations.

Chapter seven: Research Design: Narrative interviews with financial traders

This chapter presents and discusses the empirical study of this thesis. It details the protocol of the narrative interviewing method and how this was adapted to explore traders' experiences. It further describes how the sample of financial traders was recruited and finalised. Furthermore, it introduces and describes template analysis, detailing how this is used to analyse the gathered interview data. In addition, the chapter describes steps taken to ensure the rigour of the qualitative research.

FINDINGS AND INTERPRETATION

Chapter eight: Findings and interpretation part one — Performance-related pay, performance targets and risk behaviours

This chapter represents the first findings chapter of the thesis. It focuses on presenting the findings, derived from traders' narratives, on PRP, performance targets and risk behaviours. It details how traders perceive PRP and risk. It further describes and interprets the emergent finding that the allocation of reward for bank traders is highly subjective. It presents how PRP targets influence risk behaviours by giving traders a point from which to evaluate the decision context. When below target, traders describe a tendency to take risks, whereas when above target they satisfice. The chapter concludes by summarising the main findings and highlighting the insights they provide to research question one.

Chapter nine: Findings and interpretation part two — Framing effects, emotions and risk behaviours

This chapter presents the findings of this study relating to how perceptions of the decision context influence risk behaviours. It explores how cognitive perceptions of the decision context, in terms of need, are constructed and what influences their construction. It further demonstrates how such need perceptions influences risk behaviours. In addition, this chapter presents findings related to how different emotions are triggered by the decision context and the impact they have on risk behaviours. This chapter concludes by presenting findings on how

interrelated cognitive perception and emotional experience of the decision context are when influencing risk behaviours and the insights provided for research question two and three.

Chapter ten: Findings and interpretation part three — Emotion Regulation

This chapter presents findings on the extent to which traders use emotion regulation strategies to manage the impact of emotions on risk behaviours. It demonstrates how traders rely on three different strategies: cognitive reappraisal, where traders change the meaning of a situation; expressive suppression, where traders suppress the outward expression of an emotion; and situation avoidance, where traders remove themselves from a situation to prevent the impact on an emotion on their immediate decisions. The insights findings provide to research question four are further highlighted. This chapter concludes with an overview of all the main findings of the thesis.

DISCUSSION AND CONCLUSIONS

Chapter eleven: Discussion

This chapter discusses and examines the findings of this thesis in respect of existing research on this topic. It discusses which findings of this study substantiate and support the extant literature and theory, but also what surprises this study revealed which do not support extant research. Furthermore, this chapter discusses the implications of the findings of the study for extant PRP–risk behaviours research and knowledge and the implications for extant risk behaviours literature.

Chapter twelve: Contributions, limitations and suggestions for future research

This chapter presents this thesis' contributions to knowledge in greater detail. It highlights the limitations of this study and makes suggestions for future research exploring this topic. Finally, it provides some concluding comments on the significant insights revealed by this thesis.

1.8. Summary of chapter

This thesis presents a qualitative study of financial traders which expands understanding of the nature of the relationship between PRP and risk behaviours. The extant research proposes that risk behaviours emerge because of incentive and monitoring arrangements. Yet, this approach has been criticised for overlooking the dynamics of human behaviour. This study responds to calls to bridge the gap between behavioural understandings of risk behaviours, and its conceptualisation in PRP research. Behavioural research finds risk behaviours vary because of

the decision-making context. As such, this study proposes that risk behaviours are influenced by individual cognitive and emotional perceptions of the PRP decision context. This premise is developed through the application of RST and the ATF, in addition to emotion regulation strategies, as an integrated theoretical lens. Risk behaviours are theorised to vary according to how an individual thinks and feels about their current performance in respect of PRP targets. Findings support this tenet, as negative performance, in terms of losing money, triggers risk-taking behaviour. Furthermore, emotions play a leading role in influencing risk behaviours. The form of emotion determines the form of risk behaviours, where emotions arise from individual interpretation of the decision-making domain. Thus, this study expands extant understanding of the PRP–risk behaviours relationship, by demonstrating both theoretically and empirically, how individual perceptions of the PRP decision context influences risk behaviours.

CHAPTER TWO: PERFORMANCE-RELATED PAY AND RISK BEHAVIOURS

2.1. Introduction

This chapter explores the literature on PRP to review the importance of risk in the study of PRP, how risk is understood in this setting and how the relationship between PRP and risk behaviours is determined. This review identifies that much of the literature on PRP and risk is informed by agency theory. The agency theory approach directs research to focus on determining whether PRP causes risk behaviours, rather than identifying how or under what circumstances. Yet, as is discussed in this chapter, PRP scholars are arguing for an increased focus on identifying how, why and when PRP influences risk behaviours. This requires research to explore the elements overlooked by agency theory driven approaches. In particular, the nature of the context within which PRP is administered and the role of individual perceptions in affecting risk behaviours.

This chapter is structured as follows. The first section provides an introduction to PRP, before the following section reviews the importance of risk in the design of PRP systems, highlighting the inherent link between PRP and risk. This is further expanded by examining empirical research on the relationship between PRP and risk behaviours. This section identifies considerable heterogeneity among studies, with a lack of consensus as to whether PRP impacts risk behaviours. The subsequent section more closely examines how extant research is conducted. It identifies factors which impact what is known about the relationship between PRP and risk behaviours, such as the widespread use of archival data, the conceptualisation of risk and PRP, and their measures. The limitations of these factors are discussed in light of extant criticism and arguments within the literature. The final section then summarises the identified issues and frames them within the scope of this study.

2.2. Performance-related pay

PRP is a generic term for any system which links pay to a measure of individual, group or organisational performance (Brown and Heywood, 2002). As Wowak and Hambrick (2010) note, PRP follows a straightforward logic: pay affects employee behaviour which in turn affects organisational performance. The terms PRP and incentive pay are used somewhat interchangeably in the literature (Sung et al., 2017). This points to the central purpose of any PRP system; to incentivise desired behaviour through the offering of a performance-contingent reward (Gerhart et al., 2009; Milkovich and Newman, 2008; Sung et al., 2017). However, depending on which field of literature one reads, PRP has several different purposes. Within the fields of human resource management, organisational behaviour and psychology, the focus is on PRP as a motivational tool to enhance performance (Garbers and Konradt, 2014; Gerhart et al., 2009; Jenkins Jr. et al., 1998; Sung et al., 2017). Within accounting, finance, and economics, PRP is both an incentive and organisational control mechanism (Boučková, 2015; Eisenhardt, 1989; Jensen and Meckling, 1976). The latter set of literature on PRP is most often drawn from throughout this thesis. This is because the accounting and economics literature predominantly focuses on PRP as a mechanism for aligning the risk preferences of employee and employer (Boučková, 2015; Eisenhardt, 1989; Martin et al., 2016). As such, PRP and risk are inherently linked within this body of research (Gomez-Mejia et al., 2010). Conversely, as HRM literature remains focused on PRP and its effect on motivation, it largely overlooks risk behaviours (Cerasoli et al., 2014; Deci et al., 1999; Gerhart and Fang, 2015).

PRP is an all-encompassing term, referring to a variety of different performance-contingent pay systems such as merit pay (i.e. performance-related increases to base salary), equity pay (e.g. gain-sharing, profit-sharing, stock options), and one-off payments such as piece-rate systems, commission and bonus pay (Brown and Heywood, 2002; Bucklin and Dickinson, 2001; Kuhn and Yockey, 2003; Mavor and Broderick, 1991). Furthermore, PRP can differ on whether it rewards at the individual, group or divisional level (Gerhart et al., 2009). In this study, the focus is on individual bonus pay systems (i.e. an end-of-year pay-out in addition to base salary). Primarily because this is the form of PRP most strongly associated with excessive risk-taking in the financial services industry (Bannier et al., 2013; Gregg et al., 2012), but also because few studies have examined the impact of bonus pay on individual risk-taking (Bruce and Skovoroda, 2013). This dearth of research on bonus pay likely arises because the majority of studies focus on executive pay, where equity pay is most prevalent (Efing et al., 2015). However, Bannier et al. (2013) argue that the proportion of bonus pay amongst non-executive

employees, particularly traders and salespeople, is higher. Similarly, Efing et al., (2015) argue that non-executive employee risk behaviours may matter more for organisational outcomes. Hence it is even more pertinent for this study to explore the risk behaviours of non-executive employees.

The following section first introduces the concept of risk behaviours. It then reviews extant literature on PRP and risk behaviours, focusing on the theoretical relationship between PRP and risk behaviour, and empirical studies examining the impact of PRP on risk behaviours.

2.3. Performance-related pay and risk behaviours

Risk behaviours are conceptualised as the decision outcome of choice under risk and uncertainty (Kacelnik and Bateson, 1997; March and Shapira, 1987). Importantly, this thesis seeks to understand how, when and why risk behaviours are influenced in the context of PRP. As Mishra (2014) argues, to understand what stimulates risk behaviours, it is necessary to identify why a decision maker sometimes prefers to choose a low-risk option over a high-risk option, and vice versa. Consequently, when discussing risk behaviours, this study is focused on exploring the factors which influence a person's risk-taking (i.e. what affects an individual to engage in/decrease/increase/cease risk-taking).

The consideration of risk behaviours is integral to the design and purpose of PRP (Gomez-Mejia et al., 2010). A primary rationale for the use of PRP is bringing the risk behaviours of employees in alignment with the risk preferences of the organisation (Jensen and Meckling, 1976; Tosi et al., 2000; Wiseman and Gomez-Mejia, 1998). Advocating the use of incentives to encourage this risk behaviour alignment is a central tenet of agency theory (Cuevas-Rodríguez et al., 2012). Accordingly, much of the literature on PRP and risk is understood through the lens of agency theory (Cuevas-Rodríguez et al., 2012; Devers et al., 2008; Gomez-Mejia et al., 2010).

Agency theory assumes employees behave in a consistently risk-averse, self-interested manner (Eisenhardt, 1989; Jensen and Meckling, 1976). Consequently, they will not be willing to perform in the risk-seeking manner required by the firms' risk-neutral shareholders (Sanders and Hambrick, 2007). If employees are to engage in activities supportive of firm performance and conducive to maximising shareholder value, they must be incentivised. Indeed, according to traditional agency theory definitions, an optimal compensation system is one which balances employee effort and risk-aversion (Bloom and Milkovich, 1998). By linking pay directly to performance, the interests of the employee will be aligned with the goals of the firm (Cadsby

et al., 2007) and their attention will be focused on the areas of required effort when monitoring mechanisms are imperfect or absent (Jensen and Meckling, 1976; Prendergast, 2002). In this regard, PRP acts as a means to avert the risk-aversion propensity of employees, by encouraging them to take more risks (Ross, 2004). Indeed, within the agency theory driven literature, this is the primary purpose of a PRP system (Sanders and Hambrick, 2007). However, as will be shown in the following section, there is a lack of consensus as to whether PRP leads to effective risk-taking, as proposed by agency theory, or results in undesired risk behaviours (Prendergast, 2015).

2.3.1. The relationship between PRP and risk-taking: empirical findings

Much of the extant empirical research focuses on determining a causal relationship between PRP and risk-taking (Cai et al., 2010; Chen et al., 2006; Dong et al., 2010). This is because agency theory considers such a relationship indicative of an effective incentive alignment (Devers et al., 2008). However, inconsistencies in empirical findings demonstrate issues central to debates on PRP – does it improve the risk alignment between employees and the firm, or does it motivate employees to engage in excessive risk-taking? (Cai et al., 2010; Gerhart et al., 2009). Findings are inconclusive and conflicting (Cai et al., 2010; Efing et al., 2015; Hagendorff and Vallascas, 2011) demonstrating "how difficult it is to come up with a satisfactory answer" (Patrick and Motaze, 2013, p. 36).

A number of studies find a positive relationship between PRP and risk. Cheng et al. (2015), in examining the total compensation of a sample of bank executives, concluded that "pay and risk are correlated not because misaligned pay leads to risk-taking but rather because agency theory predicts that riskier firms have to pay more total compensation than less risky firms to provide a risk-averse manager the same incentives" (p.840). In a study of the efficacy of executive stock options in offering a risk incentive, Rajgopal and Shevlin (2002) found a positive correlation between equity pay and firm risk. They concluded that stock options overcome the risk-aversion problems in the principal–agent relationship by providing executives with an incentive to engage in risky, but profit-enhancing, projects. Similarly, Guay (1999) finds a positive relationship between the variable components of executive pay and the increased willingness of managers to engage in risky, but value-enhancing, investment projects. Such findings are emulated by Gormley et al. (2013), who find a relationship between executives' compensation-related sensitivity to changes in stock prices and higher levels of firm risk. Low (2009) also examined executive equity compensation and found causal evidence that stock

options positively impact managerial risk-taking. The study finds that risk-averse managers are incentivised to take on risky, but profit enhancing projects, when their pay is tied to firm wealth.

Despite considerable literature confirming a link between pay and risk, several studies do not. Bruce and Skovoroda (2013) examined data from U.K. banks prior and post financial crisis, finding no link between the level of executive bonuses and a firm's risk exposure. Gregg et al. (2012) compared the relationship between executive cash bonus compensation in financial firms in the U.K. with those in other industries. They argued that if executive PRP had contributed to the financial crisis, then PRP would be higher in the financial sector than others. They find that PRP is not significantly higher in financial services when compared to other industries and therefore is unlikely to be responsible for the excessive risk-taking behaviour of banks. Beyond executive samples, Panageas and Westerfield (2009) looked at the effect of the high water mark (HWM) contracts offered to hedge fund managers on their risk behaviours. Under a HWM contract, fund managers receive a percentage of the increase in the fund, provided it has increased above its highest level in the previous year (Panageas and Westerfield, 2009). Here they concluded that PRP encourages risk-aversion rather than risk-taking. They posited that the manager realises that although taking a bolder, riskier approach in the short-term may increase the probability of crossing the HWM, it also increases the chance that the assets in the fund will be reduced in the long-term because their value will decline. Similar findings are presented by Aragon and Nanda (2012), who find that HWM contracts can induce risk-aversion, as fund managers were found to lower risk levels following poor performance, where performance was below the HWM.

In addition to findings of a lack of correlation between PRP and risk-taking, there is also a body of literature which concludes that PRP leads to excessive risk-taking. Bhagat and Bolton (2014) considered executive stock options and their relationship with risk-taking in the largest U.S. banks. By comparing data on CEO's buying and selling stock options with measures of bank risk, they concluded that "incentives generated by executive compensation programs are positively correlated with excessive risk-taking by banks" (Bhagat and Bolton, 2014, p. 335). Similarly, Chen et al. (2006) examined the relationship between executive stock options and firm risk levels, concluding that the structure of both executive stock options and compensation induce risk-taking rather than risk-aversion. They note that "the stock of option-based wealth induces risk-taking in the banking industry" (p.918). Furthermore, Dong et al. (2010) found excessive risk-taking to be an adverse consequence of utilising stock option compensation for executives. They conclude that executives who hold large stock options are more likely to

pursue over-leveraged capital structures, thus indicating excessive risk-taking. Similarly, Cai et al. (2010) examined the relationship between executive compensation and the risk profile of U.S. banks in the period just before the financial crisis. They revealed some potentially problematic practices, including too much bonus and stock-related compensation. Based on this they concluded that executive bonuses might have encouraged short-termism and risk-taking behaviour. Such findings suggest that PRP is effective in motivating risk-taking behaviour, as the principal–agent framework would desire. However, as suggested by Gerhart et al. (2009) PRP can work "too well" (p. 276), whereby the incentive intensity may be so strong it leads to serious unintended consequences, such as excessive risk-taking (Gerhart and Fang, 2014; Sanders and Hambrick, 2007). As Roberts (2010, p. 125) explains, "the problem is that people respond just as strongly to badly designed incentives as they do to well-structured ones. And when those badly designed incentives are strong, they can lead to really egregious forms of behaviour".

Despite the importance of risk to compensation design (Gomez-Mejia et al., 2010) the relationship between PRP and risk behaviours is far from comprehensively understood. Extant research demonstrates inconsistency in findings and a lack of consensus on the nature of the relationship between PRP and risk behaviours (Bruce and Skovoroda, 2013; Hagendorff and Vallascas, 2011). Much of the literature focuses on determining *whether* PRP links to risk behaviours. That is, whether PRP encourages the risk alignment posited by agency theory. However, in response to such inconclusive findings, many compensation scholars have argued that it would be more efficacious to focus on questions of how and when PRP affects behaviour. Indeed, as Chng and Wang (2015, p. 1) argue;

> "Clearly compensation scholars need to re-evaluate a central premise of normative agency theory in which compensation is expected to uniformly motivate appropriate managerial behaviours and enhance performance. Therefore, the key problem facing compensation scholars and practitioners is not *whether* compensation will work in the manner envisaged in normative agency theory but *when* (i.e. under what conditions it will work as such)".

However, extant research's understanding of PRP's relationship with risk is somewhat confounded by its agency theory lens (Devers et al., 2008). As Gomez-Mejia et al. (2010, p. 222) note, this literature "lacks explicit definition of risk concepts beyond those related to agency writings". Hence, the following section discusses how the PRP–risk behaviour relationship is investigated and understood, and consequently, what is known (or indeed not known).

2.4. The extant approach to examining the relationship between PRP and risk behaviours

Much of the extant empirical research has relied upon archival data to examine the PRP−risk behaviours relationship, using pre-determined secondary measures of risk and assuming that individuals are consistently risk-averse (Gomez-Mejia et al., 2010). Similarly, they have focused on distal measures of PRP, such as incentive structure. Such an approach largely stems from the focus of agency theory (Werner and Ward, 2004; Wiseman and Catanach, 1997). As Gomez-Mejia (2010, p.224) explain, "implicit in the interest alignment argument [of agency theory] is the assumption that pay influences risk-taking which in turn affects performance. Thus, much prior compensation research has focused on the direct (but admittedly coarse and distal) pay-to-performance relationship". Yet, as will be presented throughout this thesis, such a focus overlooks the role of important factors such as the context in which PRP is administered and the influence of individual perceptions and differences (Chng and Wang, 2015; Cuevas-Rodríguez et al., 2012; Sawers et al., 2011), making it difficult to extrapolate how, why or when PRP affects risk behaviours (Cuevas-Rodríguez et al., 2012). The following sections review the approach taken by the extant literature when examining the PRP–risk behaviours relationship. They discuss the use of archival data and how PRP and risk are conceptualised and measured, highlighting their impact on understanding the PRP–risk behaviours relationship. Table 2.1 further presents the different theoretical approaches taken by extant research, the methods used and the primary findings of extant research.

2.4.1. The use of archival data

Secondary data analysis, using archival data, is the predominant method for examining the relationship between PRP and risk behaviours within extant research (e.g. Aragon and Nanda, 2012; Cheng et al., 2015; Rajgopal and Shevlin, 2002). As Brink and Rankin (2013) explain, the relationship between pay and risk is most often determined using "market or accounting performance measures, turnover, growth and governance characteristics" (p.142). Accessing data on pay and risk in organisations is often problematic (Efing et al., 2015). Hence most studies obtain data from archival databases, as they are limited to using data which is publicly available (Gomez-Mejia et al., 2010).

Such data offers considerable advantages in terms of the volume of data it can offer (Boslaugh, 2007). However, it is limited in the insights it provides of the more proximal elements of a relationship, due to its lack of connection with the social world (Murphy and Schlaerth, 2010).

Chng and Wang (2015, p.7) argue that "archival data…rarely provides sufficient details to analyse the effects of incentive compensation on manager's strategic risk behaviour". By having to rely on archival databases which derive from industry or firm level reports[2], extant research is "constrained by the information included in them" (Gomez-Mejia et al., 2010, p.150). This leads to limited insights regarding the particular factors which affect the relationship, such as contextual influences and the specific type of employees making the risk-related decisions. Such issues are encountered by Efing et al. (2015, p. 124) in their analysis of European banks, where they note that "a limitation of the analysis is that we cannot observe the exact activity that a bank engages in. For the same reason, we cannot identify which bank employee within the investment banking segment contribute most to a bank's risk choices". Larraza-Kintana et al. (2007) expand on this, noting that the firm-level measures of risk, available in archival data, provide a weak proxy for risk behaviour as they capture additional variables such as exogenous industry factors, making it problematic to extrapolate what is influencing risk-related decisions.

In sum, the reliance on the secondary analysis of archival data provides limited insights of the context within which the PRP–risk behaviours relationship arises. Rather than acknowledging the role the decision context plays in influencing risk behaviours, "most field studies have captured this behaviour indirectly through proxies for strategic choice that utilise firm-level performance measures" (Wiseman and Catanach, 1997, p. 800). However, as Gomez-Mejia (2010, p.154) argue "ultimately one must deal with the philosophical question of whether outcome measures, which are the only ones available in archival databases, are the most appropriate indicators to examine". Indeed, as the following sections discuss, the use of archival data has limited extant research to focus on pre-defined measures of risk and PRP, which overlook the complex and subjective nature of risk.

2.4.2. How risk is conceptualised and measured

In the extant literature, risk is primarily conceptualised as variance or volatility in outcomes (Shapira, 2002). Such definition of risk lends to the view that it can be quantitatively measured and accounted for. Despite this convergence within the extant research, the actual measure for risk differs considerably between studies, ranging from financial distress (Gregg et al., 2012), to investment decisions in mergers and acquisitions (Hagendorff and Vallascas, 2011), or the

[2] Examples include the Thomson Insiders database (Bhagat and Bolton, 2014), and the ExecuComp database (Chen et al., 2006; Dong et al., 2010).

leverage of the firm (Cai et al., 2010). Others determine risk behaviours according to choice between debt and equity funding (Bruce and Skovoroda, 2013; Buraschi et al., 2014; Coles et al., 2006; Dong et al., 2010) investment decisions (Hagendorff and Vallascas, 2011) and market returns (Gregg et al., 2012; Kempf et al., 2009). In some cases, measures of risk have been particularly industry or sample specific, such as exploration risk in the oil and gas industry (Rajgopal and Shevlin, 2002), the types of loans extended in the banking sector (Francis et al., 2015) and the number of position updates a trader engages in (Shapira, 2002).

In their review of compensation research, Devers et al. (2007, p. 1039) conclude there is "little consistency in the operationalisation of many important constructs of interest, particularly troubling was the use of ambiguous or inconsistent measures of firm performance, compensation and risk". This results in mixed findings (Hagendorff and Vallascas, 2011), difficulty in extrapolating "how much risk is too much" (Dong et al., 2010, p.2519), or indeed, how PRP actually influences risk behaviours (Efing et al., 2015). Most importantly, examining risk behaviours based on such pre-determined measures "presupposes that the decision-maker shares the researcher's assumption about the riskiness of the alternative being measured" (Larraza-Kintana et al., 2007, p.1006). By doing so, the researcher ignores other factors, such as market conditions or uncontrollable events which can influence how individuals actually perceive risk (Larraza-Kintana et al., 2007).

In addition, much of the extant research presupposes that individuals are risk-averse by default, reflecting the influence of agency theory (Devers et al., 2008). However, a significant body of literature criticises such simplistic accounts of human behaviours (e.g. Devers et al., 2007; Sawers et al., 2011; Wiseman and Gomez-Mejia, 1998), for failing to acknowledge the effect of the context within which PRP is administered and the role of individual perceptions and differences (Cuevas-Rodríguez et al., 2012). Furthermore, the continued conceptualisation of consistent risk-aversion, although parsimonious for predicting how employees should behave, does not reflect the variable nature of risk behaviours between and within individuals, and decision contexts (Beisswingert et al., 2015; Weber and Johnson, 2008; Wiseman and Catanach, 1997). In many cases, individuals are not found to respond to pay in the rational manner set out by economic theories, such as agency theory (Heath et al., 1999b). Rather, a considerable body of evidence asserts that individuals exhibit risk behaviours inconsistent with risk-aversion (Chow et al., 2007), and often do not perceive risk in terms of outcome variance (March and Shapira, 1987; Shapira, 2002).

In sum, criticism is directed towards the narrow conceptualisation of risk behaviours in extant

research, and the use of outcome measures for risk which overlook how individuals actually *experience* risk (García-Pérez et al., 2013; Holmes et al., 2011; McNamara and Bromiley, 1999). Measuring risk behaviours according to a pre-defined quantitative measure, as the extant research does, "is difficult to sustain in a context of competing definitions of risk" (Zinn, 2005, p. 2). Indeed, when the measures used for risk are based on such ambiguous factors as financial and investment decisions, it is difficult to identify and interpret the results in terms of how risk behaviours are affected (Low, 2009). Consequently, the approach to measuring and understanding risk in the extant research arguably does not capture the full range of risk behaviours, or what is driving them.

2.4.3. How PRP is conceptualised and measured

Research on the PRP−risk behaviour relationship primarily focuses on equity pay, such as stock options (Dong et al., 2010; Gormley et al., 2013; Guay, 1999; Rajgopal and Shevlin, 2002). This reflects the dominance of executive samples within this literature (Efing et al., 2015). Examination of other forms of pay incentive, such as bonus pay-outs, are less prevalent (Bruce and Skovoroda, 2013). However, in non-executive employee samples, there is a broader sphere of PRP chosen for analysis. For instance, the literature on hedge fund managers (Aragon and Nanda, 2012; Buraschi et al., 2014; Drechsler, 2014) focus on the bonus payments received by fund managers once their fund exceeds the high-water mark. Additionally, studies on other finance sector employees, such as traders and investment bankers, look at the variable element of pay related to individual performance (e.g. Efing et al., 2015; Shapira, 2002).

Much of this research focuses on pay *structure* to measure PRP. Pay is measured according to structures such as the level of bonus relative to total compensation (Bhagat and Bolton, 2014), or the sensitivity of executive pay to stock volatility (Dong et al., 2010; Rajgopal and Shevlin, 2002) or structural elements which make up total compensation (Gregg et al., 2012). The focus on the structure of pay, as a measure for PRP, is perhaps an outcome of the agency theory driven nature of this research (Devers et al., 2008). From the perspective of agency theory, it is the structure and design of a pay system which encourages risk behaviours (Willman et al., 2006). Therefore, it holds that the PRP–risk behaviour research would consider pay structure as the variable of PRP which would impact risk behaviour. However, as Devers et al. (2008, p.549), argue "while conventional compensation research relies on the assumption of consistent CEO risk-aversion, evidence has shown that executives' risk preferences are conditioned by compensation-related contexts owing to factors beyond the ex-ante structuring

of CEO pay".

Indeed, several studies have found other factors, beyond pay structure, can influence overall behaviour (Bettis et al., 2005; Devers et al., 2007). For instance, past performance (Thaler and Johnson, 1990), the level of performance target (Chow et al., 2007), contextual factors (Sawers et al., 2011) and the salience between performance and reward (Shapira, 1995) have all been found to influence the impact of PRP on behaviour. As Wowak and Hambrick (2010) argue, the effects of PRP cannot be adequately studied in isolation. Rather, there is a need to recognise the importance of other elements in the PRP environment which determine the relationship with risk behaviour other than just its structure. In particular, how employees actually *experience* their pay system (Brink and Rankin, 2013), and how they perceive the information or signals it gives them (Gneezy et al., 2011). Overall, an argument has emerged within the literature that focusing on the structure of PRP systems is constraining for the understanding of PRP's relationship with risk behaviours (Devers et al., 2008). Not just because of the inconsistencies between studies in the chosen measure for pay structure (Bruce and Skovoroda, 2013), but also because of the limited view it offers of what factors can potentially influence risk behaviours (Drake and Kohlmeyer III, 2010; Sprinkle, 2003). It is argued that by only focusing on the structure of pay, extant research overlooks the additional subtleties of pay which can affect behaviour. For instance, the contextual features in which it is administered (Sawers et al., 2011), individual differences (Wowak and Hambrick, 2010), the information the employee receives from it and how salient employees perceive this information to be (Gneezy et al., 2011).

Table 2.1 below, illustrates the difference between sample, theoretical approach and method of extant studies. The following section then provides an overview of the issues pertaining to the approach of extant research on this topic.

Table 2.1: Summary of extant PRP–risk behaviours research

Article	Sample	Theoretical lens	Method	PRP measure	Risk measure	Relationship between PRP and risk
Aragon and Nanda, 2012	Hedge fund managers	Unclear	Hypothetical modelling	High water mark	Risk shifting	No for mid-level poor fund performance Yes for high-level poor fund performance
Bannier et al., 2013	Banking employees (hypothetical)	Agency Theory	Hypothetical modelling	Level of bonus	Investment in risky projects	Yes
Bebchuk et al., 2010	Executives — Banking — at Bear Stearns and Lehman Brothers	Agency Theory	Archival data analysis	Level of bonus share vs. base pay	Firm losses	Yes
Bhagat and Bolton, 2014	Executives — Financial firms	Managerial Incentives Hypothesis	Archival data analysis	Level of bonus share vs. base pay and sales of stock	Firm risk — debt vs. equity levels, and asset write-downs	Yes
Bruce and Skovoroda, 2013	Executives — Financial firms	Unclear	Archival data analysis	Level of bonus	Firm leverage	No
Cai et al., 2010	Executives — Financial firms	Agency Theory	Archival data analysis	Total compensation size	Firm risk — leverage	Yes
Carpenter, 2000	Managers (hypothetical)	Agency Theory	Hypothetical modelling	Stock options	Investment in risky projects	No
Cerasi and Oliviero, 2014	Executives — Financial firms	Agency Theory	Hypothetical modelling	Increase in variable element of total pay	Firm risk — stock return volatility	Yes, in the presence of weak regulation

Chen et al., 2006	Executives — Financial firms	Moral hazard	Archival data analysis	Stock option compensation vs. total compensation	Firm risk — total, systematic, idiosyncratic, and interest rate risks	Yes
Cheng et al., 2015	Executives — Financial firms	Agency Theory	Archival data analysis	Total compensation size	Firm risk — stock beta, volatility, leverage	Yes
Chevalier and Ellison, 1995	Mutual fund managers	Agency Theory	Archival data analysis	New cash inflows into fund	Desire to maximise funds expected growth in following year	Yes
Coles et al., 2006	Executives — various industries	Agency Theory	Archival data analysis	Sensitivity of pay to stock volatility	Firm risk — stock return volatility	Yes
Dong et al., 2010	Executives — various industries	Agency Theory	Archival data analysis	Sensitivity of pay to stock volatility	Debt vs. equity in firm security issue decisions	Yes
Drechsler, 2014	Hedge fund managers	Unclear	Hypothetical modelling	High water mark	Risk shifting	Yes
Efing et al., 2015	Investment banking and capital market managers	Agency Theory	Archival data analysis	Level of bonus share vs. base pay	Volatility in firm trading income	Yes
Francis et al., 2015	Executives — Financial firms	Unclear	Hypothetical modelling	Total compensation and stock value	Types of loans extended by bank	Yes
Gormley et al., 2013	Executives — various industries	Agency Theory	Archival data analysis	Sensitivity of pay to stock volatility	Firm risk — tail risk, e.g. legal liabilities and costly regulation	Yes
Gregg et al., 2012	Executives — various industries	Agency Theory	Archival data analysis	Total compensation	Market returns	No
Guay, 1999	Executives — various industries	Agency Theory	Archival data analysis	Sensitivity of pay to stock volatility	Firm risk — R&D expenditure, leverage	Yes

Guo et al., 2014	Executives — Financial firms	Agency Theory	Archival data analysis	Level of bonus share vs. base pay	Firm risk — Z score, volatility in stock returns, financial distress	No
Hagendorff and Vallascas, 2011	Executives — Financial firms	Agency Theory	Archival data analysis	Stock value	Investment choices in mergers and acquisitions	Yes
Low, 2009	Executives — various industries	Agency Theory	Archival data analysis	Sensitivity of pay to stock volatility	Total firm risk — variance of daily stock returns	Yes
Panageas and Westerfield, 2009	Hedge fund managers	Unclear	Hypothetical modelling	High water mark	Risk shifting	No
Rajgopal and Shevlin, 2002	Executives — oil and gas industry	Agency Theory	Archival data analysis	Sensitivity of pay to stock volatility	Firm risk — stock return volatility	Yes

2.5. Summary of issues

PRP is inherently related to risk (Gomez-Mejia et al., 2010; Martin et al., 2016). However, the nature of that relationship continues to spark debate within the literature (Devers et al., 2008; Shaw and Gupta, 2015). In response to the disparate findings between studies directly examining the correlation between PRP and risk, there is an emergent body of literature identifying issues and gaps in current knowledge. Such scholars argue that extant research has only considered a "limited set of features or special circumstances" (Drake and Kohlmeyer III, 2010, p. 207), producing mixed (Hagendorff and Vallascas, 2011) and inconclusive (Low, 2009) findings. Collectively, this has contributed to the lack of clear understanding of how, why or when PRP systems impact risk behaviours (Efing et al., 2015; Guo et al., 2014). In particular, criticisms have been directed towards the limitations of using agency theory as a theoretical lens (Sawers et al., 2011), leading to the simplistic and somewhat unilateral focus on the structure of pay (Devers et al., 2008), the narrow conceptualisation of risk behaviours (Larraza-Kintana et al., 2007), a lack of contextual or situational analysis (Bromiley and Curley, 1992; Chng and Wang, 2015) and a disregard for the influence of individual perceptions (Brink and Rankin, 2013; Wowak and Hambrick, 2010). Indeed, Godlewski (2004, p. 2), concludes that "the formulation of risk in standard agency theory is rather restrictive and naïve, assuming stable risk preferences".

As this chapter has revealed, much of the research and discourse on PRP reflects agency theory axioms. Indeed, Gerhart and Rynes (2003, p. 161) describe the almost "exclusive application" of agency theory to compensation research. In being bound to agency theory, much of the research focuses on determining the effectiveness of PRP in creating a risk alignment between risk-averse employees and risk-neutral shareholders. That is, *whether* PRP influences risk behaviours. However, some PRP scholars have begun to argue that continuing such a focus is futile. This is reflected in an appeal from Shaw and Gupta (2015, p. 289) who argue that;

> "It is time to put the issue of whether (pay incentives) work to rest; it is time to attend to issues of how and why they work. It is time to consider the conditions under which and the people for whom, they work best".

Considering how, why and when PRP systems work requires a different approach. Uncovering how PRP influences risk behaviours, or why and when risk behaviours are stimulated in this context requires closer consideration of the behavioural elements in the relationship (Cuevas-Rodríguez et al., 2012; Devers et al., 2008; Gomez-Mejia et al., 2010). However, "because much of this research is from a labour economics standpoint, little research has looked at how

human decision processes affect compensation" (Werner and Ward, 2004, p. 207). Hence, many scholars call for closer examination of the contextual variables that can influence risk behaviours (Gomez-Mejia et al., 2010; Sawers et al., 2011) and the effect of individual differences (Jiang et al., 2013; Wowak and Hambrick, 2010). Extant research assumes consistent risk-aversion unless effective monitoring such as PRP is applied (Jensen and Meckling, 1976), and therefore does not account for the impact of individual differences and contextual influences. However, a behavioural perspective engenders a somewhat different perspective. It proposes that risk behaviours vary according to individual differences, such as perception and the avoidance of loss (Willman et al., 2002) the nature of the decision context (Kahneman and Tversky, 1979; Weber and Johnson, 2008) and emotional experience (Kusev et al., 2017; Loewenstein et al., 2001).

2.6. Conclusion

This chapter has reviewed extant literature examining the relationship between PRP and risk behaviours. This review has highlighted several shortcomings to developing a comprehensive understanding of the nature of the relationship between PRP and risk behaviours. Namely, extant studies of PRP and risk do not account for the complex and subjective nature of risk (Gomez-Mejia et al., 2010). Indeed, by only focusing on the relationship between structures of pay and objective measures for risk, such as volatility and outcome variance, the extant research overlooks many of the nuances which can influence the relationship. As will be demonstrated in the following chapters, three and four, risk is better understood according to individual perceptions of the decision context, such as the costs and benefits of a choice outcome or the feelings associated with the situation (e.g Kahneman and Tversky, 1979; Loewenstein et al., 2001; MacCrimmon and Wehrung, 1986; Weber and Johnson, 2008). When risk behaviours are affected by such subjective factors, it is difficult to sustain the objective and narrow approach of the extant research described in this chapter.

CHAPTER THREE: UNDERSTANDING RISK BEHAVIOURS — THE FRAMING EFFECT

3.1. Introduction

Risk behaviours are found to vary within individuals because of their perception of the immediate decision context. The purpose of this chapter is to develop a deeper understanding of this behaviour, explore the underlying factors of influence and establish a rationale for why this occurs. It achieves this by reviewing the predominant concept for understanding risk behaviours — the framing effect — and theories which account for its influence on risk behaviour. The framing effect is one of the most robust concepts in the social sciences and captures how individuals prefer risky choices when facing losses but make risk-averse decisions when facing gains. This observation is famously captured by prospect theory, which provides a framework for how different decision frames motivate different risk behaviours. However, this chapter's review of prospect theory reveals some limitations. It lacks any overarching rationale for why such preferences occur. Risk-sensitivity theory is thus presented to overcome the limitations of prospect theory. It draws from evolutionary ecology to provide a rationale for why risk behaviours vary and the underlying factors which influence them. This chapter concludes by commenting on the limitations of only taking the cognitive perspective of the framing effect into account when exploring risk behaviours.

3.2. The framing effect and risk behaviours

Risk behaviours are predominantly treated as the outcome of cognitive processes (Gutnik et al., 2006; Kusev et al., 2017). Traditionally, this meant that risk-related decisions were assumed to be driven by utility maximisation, whereby individuals weigh up the personal value of outcomes, multiplied by their probabilities, and choose the option which offers the greatest potential increase in personal utility (Bernoulli, 1954; Friedman and Savage, 1948; von Neumann and Morgenstern, 1944). Indeed, this is the normative view assumed by agency theory and much of the PRP–risk behaviours literature (e.g. Cheng et al., 2015; Gormley et al., 2013; Jensen and Meckling, 1976; Rajgopal and Shevlin, 2002). However, the arrival of the *framing effect*, credited to work by Tversky and Kahneman (1981), marked one of the most important turning points in the study of risk behaviours — the recognition that individuals' risk-related decisions are influenced by situational characteristics (Cornelissen and Werner, 2014; Hamaker et al., 2007; Kahneman and Tversky, 1979; Kusev et al., 2017). Rather than

basing decisions on utility maximisation, individuals are found to consistently violate such assumptions in response to how they cognitively perceive their immediate situation and how it is presented to them (i.e. framing effect) (Cornelissen and Werner, 2014; Kühberger, 1998; Tversky and Kahneman, 1981). The way in which situations are perceived, in terms of being either positive or negative, an opportunity or a threat, a gain or a loss, etc., produce different risk behaviours (Highhouse and Yüce, 1996; Kahneman and Tversky, 1979; Sitkin and Pablo, 1992). Specifically, Kahneman and Tversky observed that individuals tend to be risk-seeking when facing a decision framed as a loss but risk-averse when facing a decision framed as a gain (Kahneman and Tversky, 1979; Tversky and Kahneman, 1981).

The framing of risky choice captures how an individual's willingness to take risk changes according to whether the negative or the positive of a situation is salient (Levin et al., 1998). This demonstrates the importance of understanding the context in which decisions are made to adequately understand behaviour (Fantino, 2001; Fantino and Stolarz-Fantino, 2005; Girgenzer, 2000; Sawers et al., 2011). In particular, how and why individuals adapt their behaviour in response to their perception of the immediate decision context (Hamaker et al., 2007). Prospect theory is the predominant theory for understanding the framing effect and its implications for risk behaviour (Kahneman and Tversky, 1979; Levin et al., 1998; Seo et al., 2010). The following section describes the central tenets of prospect theory and discusses how different frames influence different risk behaviours.

3.3. Prospect Theory

Prospect theory (PT) (Kahneman and Tversky, 1979) is a framework for understanding risky decision-making as a product of cognitive evaluation of the decision context (Bromiley, 2010). PT finds that when choice contexts are framed as a loss individual's exhibit risk-seeking behaviour, but when framed as a gain they demonstrate risk-averse behaviour (Kahneman and Tversky, 1979).

PT posits that such variance in risk behaviours demonstrates that individuals think in terms of changes in utility, relative to a cognitive reference point, rather than absolute (i.e. end-state) utility. The reference point is broadly described as a neutral position, which distinguishes gains from losses (Tversky and Kahneman, 1992). Alternatives perceived as being above the reference point are considered gains and those below are perceived as losses. By observing that individuals are more likely to be risk-seeking in response to a perceived loss (relative to the reference point) it posits that individuals are loss-averse (Kahneman and Tversky, 1979). Loss-

aversion captures how individuals dislike losses more than equivalent gains (Kahneman and Tversky, 1979). Individuals are more concerned with avoiding loss than achieving gain, even at the expense of choosing a more uncertain or 'risky' outcome. Consequently, individuals become risk-seeking when in a loss domain, as they seek to avoid experiencing further loss. Conversely, in a gain domain, individuals are risk-averse as they seek to avoid any potential loss that comes with choosing a risky option (Kahneman and Tversky, 1979).

In sum, unlike theories based on utility maximisation (i.e. agency theory), PT posits that it is not the expected end-state which drives risk behaviours, but perceived changes in state. This has implications for PRP, where the motivational strength of its incentive effect is based on the belief that individuals make decisions based on utility maximisation (Hoskisson et al., 2017).Yet, as PT depicts, people are more concerned with avoiding losses than maximising personal utility. Therefore, it may not be the potential size of the reward that motivates risk behaviours but how it influences an individual's perception of the decision context (i.e. changes in state in respect of reference point). The following section explores this further by reviewing literature which has applied PT to the study of such cognitive perception in contexts relevant to this study.

3.3.1. Prospect Theory and empirical findings

PT has been applied to examine risk behaviours at the individual level of financial professionals (e.g. Abdellaoui et al., 2013) and at the firm level to study the risk-taking of banks (e.g. Alam and Boon Tang, 2012). In addition, several studies demonstrate how performance targets influence risk behaviours by acting as a reference point from which individuals evaluate gain and loss domains (e.g. Heath et al., 1999a; Larrick et al., 2009).

At the individual level, Abdellaoui et al. (2013) applied PT to study the behaviour of financial professionals, finding empirical support for loss-aversion; bankers were risk-averse for gains and risk-seeking for losses. Such findings also supported those of Godlewski (2004). Godlewski (2004) argued that due to the framing effect risk behaviours would vary, as opposed to the stable preferences assumed by agency theory. Consequently, changes to the 'performance benchmark' of employees would influence their risk behaviours by affecting the reference point which divides gains from losses (Godlewski, 2004). Findings supported this hypothesis; bankers above the target level, in terms of potential losses, exhibited risk-averse behaviour while those below target exhibited risk-seeking behaviour. However, findings are not always consistent. In a study of financial traders, Willman et al. (2002) found considerable

heterogeneity between traders; some became risk-averse once they met PRP targets, while others demonstrated risk-seeking behaviour even when in the gain domain.

At the firm level, Alam and Boon Tang (2012) applied PT to examine the risk-taking behaviour of Islamic banks. They found that banks below their target risk-level were risk-seeking, while those above their target risk level were risk-averse. They concluded that target reference points, which delineate gain from loss domains, impact risk-related decisions. The impact of executive compensation on reference points has also been examined at the level of firm risk-taking. Larraza-Kintana et al. (2007) found that when CEO stock options increased in value, the firm took less risk. They argued that when stock options are gaining in value, executives adopt a gain frame and consequently exhibit risk-averse behaviours in firm-level decisions.

As the previously reviewed literature suggests, performance targets influence risk behaviours by acting as reference points and thus informing risk-related decisions in the manner described by PT. Several studies have directly examined the impact of targets on risk behaviours concluding that targets influence risk-taking because they provide information on an individual's current situation relative to their desired goal or aspiration level (e.g. Heath et al., 1999a; Knight et al., 2001; Larrick et al., 2009; Schneider and Lopes, 1986). Chow et al. (2007) found that higher, harder to reach goals lead to high levels of risk-taking. They argue that, when the performance target is hard to reach, employees are motivated to take a risk to avoid failure in meeting the target. Indeed, Larrick et al. (2009, p.361) argue that "by setting a challenging goal, an organisation can make moving towards a goal seem so attractive that individuals may be tempted to engage in risky or even reckless behaviour" to achieve the goal. In addition, based on a large qualitative study of managers' perception of risk, March and Shapira (1987) conclude that most managers consider it is more justifiable to take a risk when faced with the potential failure to meet targets than when targets are secure. Furthermore, in a study of hedge fund managers Shelef (2013) found that managers below the incentive threshold (i.e. PRP target) increase the risk of the fund. In a similar study, Fernandes et al. (2010) examined the risk behaviours of mutual fund managers. They found that fund managers' risk-taking is influenced by how difficult they perceive it is for the fund to outperform the performance benchmark (i.e. the point at which it outperforms the previous year). They found that losing funds (i.e. those below the benchmark) increased their risk-taking when compared to that of winning funds (i.e. those above the benchmark). Further evidence of such risk-taking behaviour is cited in many studies of mutual fund managers (e.g. Brown et al., 1996; Clare and Motson, 2009; Orphanides, 1996; Taylor, 2003).

As these studies demonstrate, individuals make risk-related judgements based on an evaluation of the immediate decision context (Lopes, 1987). According to PT, this evaluation occurs in respect of a cognitive reference point where changes in value, in terms of gains and losses, influence risk behaviours. Moreover, and pertinent to this study, are findings which demonstrate that performance targets can act as cognitive reference points and thus effect risk behaviours. As such, PT appears to be a logical and intuitive theory for understanding how risk-related decisions are influenced in the context of PRP. However, as is discussed in the following section, PT has shortcomings which limit its efficacy in this capacity.

3.3.2. Limitations of Prospect Theory

Despite PT being one of the most influential theories of decision-making under risk and uncertainty (Cornelissen and Werner, 2014; Holmes et al., 2011; Seo et al., 2010), it has limitations which restrict its ability to provide a rationale for why risk behaviours vary within individuals and how they are affected (Houston et al., 2014; Mishra, 2014).

The first limitation of PT is the lack of a clear definition of what the reference point is, nor is there any guidance on how to identify and measure reference points and framing effects in the field (Holmes et al., 2011). As Fiegenbaum et al. (1996, p. 223) argue, when PT is applied "any variable that highlights a particular target or objective seems capable of establishing a reference point." This limitation is certainly evident within the previously reviewed empirical literature. Many of the studies assume the reference point to be a neutral position, such as the status quo (e.g. Abdellaoui et al., 2013), or a target objective such as a fund's level of return (e.g. Fernandes et al., 2010; Shelef, 2013). Although it is possible such reference points are applicable, they are assumed rather than qualified. Indeed, on finding inconsistencies in the risk behaviours of financial traders across gain and loss frames, Willman et al. (2002, p.95) proposed that "reference points dividing perceived gains from losses may be highly idiosyncratic, depending on past performance, the difficulty of the performance target, beliefs about the bonus system and peer pressure". Thus, reference points differ within individuals. Moreover, by not offering a clear definition of the reference point, PT fails to define the currency of decision-making (Mishra, 2014). In other words, what is initiating or motivating decisions and behaviour. Rather, PT implies that utility (i.e. the personal value of something) is the currency of decision-making (Mishra, 2014). Without understanding what underlies the manifestation of a behaviour, it is difficult to gain an insightful understanding of how risk behaviours are affected and why they vary within individuals.

The second limitation of PT is that it lacks any rationale for why individuals exhibit changes in risk behaviour in response to the decision frame (Druckman and McDermott, 2008; Houston et al., 2014). In particular, Druckman and McDermott (2008) note that despite PT being the dominant theory for the study of risky framing, it lacks a theory of framing. Houston et al. (2014) expand on this, highlighting that although PT captures that individuals tend to be risk-averse for gains and risk-seeking for losses, it "lacks any unifying principle that might explain why such preferences exist" (p. 502). Moreover, Sawers et al. (2011, p. 198) argue that "prospect theory predictions based on the decision context alone do not consistently explain managerial risk-taking behaviour". Essentially, PT has produced a somewhat superficial understanding of the factors which underlie the framing effect (Levin et al., 1998; Mishra, 2014). Yet, this is unsurprising considering the nature of PT. PT is an algebraic model of risky choice, designed to describe people's choices under risk and uncertainty, *not how and why* such choices come about (Pachur et al., 2017). Until it is determined why a gain domain motivates an individual to become risk-averse and why a loss domain motivates an individual to become risk-seeking, the underlying factors determining the behaviour remain elusive. As such, there is a need to explore the determinants of risk behaviour from additional perspectives. In response, the following section presents risk-sensitivity theory (RST), which provides an evolutionary derived rationale for why changes in the decision context influence risk behaviours and a clearer currency of decision-making.

3.4. Risk-Sensitivity Theory

The contextually variable nature of risk behaviours, for which prospect theory provides a theoretical framework, can be explained and given a rationale by risk-sensitivity theory (RST) (Stephens and Krebs, 1986; Stephens, 1981). Importantly, several studies (e.g. McDermott et al., 2008; Mishra et al., 2015; Mishra and Lalumière, 2010) find that RST provides a behavioural origin and rationale for the framing effect observed by prospect theory (Kahneman and Tversky, 1979). RST achieves this by demonstrating how the origin of risk behaviours is "deeply rooted in human evolutionary psychology" (McDermott et al., 2008, p. 336) and why this influences risk behaviours.

RST proposes that risk behaviours are influenced by an individual's immediate environment or current state (Houston et al., 2014). It provides a functional framework for why individuals switch from risk-averse to risk-seeking behaviour based upon an evolved sensitivity to need states (Houston et al., 2014). Here, "need refers to a disparity between an individual's present

state and a goal (or desired state)" (Mishra and Lalumière, 2010, p. 605). When in a situation of high need, and when it is unlikely that goals can be achieved through a low risk strategy, a preference for risk-seeking behaviour ensues (Mishra et al., 2014). Thus, it is an awareness of undesired disparity between current state and goal state which triggers risk-taking behaviour (Houston et al., 2014). Central to this account of risk behaviours is that individuals focus on satisficing not maximising (Gonzales et al., 2016; Mishra, 2014). In other words, rather than maximising outcomes, individuals just want to ensure that their needs are met (Mishra, 2014). When in "circumstances of disparity between one's present and desired goal states — conditions of *high need* — risk-taking allows at least the possibility of obtaining otherwise unavailable or unattainable outcomes" (Mishra et al., 2016, p. 3). Conversely, when the desired state is attained, there is no requirement for risk-taking (Mishra, 2014; Gonzales et al., 2016).

There are several advantages to using an evolutionary theory such as RST, particularly for overcoming the limitations of PT. First, RST provides a clear, more concrete, currency of decision-making: it posits 'proxies of fitness' as the underlying motivator of risk behaviours (Mishra, 2014). As products of evolution through natural selection, human decision processes have evolved to support choices which enhance an individual's survival and reproductive capacity (i.e. fitness) (Roberts et al., 2012). As such, we are innately motivated to meet the level of need, in various aspects of our life, which are required to support 'fitness' (Mishra, 2014). For instance, this may be achieving a qualification necessary to secure a job, earning enough to keep up repayments on a mortgage or, in academia, publishing in top journals to improve career progression. Second, and closely related to the first, RST provides a clear rationale for *why* risk behaviours vary within individuals. While PT describes *how*, due to loss-aversion, RST finds that risk behaviours vary as an adaptive response to changing need levels in the immediate decision context (Mishra et al., 2015, 2014; Mishra and Fiddick, 2012). This ability to provide such a rationale is an outcome of its third advantage: evolutionary theory provides an ultimate-level account of behaviours (Saad, 2011; Swami, 2011). This means that rather than focusing on explaining *what* mechanisms determine phenomena (i.e. how it works), as proximate theories such as PT do, ultimate theory seeks to explain *why* phenomena occur (Roberts et al., 2012; Saad, 2011; Scott-Phillips et al., 2011). Specifically, evolutionary theory aims to describe "what any given behaviour is designed to achieve" (Swami, 2011, p. 2). In other words, what its function or evolved purpose is. Understanding risk behaviours as a function of need satiation provides both a rationale for risk-taking and a lens to uncover the type of situation within which risk-taking is likely. As Mishra et al. (2014, p. 130) explain, "by

understanding the adaptive function of risk-taking, we can understand what circumstances will trigger those psychological mechanisms (and thus cause risk-taking), which allow us to better ameliorate those situations".

Essentially, RST provides a rationale for the effects of context perception and decision framing on risk behaviour based upon individual sensitivity "to minimal acceptable thresholds or needs" (Mishra and Fiddick, 2012, p. 1136). Given the fact that RST "provides a predictive framework for when individuals should switch between risk-prone and risk-averse behaviour" (Houston et al., 2014, p.507), it offers a unique insight into why individuals behave as they do in particular choice contexts. RST shows how, by recognising the conditions in which risk-taking may be advantageous, it can be considered expected behaviour. Specifically, when there is a perception of a need or aspiration to be fulfilled, risk behaviour is likely (McDermott et al., 2008). Thus, from the perspective of RST, an individual's perception of unfilled aspirations or unmet needs (Callan et al., 2008) act as the primary motivators of risk-taking (Mishra et al., 2012b).

3.5. The importance of contextual perception and implications for study of the PRP–risk behaviours relationship

As demonstrated throughout this chapter, the nature of the decision context is central to understanding within-person variance of risk behaviours. Yet, what is important to note is that it is not the context, *per se*, that determines risk behaviours, but it is the individual's perception of the environment which affects their risk-related choice (Das and Teng, 2001; Nosić and Weber, 2010; Sarasvathy et al., 1998; Weber and Johnson, 2008). As Weber and Johnson (2008, p. 140) explain:

> "Situational characteristics, like the way in which information about choice options is presented to us, or the nature of the task, influence risk-taking by focusing our attention on different subsets of information or by facilitating different relative comparisons in our search for the better option".

The framing effect is one of the most prominent concepts for capturing the impact of individual perception of the decision context on risky choice (Cornelissen and Werner, 2014; Kühberger, 1998). It considers risk behaviours as an outcome of cognitive evaluation (Cornelissen and Werner, 2014; Kusev et al., 2017), whereby individuals assess the desirability of a situation and the probability and consequences of the outcome (Quartz, 2009). "Decision makers adjust their risk-taking behaviour by assessing their current situation with regard to their aspiration level" (Das and Teng, 2001, p. 519). When they perceive potential outcomes of the decision

context are inconsistent with their aspiration level (i.e. negative/loss domain), they are risk-seeking. Conversely, when they perceive potential outcomes are consistent with their aspiration level (i.e. positive/gain domain), they are risk-averse. Thus, the overall effect of the context on risk behaviours is determined by an individual's cognitive evaluation of its features (Das and Teng, 2001). This is certainly evident in both PT and RST, where individuals are found to assess the costs and benefits of a situation (i.e. gain vs. loss, high need vs. low need) and make a risk-related decision based on what is perceived to avoid loss or meet needs (Mishra, 2014; Weber and Johnson, 2008). Yet, as discussed, RST provides a clearer rationale for why this cognitive process triggers risk behaviours (McDermott et al., 2008; Mishra, 2014). Indeed, as Lakshminarayanan et al. (2011, p. 689) note, "the mechanisms that drive framing in humans may be evolutionarily ancient".

Recognising that risk behaviours arise because of an individual's cognitive perception of the decision context, and may be deeply rooted in our innate behavioural mechanisms, has specific implications for the study of the PRP–risk behaviours relationship. As discussed in chapter two, extant PRP–risk behaviours research is dominated by agency theory perspectives (for review see Devers et al., 2008; Gomez-Mejia et al., 2010). As clearly explained by Willman et al. (2002, p. 87);

> "Agency and psychological approaches to risk differ in that the former sees risk preferences as emerging from incentive and monitoring effects, whereas the latter sees preferences as emerging from a combination of the decision context and individual propensities. In the former approach, risk-aversion results from the absence of effective monitoring. In the latter approach, the crucial issue is the avoidance of loss rather than monitoring effects".

By positing that risk behaviours arise directly because of the PRP system, much of the extant PRP–risk behaviours research overlooks the central role of the decision context and cognitive perception in affecting risk behaviours (Martin et al., 2016; Wiseman and Catanach, 1997). Given the well-documented limitations of agency theory and the mixed and inconclusive findings produced by research underpinned by its central tenets (see chapter two), the inclusion of the role of contextual perception may ameliorate understanding of the PRP–risk behaviours relationship. Indeed, many scholars argue that PRP can influence how individuals perceive the decision context by focusing their attention on factors (e.g. performance contingencies) connected to the PRP system (Chng et al., 2015; Chng and Wang, 2015; Gneezy et al., 2011). Rather than being motivated to take risks because of the incentive system, individuals take risks because of how the incentive system influences their perception of the decision context (Hoskisson et al., 2017; Sawers et al., 2011; Wiseman and Gomez-Mejia, 1998).

The implications of each of the theories discussed so far — agency theory, prospect theory and risk-sensitivity theory — for understanding the PRP–risk behaviours relationship is summarised in table 3.1. Significantly, much of the extant PRP–risk behaviours research remains entrenched in agency theory assumptions and thus continues to consider incentives central in determining the risk behaviours of employees (Devers et al., 2007; Hoskisson et al., 2017). Although empirical research drawing from PT has advanced recognition of the contextually variable nature of risk behaviours, findings in the context of PRP and performance targets have not been conclusive (for review see Hoskisson et al., 2017). Therefore, this study proposes RST as a compelling theoretical framework to understand why and when cognitive perceptions of the PRP decision context influence risk behaviours. As evolution is arguably the ultimate explanation for human behaviour (Aktipis and Kurzban, 2004) the inclusion of an evolutionary perspective provides extra explanatory strength over that offered by previous theories applied in the context of PRP (see Abdellaoui et al., 2013; Willman et al., 2002; Wiseman and Gomez-Mejia, 1998). Indeed, RST can provide deeper theoretical understanding to the previously discussed literature on targets and risk-taking (see section 3.3.1). For instance, the fact that Chow et al. (2007) found that harder to reach targets produced greater risk-taking makes sense when considering that RST posits that risk-taking occurs when a low risk option will not suffice in a high need situation.

Nevertheless, it is essential to recognise the limitations of understanding risk behaviours as a solely cognitive process as RST (and PT and agency theory) does. An emerging body of literature proposes that individual behaviour is an outcome of the interrelation between the cognitive evaluation and emotional experience of a situation (e.g. Clark, 2001, 1997; Damasio, 1996; Lakomski and Evers, 2010). Moreover, emotions are found to play a significant role in influencing risk-related decisions (George and Dane, 2016; Kusev et al., 2017; Schwarz, 2000). As Johnson and Tversky (1983, p. 20) note, "one characteristic that distinguishes judgements about risks from other estimates….is that they seldom occur in an emotionally neutral context". Thus, cognitive processes account only in part for what influences risk behaviours. Emotions play a significant role (chapter four explores this further).

Table 3.1: Implications of theoretical frame for PRP–risk behaviours relationship

	Central Tenets	Causes of risk-taking	Implications for PRP
Agency Theory	Individuals are risk-averse, self-interested utility maximisers who make rational decisions (i.e. choose more certain outcomes)	Incentives Monitoring	Risk-taking arises directly because of incentive and monitoring arrangements
Prospect Theory	Individuals are risk-averse in gain domains and risk-seeking in loss domains	Framing Effects	Risk-taking influenced by the perceived magnitude of loss or gain
Risk-sensitivity Theory	Individuals are risk-seeking when in a situation of high need when a low risk option does not suffice.	Evolutionary adaptations (from which framing effects originate)	Risk-taking arises because current state does not meet/support required need state

3.6. Conclusion

This chapter explored how risk behaviours are effected and the underlying factors contributing to their variance. The nature of the decision context and individual cognitive perception, conceptualised within the framing effect, are key determinants of risk behaviours (Cornelissen and Werner, 2014; Kühberger, 1998; Kusev et al., 2017). PT has long provided a theoretical account for the impact of contextual framing on risk behaviours. However, it does not provide a rationale for why perceptions of the decision context impact risk behaviours (Houston et al., 2014). Thus, RST is presented to advance understanding of risk behaviours and overcome the limitations of PT. A rationale for why individuals vary their risk behaviours can be developed by taking account of perceptions of need within the immediate decision context (McDermott et al., 2008). Such theoretical insight may develop understanding beyond the inconclusive findings produced by both agency theory and prospect theory influenced research on the PRP–risk behaviours relationship (Sawers et al., 2011). Recognising that risk behaviours vary due to differences in individual risk perception (Nosić and Weber, 2010; Weber et al., 2002), has implications for understanding the nature of the relationship between PRP and risk behaviours. As PRP is a feature of an individual's decision context, its influence on risk behaviours is through the individual's experience of that environment (Brink and Rankin, 2013; Sawers et

al., 2011). However, concentrating only on the role of cognitive processes (i.e. the framing effect) in impacting risk behaviours accounts only in part for how risk behaviours arise (Kusev et al., 2017). Emotions are found to play a significant role and can also impact the influence of cognitive framing on risk-related decisions (Druckman and McDermott, 2008; Seo et al., 2010). The following chapter explores this further by reviewing the key theories of emotion and decision-making to explore the importance of emotion to risk behaviours.

CHAPTER FOUR: UNDERSTANDING RISK BEHAVIOURS — THE ROLE OF EMOTIONS

4.1. Introduction

Emotions play an influential role in effecting risk behaviours. This chapter reviews the key theoretical perspectives on this relationship: the valence-based approach and the cognitive appraisal approach. The valence-based approach contrasts the impact of positive and negative emotions on risk-related decisions. However, findings from this perspective are inconsistent. The cognitive appraisal approach is presented to address this. It focuses on the impact of specific emotions on decision-making. It proposes that different emotions are evoked by an individual's interpretation of a situation. Once evoked, an emotion carries its specific appraisal tendency to future decisions. The individual makes risk-related decisions per the appraisal pattern of the emotion, rather than the specifics of the new situation. This chapter concludes with a discussion of emotion regulation and its role in mediating and moderating the relationship between emotions and risk behaviours.

4.2. The valence-based approach

The valance-based approach is predominant in the study of emotions and decision-making (Finucane et al., 2003; Johnson and Tversky, 1983; Loewenstein et al., 2001; Slovic et al., 2005, 2004). It categorises emotions as either positive or negative and seeks to determine their contrasting influence on decision-making (Kugler et al., 2012; Lerner and Keltner, 2000).

Two theories dominate the study of emotional valence on risk behaviours: the risk-as-feelings hypothesis (Loewenstein et al., 2001) and the affect heuristic (Slovic, 2010; Slovic et al., 2005, 2004). Both converge on the view that individuals use the positive and negative feelings associated with a choice as a guide to evaluate the riskiness of a situation, thus influencing their subsequent behaviour (Johnson and Tversky, 1983; Loewenstein et al., 2001; Slovic, 2010). Positive emotions at the time of decision-making result in potential risks being given less consideration and thus encourage risk-seeking behaviour as individuals perceive risks as low and benefits as high (Cheung and Mikels, 2011; Slovic et al., 2004). Negative emotions result in risk receiving more consideration as they signal or amplify the presence of risk and thus encourage risk-averse behaviour as risks are judged to be high and the benefits low (Alhakami and Slovic, 1994; Slovic, 2010). However, as will be demonstrated in the following section,

empirical findings of the impact of positive and negative emotions on risk behaviours are inconsistent (Kusev et al., 2017; Podoynitsyna et al., 2012).

4.2.1. The valence of emotion and risk behaviours: empirical findings

Numerous studies have looked at the influence of emotions on risk-related decision-making (Isen et al., 1988; Johnson and Tversky, 1984; Schwarz, 2000). Of particular interest to this study is research which focuses on the influence of emotion on the framing effect (e.g. Cheung and Mikels, 2011; Seo et al., 2010). As presented in chapter three, the framing effect is one of the most notable phenomena in the social sciences for the understanding of risk-related decisions (Druckman and McDermott, 2008; Seo et al., 2010). However, as will be explored in this section, positive and negative emotions can result in deviations in expected behaviour across gain and loss frames.

Arkes et al. (1988) examined the relationship between positive affect and potential loss. They found that when facing potential loss, individuals experiencing positive affect were risk-averse, while those facing minimal potential loss were risk-prone. Such findings were suggested to signify that individuals facing loss seek to protect their positive state by behaving in a risk-averse manner (Arkes et al., 1988). Cassotti et al. (2012) further explored the impact of affect on risk-taking in a financial decision-making task. They found that negative affect did not result in any deviations from standard framing effects; individuals demonstrated risk-seeking behaviour in loss frames and risk-averse behaviour in gain frames. However, the experience of positive affect was found to override the impact of the decision frame, whereby individuals were found to be unaffected by framing effects. Yet, they did note that positive affect decreased risk propensity in the loss frame, resulting in risk-aversion (Cassotti et al., 2012).

Seo et al. (2010) looked at the role of unpleasant and pleasant feelings, and gain and loss frames on the risk-taking of individuals in a stock investment experiment. They found that affect altered the impact of the decision frame on risk-taking. Individuals experiencing pleasant feelings in the gain frame did not exhibit risk-aversion, but risk-proneness (Seo et al., 2010). Similarly, pleasant feelings in the loss frame led to risk-seeking behaviour. Indeed, when the experience of pleasant feeling was particularly salient the impact of the loss frame was almost eliminated (Seo et al., 2010). Furthermore, individuals who experienced unpleasant emotions in the loss frame become less risk-seeking (Seo et al., 2010). Cheung and Mikels (2011) conducted a similar study, examining the impact of the valence of emotion across decision frames in a gambling task. However, they found that positive affect was only related to risk-

seeking behaviour in the loss frame. When in the gain frame, individuals exhibited risk-aversion even when experiencing positive affect.

Such findings reveal that emotion plays a significant role in risk-related judgements (Kusev et al., 2017). However, as presented in table 4.1, the impact of positive and negative emotions (i.e. valence) on risk behaviours, across decision frames, is somewhat inconsistent.

Table 4.1: The inconclusive impact of emotional valence on risk behaviours

	Gain Frame	Loss Frame
Positive Emotion	Risk-averse (Casotti et al., 2012) Risk-averse (Cheung and Mikels, 2011) Risk-seeking (Seo et al., 2015)	Risk-averse (Arkes et al., 1988) Risk-averse (Cassotti et al., 2012) Risk-seeking (Cheung and Mikels, 2011) Risk-seeking (Seo et al., 2015)
Negative Emotion	Risk-averse (Cassotti et al., 2012)	Risk-seeking (Cassotti et al., 2012) Risk-averse (Seo et al., 2010).

Consequently, it is not clear, as the risk-as-feelings and affect heuristic literature would suggest, that positive emotions lead to risk-seeking behaviour and negative emotions lead to risk-averse behaviour (Alhakami and Slovic, 1994; Loewenstein et al., 2001; Slovic et al., 2004). Instead, positive and negative emotions appear to have a differential effect across decision frames. This highlights the potential limitations of a valence-based approach. The following section discusses this in further detail.

4.2.2. Limitations of the valence-based approach

Rarely do individuals think in exclusive terms of 'I feel positive' or 'I feel negative'. One can feel happy, excited or satisfied, rather than simply positive. Alternatively, an individual can feel scared, sad or angry, rather than merely negative. This is the key limitation of a valence-based approach (Lerner and Keltner, 2000). By delineating emotions as either negative or positive, such theory misses out on the distinct differences between emotions of similar valence and their impact on behaviour (Druckman and McDermott, 2008; Lerner and Keltner, 2000).

Thus, valence-based studies have a significant shortcoming; "they have not specified if and when distinct emotions of the same valence have different effects on judgement" (Lerner and Keltner, 2000, p. 473). Indeed, as shown in the preceding section, while much of the literature contrasts the impact of positive emotions against negative emotions on risk-related decisions,

doing so has produced only mixed and inconsistent findings (Kusev et al., 2017; Podoynitsyna et al., 2012). In recognition of these limitations, emotion scholars are increasingly turning to the cognitive appraisal approach which, as presented in the following section, "represents a viable and promising alternative to the valence-based approach" (Podoynitsyna et al., 2012, p. 118). By focusing on the differences (in terms of appraisal dimensions) between same-valence emotions, it can ameliorate the inconsistencies from valence-based results (Kusev et al., 2017; Lerner and Keltner, 2000).

4.3. The cognitive appraisal approach

The appraisal approach[3] is an increasingly influential perspective applied to understand emotions (Kusev et al., 2017; Mosier and Fischer, 2010; van Dijk and Zeelenberg, 2002). It considers emotions as an outcome of individuals' "experience of the situation" (Frijda, 1986, p. 193). Its central premise is that emotions arise from, and are differentiated by, an individual's evaluation of the external environment or mental interpretations of it (Ellsworth and Scherer, 2003; Mosier and Fischer, 2010). It posits that specific emotions can be predicted by the particular pattern of appraisals an individual interprets from the situation (Ellsworth and Scherer, 2003) and, subsequently, "motivate individuals toward specific goals and behaviours or 'action tendencies'" (Mosier and Fischer, 2010, p. 243).

For example, sadness can be distinguished from guilt by differences in the appraisal of agency; guilt is characterised by self-agency (i.e. I am responsible); while sadness is characterised by situational agency (i.e. the situation is responsible/in control) (Ellsworth and Smith, 1988a). Consequently, each emotion has a different impact on motivation or action. Guilt is an activating emotion, motivating individuals to put right and overcome perceived obstacles to their goal, which they deem to be brought about by themselves (Ellsworth and Smith, 1988a). Conversely, sadness is a deactivating emotion, where the individual feels helpless to act (due to situational control) and motivates them to do little to attend to the issue (Ellsworth and Smith, 1988a; Smith and Ellsworth, 1985). Appraisal theory argues that emotions are brought about

[3] There are numerous different appraisal theories (e.g. Ellsworth and Smith, 1988a; Frijda, 1986; Lazarus, 1991; Roseman, 1984, 1996; Smith and Ellsworth, 1985). Yet, all demonstrate some similarity in the appraisals they deem important for triggering and characterising different emotions (Ellsworth and Scherer, 2003). These have included; novelty (i.e. something in the environment changes); valence (i.e. pleasantness vs. unpleasantness) (Frijda, 1986; Roseman, 1984; Smith and Ellsworth, 1985); goals/needs (i.e. is this important to the individual, is something impeding progress towards goal?); agency (i.e. who or what is responsible? The individual, the situation or someone else? Do they know what is happening?); and social norms (i.e. has a social norm been broken?) (Frijda, 1986; Roseman, 1984; Smith and Ellsworth, 1985).

by the decision context (Kusev et al., 2017) and provides a useful frame to differentiate emotions and their impact on behaviour (So et al., 2015).

One particular appraisal theory, the appraisal-tendency framework (ATF) (Lerner and Keltner, 2001, 2000), is most relevant to this study. It is the only appraisal theory, to the author's knowledge, applied to the study of risk behaviours (Beisswingert et al., 2015; Habib et al., 2015; Lerner and Keltner, 2001; Podoynitsyna et al., 2012). Moreover, it was specifically developed to respond to the limitations of the valence-based approach (Kusev et al., 2017; Lerner and Keltner, 2000) and has bridged the "gap from the various emotional appraisal theories to specific predictions about the influence of these emotions on incidental judgements" (So et al., 2015, p. 361). The following section presents the ATF in greater detail.

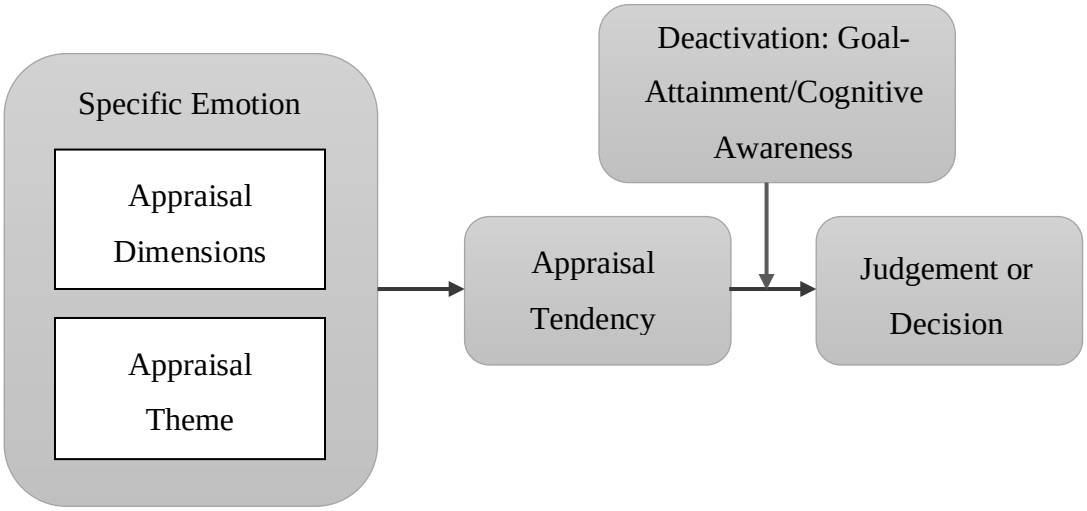
4.3.1. The Appraisal-Tendency framework

The ATF (Lerner and Keltner, 2001, 2000) "addresses how and why specific emotions carry over from past situations to colour future judgements and choices" (Han et al., 2007, p. 158). It builds on the appraisal dimensions developed by Smith and Ellsworth (1985) — certainty pleasantness, attentional activity, control (human or situational), anticipated effort and responsibility — as a means to compare and distinguish emotions (Han et al., 2007). In addition to positing that emotions are characterised by appraisal dimensions, the ATF captures that specific emotions are further defined by a core appraisal theme (Han et al., 2007; Lerner and Keltner, 2000). An appraisal theme is the core thought associated with a particular emotion (Campos et al., 2013; Lazarus, 1991) and subsequently determines the influence of an emotion on future decisions (Lerner and Keltner, 2000).

The ATF proposes that emotions (a) arise from *appraisal dimensions* (i.e. situational evaluation), and (b) are characterised by core *appraisal themes* which specify the emotion's meaning to individuals (Han et al., 2007). The ATF encompasses these two characteristic levels of emotion as *appraisal tendencies* (Han et al., 2007), which influence future decisions. Essentially, appraisal dimensions are the contextual factors (derived from individual evaluation) which trigger an emotion (e.g. I know someone else is responsible for this). Core appraisal themes are the prototypical viewpoint carried by the experienced emotion (e.g. sadness has a theme of irrevocable loss) (Campos et al., 2013). Appraisal tendencies then define the influence an emotion has on future decisions (Han et al., 2007). Appraisal tendencies are goal-directed processes which motivate behaviour in line with original appraisals (Lerner and Tiedens, 2006). Importantly, the ATF states that they cease to impact subsequent decisions

once the emotion naturally wanes or something deactivates it. Specifically, the ATF proposes that the impact of emotions on behaviours can be deactivated by either goal-attainment or cognitive awareness of the impact of the emotion on judgement (Han et al., 2007, Lerner and Tiedens, 2006). This process is depicted in figure 4.1.

Figure 4.1: The appraisal tendency process



To demonstrate how emotions can be differentiated by way of appraisal dimensions and themes, the characteristics of a range of positive and negative emotions are depicted in table 4.2. The table also presents the impact each emotion will have on future decisions through their appraisal tendencies. For example, fear can be distinguished from anger according to the appraisal dimensions of certainty and control (Han et al., 2007; Lerner and Keltner, 2000). Fear is defined by negative events perceived as uncertain and under situational control, while anger arises from a sense of certainty about the cause of a negative event and that it is under human control (Drace and Ric, 2012; Lerner and Keltner, 2001; Lerner and Tiedens, 2006). The core theme of fear is imminent danger (Lazarus, 1991), while the core appraisal theme of anger is that the negative event has been brought about by the actions of another (Lerner and Tiedens, 2006). In combination, the appraisal dimensions and themes spill over to influence future decisions in the form of appraisal tendencies (Han et al., 2007). Anger leads the individual to "consider their environment as predictable and under control" (Drace and Ric, 2012, p. 410) and, in response to a theme of 'other-responsibility', anger motivates a "desire to change the situation and to move against another person or obstacle by fighting, harming or conquering it" (Lerner and Tiedens, 2006, p. 118). Fear leads individuals to consider future negative events

as unpredictable and under the control of the environment (Drace and Ric, 2012). Furthermore, with a theme of potential danger (Lee and Andrade, 2015), it induces behaviour to move away from or shut out the situation and act more cautiously (Demir et al., 2009; Lu et al., 2013).

What is important to note is which appraisal dimensions are high or low for each emotion (Lerner and Keltner, 2000). These are the specific dimensions which are "central to the definition of that emotion and likely to exert influences on subsequent judgements or choices" (Lerner and Keltner, 2000, p. 478). For example, as table 4.2 depicts, anger scores high for certainty, control and responsibility meaning they are central to its experience. Conversely, fear is characterised by low scores of certainty and control, meaning they are also central to its experience but in the opposite direction to anger (i.e. uncertain rather than certain and situational control rather than individual control). In regards to the study of risk, the appraisal dimensions of certainty and control are particularly significant (Beisswingert et al., 2015; Kusev et al., 2017; Lerner and Keltner, 2001).

> "Certainty refers to the extent to which individuals perceive a situation as predictable or unpredictable. Control refers to the degree to which the cause of an outcome can be attributed to individual or situational factors" (Lu et al., 2013, p. 66).

Certainty and control are central to the judgement of risk (Han et al., 2007) and "moderate and/or mediate emotional effects on risk-taking" (Kusev et al., 2017, p. 3). The more certain an individual perceives a future event to be and the more control they perceive they have, the more likely they will make optimistic judgements about risk (Han et al., 2007). Conversely, the more uncertain an individual feels about a future event and the less control they perceive they have over it, the more likely they will make pessimistic judgements about risk (Han et al., 2007). Hence, appraisals of certainty and control can motivate risk-taking behaviour, while appraisals of uncertainty and situational control can motivate risk-averse behaviour (Lerner and Keltner, 2001). The following section explores this further, reviewing empirical studies which demonstrate that emotions strongly characterised by certainty and control influence risk behaviours.

Table 4.2: Appraisal dimensions, themes and overall tendency of emotions (adapted from Campos et al., 2013; Lazarus, 1991; Smith and Lazarus, 1993).

	Anger	Fear	Shame	Happiness	Pride	Hope
Appraisal dimension						
Certainty	High (Certain)	Low (Uncertain)	Medium	High (Certain)	High (Certain)	Medium
Pleasantness	Low (Unpleasant)	Low (Unpleasant)	Low (Unpleasant)	High (Pleasant)	High (Pleasant)	Medium
Attentional Activity	Medium	Medium	High (Attention)	High (Attention)	Medium	High (Attention)
Anticipated Effort	Medium	High (Effort)	High (Effort)	Low (Little Effort)	Low (Little Effort)	High (Effort)
Control	High (Individual Control)	Low (Situational Control)	High (Individual Control)	High (Individual Control)	High (Individual Control)	Low (Situational Control)
Responsibility	High (Other-responsibility)	Medium	Low (Self-responsibility)	Low (Self-responsibility)	Low (Self-responsibility)	Medium
Core Appraisal Theme	Demeaning offence. Goal-attainment blocked by actions of another.	Imminent Danger	Failing to live up to a personal ideal or goal	Making positive progress towards realisation of a goal	Personal accomplishment and ability to take on new challenges	Fearing the worst but yearning for better. Believe favourable outcome is possible
Appraisal Tendency	Negative events are predictable and caused by others, but can be controlled. Strong desire to attend to situation.	Negative events are unpredictable and controlled by situation. Little desire to attend to situation.	Negative events are somewhat predictable and caused by individual. Individual can control situation but little desire to attend to it.	Positive events are predictable and brought about by the self or others and under individual control.	Positive events are predictable, brought about by the self (i.e. personal achievement) and under individual control.	Positive events are somewhat unpredictable and controlled by the situation. Strong desire to attend to situation

4.3.2. The Appraisal-Tendency framework and risk behaviours

Several studies have drawn from the ATF to examine the impact of emotions on risk behaviours (e.g. Beisswingert et al., 2015; Kugler et al., 2012) and on risk-related judgements across decisions frames (e.g. Campos-Vazquez and Cuilty, 2014; Habib et al., 2015). Due to the centrality of certainty and control appraisals to risk perception, the focus of much of this research has been on fear and anger because they are most strongly defined by these dimensions (Lerner and Keltner, 2001; Lu et al., 2013; Smith and Ellsworth, 1985). However, some studies have also looked at the impact of positive emotions, such as happiness and hope (e.g. Drace and Ric, 2012; Foo, 2011).

Lerner and Keltner (2001) undertook the seminal ATF experiment on specific emotions and risk behaviours. They found that fear and anger had opposite effects on risk perception. Fearful people overestimated risk, while angry people underestimated risk. They attributed this to differences in appraisal tendencies across both emotions. Fear results in a tendency to perceive events as uncertain and out of individual control, while anger results in a tendency to perceive events as certain and within the individual's control (Lerner and Keltner, 2001). Foo (2011) examined the impact of anger, fear, hope and happiness on the risk perceptions of entrepreneurs. The study hypothesised that fear and hope predispose individuals to perceive risk because they are characterised by appraisals of uncertainty and a lack of individual control (i.e. situational control). Yet, anger and happiness were argued to predispose individuals to perceive less risk in future situations due to high certainty and individual control appraisals (Foo, 2011). These predictions were supported by the study's findings (Foo, 2011). Drace and Ric (2012) also sought to examine the influence of distinct emotions on risk perception, specifically, anger, happiness and sadness. They hypothesised that both happiness and anger would lead to optimistic risk assessments due to their association with appraisals of elevated certainty and control. Conversely, they predicted that sadness would lead to pessimistic judgements of risk due to its association with uncertainty and situational control appraisals (Drace and Ric, 2012). Overall, they found that angry and happy individuals were more optimistic about risk (i.e. risk-seeking) than sad individuals (i.e. risk-averse) (Drace and Ric, 2012). However, they did note some differences between emotions, namely that angry individuals felt more in control of the situation than happy individuals. Although they found an association between anger, happiness and positive risk perceptions, they could not attribute this to higher certainty appraisals. Such findings demonstrate the impact of specific emotions

on risk behaviours but also the need to understand further the factors underlying this effect (Drace and Ric, 2012).

Kugler et al. (2012) examined the relationship between control and certainty appraisals, fear and anger, and subsequent risk behaviours. They evoked fear and anger by using two different situations with different appraisal characteristics. One generated uncertainty through the situation (i.e. a lottery), the other generated uncertainty through the behaviour of another individual. They found that fearful participants were more risk-averse than angry participants under situational uncertainty. However, when uncertainty arose from individual behaviour (i.e. other person control), angry individuals were found to be more risk-averse than fearful people (Kugler et al., 2012). Consistent with the ATF, fear was characterised by situational control/responsibility and uncertainty, and anger by certainty, self-control and other-responsibility. However, the ATF posits that fear will lead to risk-averse decisions, yet Kugler et al. (2012) found support for fear driving risk-seeking behaviour when situations are characterised by individual control and uncertainty. This points to the importance of understanding individual perceptions of the context in which emotions arise, as "the same emotion and the effect could vary based on which appraisal tendency is activated, salient or relevant to the decision context" (So et al., 2015, p. 364). Beisswingert et al. (2015) specifically focused on the influence of emotions in the relationship between externally caused loss of control and risk-taking. They hypothesised that externally caused loss of control would induce anger's core theme of attributing a negative event to the actions of another (Beisswingert et al., 2015). Furthermore, they proposed that anger would mediate the relationship between loss of control and risk-taking. Findings supported this, as levels of anger increased amongst experiment participants following the externally caused loss of control and participants demonstrated greater risk-taking in subsequent decisions (Beisswingert et al., 2015).

Lu et al. (2013) sought to determine whether fear and anger would have opposite effects on drivers' perception of risk. In addition to differences in fear and anger along the dimension of certainty and control, they also hypothesised that differences along the responsibility dimension would impact risk perceptions. Responsibility accounts for who or what the individual perceives is responsible for the event (Lu et al., 2013). Anger is characterised by high appraisal of other-responsibility while fear is characterised by medium appraisals for other-responsibility (Lu et al., 2013; Smith and Ellsworth, 1985). They found that anger arose from a high sense of certainty, individual control and high other-responsibility, and this led to reduced risk perception (i.e. more likely to take risk). Fear was associated with low certainty

(i.e. uncertainty), moderate other-responsibility and situational control, and led to increased risk perceptions (i.e. risk-averse). Interestingly the authors also looked at the impact of reappraisal on risk perceptions. Reappraisal is a form of emotion regulation, whereby re-evaluation of the event can reduce or eliminate an individuals' emotional response (Gross, 1998). By taking reappraisal into account, Lu et al. (2013) found that the impact of fear and anger on risk perception reduced or was eliminated. Thus, they concluded that appraisals of certainty, control and responsibility accounted for different effects on risk perceptions, not fear and anger *per se*. Furthermore, they demonstrated that reappraisal could enable emotion regulation, reducing the impact of emotion on risk-related decision-making (the moderating effect of emotion regulation is discussed further in section 4.4).

Of particular interest to this thesis are studies which have examined the influence of distinct emotions on risk perception across decision frames. Habib et al. (2015) examined the impact of fear and anger on risk-taking in this context. They found no effect of emotion in the loss frame. However, in the gain frame, fear and anger had opposite effects. Fear increased risk-aversion in the gain frame, while anger led to increased risk-taking (Habib et al., 2015). Campos-Vazquez and Cuilty (2014) looked at how emotions impact behaviours across decision frames. They find that sadness increases risk-aversion in the gain frame but increases risk-taking in the loss frame. Furthermore, they found that anger reduces loss-aversion, leading to an increase in risk-taking in the loss domain. Interestingly, anger was found to be only associated with loss domains. Indeed, they note that "once individuals are angry they just do not care about negative outcomes" (Campos-Vazquez and Cuilty, 2014, p. 8).

Overall, as is demonstrated by Table 4.3, the cognitive appraisal approach, unlike the valence-based approach has produced more consistent findings. There is an overall consensus that anger leads to risk-taking (i.e. a decrease in risk perception/aversion), while fear leads to risk-aversion (i.e. an increase in risk perception). The impact of hope, happiness and sadness on risk behaviours is not as well established. However, what can be gathered from this literature is that the appraisal dimensions of certainty and control are central to the relationship between emotions and risk behaviours. Furthermore, as suggested by Lu et al. (2013), responsibility appraisals may also play a role. However, this has been somewhat overlooked by much of the ATF and risk behaviours literature. Nonetheless, emotions to which appraisals of certainty, control and responsibility are central — such as anger, fear, pride, happiness and hope — are likely to influence risk-related decisions (Ferrer et al., 2016; So et al., 2015). However, as touched upon by the findings of Lu et al. (2013), emotion regulation can affect the impact of

emotions on risk-related decisions. In consideration of this, the following section explores the proposed moderating effect of emotion regulation further.

Table 4.3: Specific emotions and risk behaviours

	Positive Emotion	Negative Emotion
Risk-averse behaviour	Hope (Foo, 2011)	Anger — other-person control (Kugler et al., 2012) Fear (Foo, 2011; Lerner and Keltner, 2001; Lu et al., 2013) Fear — situational uncertainty (Kugler et al., 2012) Fear — gain frame (Habib et al., 2015) Sadness (Drace and Ric, 2012) Sadness — gain frame (Campos-Vazquez and Cuilty, 2014)
Risk-taking behaviour	Happiness (Drace and Ric, 2012; Foo, 2011)	Anger (Beisswingert et al., 2015; Drace and Ric, 2012; Foo, 2011; Lerner and Keltner, 2001; Lu et al., 2013) Anger — situational uncertainty (Kugler et al., 2012) Anger — gain frame (Habib et al., 2015) Anger — loss frame (Campos-Vazquez and Cuilty, 2014) Fear — other-person control (Kugler et al., 2012) Sadness — loss frame (Habib et al., 2015)

4.4. Emotion regulation

Emotion regulation (ER) encompasses any of the actions an individual takes to control when emotions are experienced, how they are experienced, and the impact of emotions on decisions (Gross, 1999, 1998; Kusev et al., 2017). An emergent body of literature finds that ER strategies can moderate the impact of emotions on decisions (e.g. Heilman et al., 2016, 2010; Kligyte et al., 2013; Miu and Crişan, 2011; Panno et al., 2013; Szasz et al., 2016). Thus, it is important to take account of ER when exploring the impact of emotions on risk behaviours. Particularly when, as Kusev et al. (2017) notes, most studies which explore the impact of emotion on risk-related decisions have not accounted for the effect of emotion regulation.

Although individuals experience a range of emotions in their daily lives, most people tend not to act on them but make an effort to control them (Heilman et al., 2010). For instance, a lecturer may feel frustrated or even angry with a student who is repeatedly late for class but does not shout at them. Similarly, when reading an amusing article on a train, people do not always laugh out loud. Regulating emotions is a common part of everyday life (Gross, 1998). For example, with the late student, the lecturer may surmise they have a valid reason always to be late, preventing anger. This is an ER strategy known as *cognitive reappraisal*, where the individual actively changes the situation's meaning to overcome the potential impact of the emotion (Gross, 1998; Kusev et al., 2017). Additionally, when reading the amusing article on the train, the individual quells their desire to laugh out loud. This is an ER strategy known as *expressive suppression*, where the individual actively inhibits the desire to express the emotion (Gross, 1998; Kusev et al., 2017). Reappraisal represents an antecedent-focused form of ER (i.e. controlling inputs), while suppression represents a response-focused form of ER (i.e. controlling outputs) (Gross, 1998). Gross (2001) argues that reappraisal is a more effective strategy because it changes the perception of a situation, decreasing emotional experience and expression by inhibiting its impact before it is fully activated. Suppression, on the other hand, still allows the experience of the emotion but decreases the outward expression of the emotion (Gross, 2001, 1998).

A newly emerging body of research suggests that such ER strategies can impact the relationship between emotion and risk behaviours. Heilman et al. (2010) found that reappraisal, but not suppression, reduced the experience of fear and disgust. Importantly, reappraisal reduced risk-aversion. Consequently, individuals who reappraised negative emotions increased risk-taking as compared to those who suppressed negative emotions (Heilman et al., 2010). Indeed, Heilman et al. (2010, p.264) argue that their "results offer compelling evidence that expressive suppression cannot mitigate risk-aversion induced by negative emotions because it cannot decrease the experience of these emotions". Miu and Crişan (2011) investigated whether ER strategies could reduce susceptibility to the framing effect. They found that individuals utilising a cognitive reappraisal strategy were less susceptible to framing effects than those using an expressive suppression strategy (Miu and Crişan, 2011).

Rather than the situationally induced ER strategies examined by the previous two studies, Panno et al. (2013) sought to examine how the ER strategies individuals habitually use impact their risk-related decisions. They found that habitual cognitive reappraisal strategies increased risk-taking, while habitual expressive suppression decreased risk-taking. Interestingly, from

the perspective of framing effects, they found that habitual reappraisal made individuals less susceptible to changes in probability and loss (Panno et al., 2013). Such a finding supports, and potentially accounts for, the previous findings of Miu and Crişan (2011), where reappraisal reduced susceptibility to framing effects. Szasz et al. (2016) examined how reappraisals of anger and sadness impacted risk perception and decision-making. They hypothesised that because anger is associated with enhanced risk-taking, reappraising it would reduce risk-taking. Additionally, they proposed that because sadness is associated with risk avoidance, reappraising it would increase risk-taking (Szasz et al., 2016). Interestingly, they found that reappraising anger increased risk-taking. Reappraising sadness also resulted in more risk-taking (Szasz et al., 2016). Overall, these studies converge on cognitive reappraisal reducing the impact of emotions on decision-making, decreasing risk-aversion and thus promoting risk-taking behaviour. Conversely, they find that expressive suppression strategies do not reduce risk-aversion.

Recognising such studies which demonstrate the moderating and/or mediating role of ER has consequences for understanding the relationship between emotion and risk behaviours. Just because an individual experiences a risk-taking eliciting emotion, such as anger, does not mean they are automatically predisposed to take a risk (Heilman et al., 2010). The individual may actively engage in reappraisal or suppression to overcome the effect of emotion on their judgement. Furthermore, as demonstrated by the previously reviewed studies, ER strategies may also increase risk-taking by reducing risk-aversion associated with some emotions (i.e. sadness, fear), or enhance risk-seeking associated with others (i.e. anger).

4.5. Implications for understanding the PRP–risk behaviours relationship

Emotions are important for decision-making because they carry with them sub-sets of information about the decision context which individuals look to when making judgements (Farrell et al., 2014). According to appraisal theory, emotions represent how an individual has interpreted a situation and, in turn, impact how individuals will interpret future situations (Ellsworth, 2013). When emotions are salient, "individuals frequently rely on those reactions [when making decisions] more heavily than other information" (Farrell et al., 2014, p. 1980). In the context of PRP, it is possible that emotions will be evoked in response to how individuals are performing in respect of performance–pay contingencies. For example, goals or targets are known to influence the experience of negative and positive emotions. A change in performance status relative to a goal or target can trigger various emotional reactions (Stein et al., 1993).

Not achieving a goal is found to evoke negative emotions such as anger and sadness, while goal achievement triggers positive emotions (Cron et al., 2005). Yet, findings by Farrell et al. (2014), which used neuroimaging to examine the influence of variable pay on judgements, found that individuals engage in more analytical (rather than affective) decision-making in the presence of performance-based pay contracts.

The potential impact of emotion on risk behaviours in the context of PRP has not received any attention. Due to the economic roots of PRP research the impact of behavioural factors, such as emotions, are largely ignored (Werner and Ward, 2004). However, as this chapter has demonstrated, the emotional experience of the decision context can play a central role in affecting risk behaviours (Kusev et al., 2017; Seo et al., 2010). Emotions can override or alter the risk behaviour outcomes expected by cognitive framing or perception of the decision context (Druckman and McDermott, 2008; Moreno et al., 2002). Individuals are thought to rely upon the information conveyed by an emotion in situations of uncertainty in particular (Foo, 2011). This is significant for the study of the PRP–risk behaviours relationship, where the variable nature of PRP predisposes employees to uncertainty in the level of pay they receive (Balmaceda, 2009; Gerhart et al., 2009).

In addition, recognising that risk behaviours are influenced by how individuals subjectively think and feel about the decision context has specific implications for the conceptualisation of risk behaviours. Extant research on PRP and risk relies on objective conceptualisations of risk, such as outcome variance and standard deviation (Mishra, 2014; Nosić and Weber, 2010). Yet, both this chapter and the previous chapter have demonstrated that risk is better understood as a subjective concept; its influence on individual behaviours arises from subjective cognitive and emotional perceptions of the situation. Consequently, Nosić and Weber (2010, p.282) argue "intuitive risk measures such as subjective risk perception can better proxy an [individual's] intuition about risks than can variance and standard deviation". Such an understanding of risk behaviours demonstrates that understanding the PRP–risk behaviours relationship requires more than an assumption of a direct relationship between PRP and risk-taking. Rather, there is a need to understand how individuals cognitively and emotionally experience the decision context, how PRP may influence this perception and why this influences risk behaviours (Chng and Wang, 2015; Devers et al., 2008).

4.6. Conclusion

This chapter has demonstrated the importance of emotion to understanding how risk behaviours arise. The appraisal-tendency framework is presented as a viable theoretical framework to understand how and when emotions arise because of the decision context and why they influence risk-related decisions. Empirical findings of the ATF literature reveal that emotions characterised by the appraisal dimensions of certainty and control, and potentially responsibility, are particularly influential for risk-related choice. However, emotion regulation strategies can influence the impact of emotions on decisions by mediating or moderating their effect. Despite the importance of emotion to understanding how risk behaviours arise, much of the risk behaviours literature remains entrenched in the study of cognitive processes such as those reviewed in chapter three (Gutnik et al., 2006; Kusev et al., 2017). The limitations of treating the cognitive and emotional determinants of risk behaviours separately are evident. As such, this thesis seeks to facilitate further understanding of risk behaviours in the context of PRP systems by accounting for both the cognitive and emotional determinants of risk behaviours. This is the aim of the following chapter as it develops this study's conceptual framework.

CHAPTER FIVE: THE CONCEPTUAL FRAMEWORK

5.1. Introduction

To advance understanding of the PRP–risk behaviours relationship there is a need to appropriately conceptualise risk behaviours as an interrelated outcome of cognitive and emotional factors and theorise how PRP may influence such decision processes. This is the purpose of the conceptual framework set out in this chapter. The framework integrates the key concepts of risk-sensitivity theory (RST) and the appraisal-tendency framework (ATF) to conceptualise how PRP targets influence risk behaviours. In addition, it accounts for the impact of emotion regulation on risk behaviours, which is often overlooked. In doing so, the conceptual framework advances understanding of the PRP–risk behaviours relationship. Namely, it overcomes PRP literature's simplistic representation of risk-taking arising because of the incentive system and the separate treatment of cognition and emotion in the risk behaviours literature. In line with a middle-range thinking perspective, the purpose of this theoretical frame is to provide a language and structure for later empirical exploration, whilst retaining an openness to detail emerging from the field.

5.2. Integrating framing effects and emotion: developing a conceptual framework to explore the PRP–risk behaviours relationship

Risk behaviours, as described in chapter three and four, are an outcome of an individual's subjective perception of the decision context. The nature of this perception has predominantly been understood as being cognitive (i.e. the framing effect), whereby individuals weigh up the costs and benefits of a situation to make a risk-related choice (Weber and Johnson, 2008). However, emotions are increasingly seen as predictable drivers of decisions (Lerner et al., 2015). As Seo et al. (2010, p. 412) explain, "findings suggest that framing effects and affective influences on risk-taking are highly interrelated; perhaps one effect cannot be precisely understood without explicitly considering the other". Nevertheless, these two perspectives on how individuals perceive the decision context — cognitive framing and emotional experience — are primarily studied separately within the risk literature. (Gutnik et al., 2006; Kusev et al., 2017; Seo et al., 2010).

This chapter develops a conceptual framework by integrating RST with the ATF. This provides a clear conceptualisation of how and why perceptions of the decision context, via cognitive

framing and emotional experience, influence risk behaviours in a PRP setting. Doing so advances the study of risk behaviours where the importance of the emotional context is often overlooked (Gutnik et al., 2006), and the dominant theoretical approaches are hindered by a focus on the valence of emotion (see chapter four for review) (Lerner and Keltner, 2000). As Drace and Ric (2012, p. 409) note, "despite its importance at both the theoretical and the applied levels, the role of affect in risk perception domain still remains unclear". Furthermore, it advances study of the PRP–risk behaviours relationship, where extant research has relied on economic driven theories, such as agency theory, or cognitive behavioural theories, such as prospect theory. Agency theory does not account for the variability of risk behaviours and the determining role of contextual perception, while PT does not account for why risk behaviours vary. As Sawers et al. (2011, p.187) explain, "neither agency theory nor prospect theory alone explain manager's risk-taking behaviour".

The conceptual framework draws from RST and the ATF to conceptualise how PRP influences the decision context and thus influences risk behaviours via cognitive framing and emotional experience of the decision context. The conceptual framework has several key design premises:

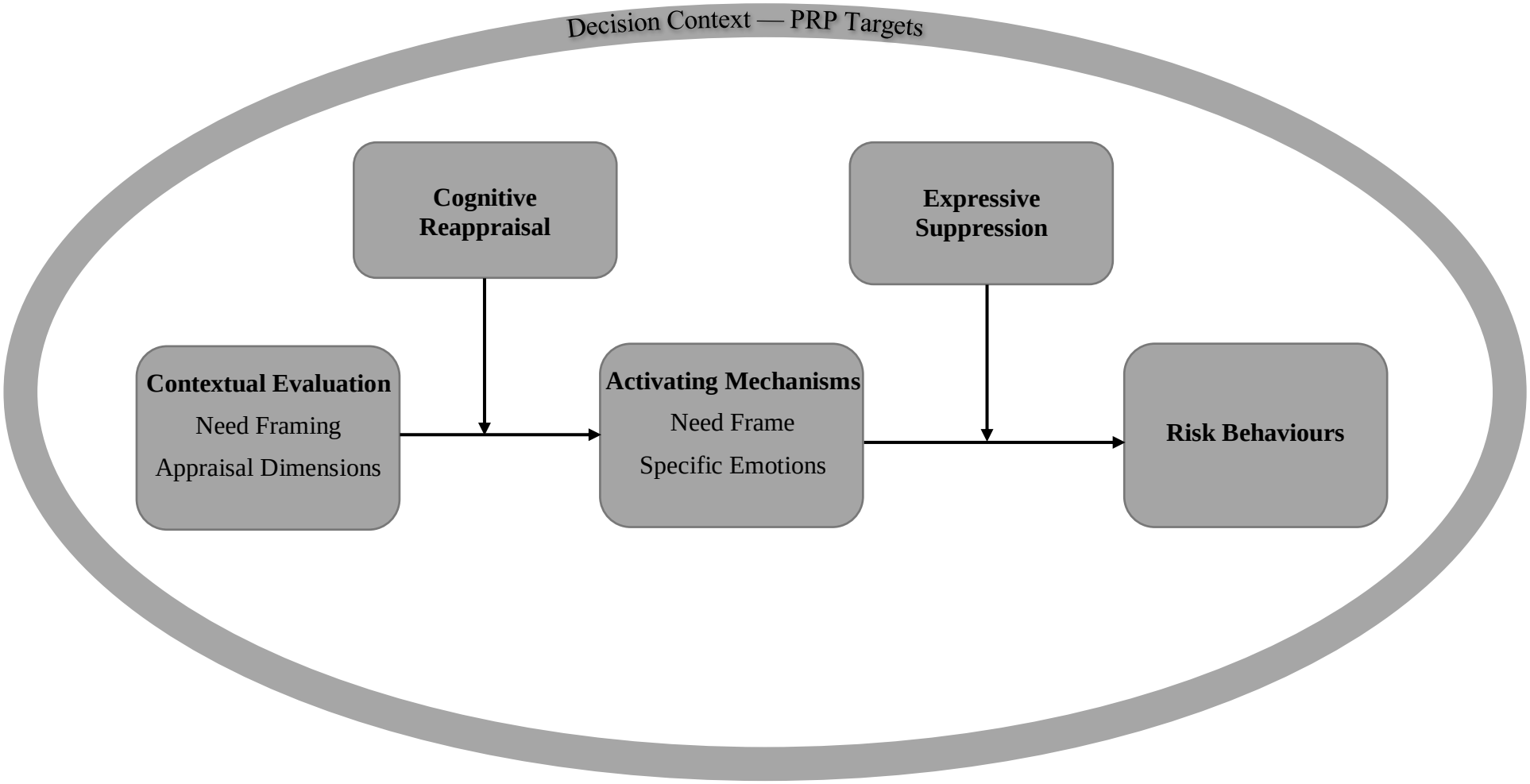
1. Based on findings that goals influence individual perceptions of the decision context (see chapter three, section 3.3.1), PRP targets are conceptualised to provide individuals with a point from which to evaluate the decision context.
2. Evaluation of the PRP-target context influences the need frame an individual perceives (i.e. high vs. low need) and impacts an individual's interpretation of the situation via cognitive appraisal dimensions (e.g. certainty, control).
3. The outcome of this evaluation characterises the mechanisms activating risk behaviours; need frame and appraisal tendencies.
4. The risk behaviour outcome (i.e. risk-aversion vs. risk-taking) is influenced by which need frames and specific emotions are activated.
5. Emotion regulation, via cognitive reappraisal and expressive suppression strategies, can modulate the impact of emotion on risk behaviours.

The components of this framework are depicted in figure 5.1. Each of these components is described in greater detail in the following sections. The framework captures how individuals think and feel about their current situation, in respect of their PRP target, and why that influences risk behaviours. Such a design is imperative for the study of decision-making, where "an overarching framework should include how motivational, and situational factors interact

with certain cognitive appraisals of an emotion" (So et al., 2015, p. 364)

However, it is important to note that in line with the middle-range thinking perspective (Laughlin, 2004, 1995) the conceptual framework presented in this chapter is not designed to provide a complete explanation of the PRP–risk behaviours relationship. Rather, it provides a 'skeletal' or partial framework, based on the combined insights of RST, the ATF and emotion regulation. In doing so, this study is not constrained to exploring this topic, at a high extreme, through the strict lens of its theoretical frame (as extant agency theory research is), nor is it, at the lower extreme, void of the clarity theory provides. Instead, the conceptual framework presented in the following sections provides a middle ground or 'middle-range', whereby theory is used "as a way to inform, amplify and structure the empirical insights whilst at the same time not to detract and abstract from the important specific detail" (Broadbent et al., 2001, p. 568). Subsequent empirical insights, emerging from the field can then provide the 'flesh' of this conceptual skeleton (Laughlin, 2004, 1995).

Figure 5.1: Overview of the conceptual framework



5.3. Evaluation of the decision context

Risk behaviours are an outcome of an individual's subjective perception of the decision context (Kusev et al., 2017; Nosić and Weber, 2010; Weber and Johnson, 2008). Therefore, the first key design decision of the conceptual framework is identifying the element of PRP which influences individual perception of the decision context. How can PRP impact the framing of a situation and affect emotions? Performance targets are a pervasive feature of PRP systems, acting as an incentive device by linking monetary reward to the achievement of a target (Anderson et al., 2010; Rablen, 2010). Moreover, as discussed in chapter three (section 3.3.1), several scholars conclude that goals influence risk behaviours because they provide information on an individual's current situation relative to their desired goal or aspiration level (Heath et al., 1999a; Knight et al., 2001; Larrick et al., 2009; Schneider and Lopes, 1986). Thus, by providing individuals with information on their current state, targets and goals provide a point of reference from which to evaluate the immediate decision context (i.e. How far am I from my target? Why have I not hit my target?) (Oxoby, 2009). RST can thus be applied to understand this cognitive evaluation of the PRP-target context, while the ATF captures the evocation of emotions by means of appraisal dimensions. As will be discussed in the following sub-section, the central argument of the conceptual framework is that PRP targets can impact the perception of need frame and appraisal tendencies, thus effecting risk behaviours.

5.3.1. The nature of contextual evaluation

Both RST and the ATF describe a cognitive process for the evaluation of the decision context. RST posits that individuals develop a perception of their current situation by evaluating it in respect of a desired goal state (Houston et al., 2014; Mallpress et al., 2015; Mishra, 2014). In other words, 'is this situation congruent to my goal?'. The ATF posits that individuals evaluate their decision context according to appraisal dimensions, such as certainty and control (Demir et al., 2009; Lerner and Keltner, 2000; Smith and Ellsworth, 1985). In other words, 'Did I expect this situation?' (certainty appraisal) or 'Can I control or effect this, or is it influenced by the situation?' (control appraisal). This initial assessment of the decision context forms an individual's interpretation of the situation which subsequently informs their risk-related choice.

From the perspective of RST, what matters for risk behaviours is whether an individual perceives a high need frame or a low need frame (Mishra, 2014). However, development of this perception encompasses more than a simple evaluation of whether the current situation is meeting one's needs. Rather, as Mallpress et al. (2015) discovered, the mechanisms

fundamental to risk-taking are driven, not only by perceptions of disparity but also by an individual's current reserve levels and how likely an improvement or worsening of the situation is. Reserve levels represent accumulated resources (i.e. the objective level of performance), in respect of their target an individual has already achieved (Mallpress et al., 2015). For example, an individual who has achieved 40% of their £10,000 sales target has reserve levels of £4,000. Reserve levels act as a cushion against failure to meet targets and influence an individual's perception of their current situation. For instance, the individual who has achieved 40% of their target would not perceive as high a level of need as an individual who has only achieved 5% of their target. Additionally, perception of the situation is influenced by how probable an individual thinks the situation is to change, either in a negative or positive direction (Mallpress et al., 2015). For instance, an individual who perceives there is a high probability for positive change would consider themselves to be in a lower need situation than an individual who perceives there is a high probability for negative change. Thus, in the context of performance targets, individuals cognitively evaluate the decision context in terms of their current performance state (i.e. the extent of disparity between current performance and required performance target), their reserve levels (i.e. accumulated performance) and their perception of probabilities (i.e. the likelihood of positive/negative change in performance).

From the perspective of the ATF, an individual's evaluation of the decision context occurs along a set of appraisal dimensions which represent an individual's interpretation of the decision context (Griskevicius et al., 2010). Empirical applications of the ATF find that the appraisal dimensions of control, certainty and responsibility are particularly significant for the effect of risk behaviours (see chapter four for review) (e.g. Beisswingert et al., 2015; Lerner and Keltner, 2001). However, to account for the impact of performance targets on context evaluation, the dimension of motive consistency is likely to be important. Although motive consistency is not one of the dimensions included in the ATF, it has been discussed in the work of other appraisal theorists[4] (e.g. Frijda, 1986; Lazarus, 1991). Demir et al. (2009) capture how each appraisal dimension can be represented by a question, each focusing on different aspects of the situation: "To what extent could I predict this situation?" (certainty), "Do I have any control over this situation?" (self/situational control), "Who or what is responsible for this? (self/other responsibility), and "How does this situation relate to what I want? (i.e. my motives/goals)". Given the importance of the dimensions of certainty, control and responsibility, and the relevance of motive consistency to performance targets, it is

[4] For discussion on why the ATF is chosen rather than other appraisal theories see chapter four, section 4.3.

conceptualised that these dimensions characterise an individual's evaluation of the decision context. How individuals evaluate their performance in respect of the PRP target (motive consistency and certainty), and the factors which have influenced current performance (control and responsibility) influences the specific emotion a situation evokes, which in turn influences risk behaviours (Kusev et al., 2017).

In sum, when evaluating the immediate situation, individuals look to how they have framed the situation (need level, reserve levels and probability) and how they appraised the situation (i.e. is someone else responsible, do they have any control over it? etc.). The nature of this contextual evaluation, as proposed by the RST and the ATF is represented in table 5.1. Moreover, the table highlights a key similarity between RST and the ATF: both consider evaluation of current situation in respect of a desired state or target (i.e. extent of need and motive consistency) central to an individual's perception of the decision context. Perception of reserve levels and probability and the appraisal dimensions of certainty, responsibility and control provide further insights on the elements of contextual evaluation which affect risk behaviours. As will be shown in the subsequent sections, the particulars of such evaluations determine risk-related choice.

Table 5.1: The nature of contextual evaluation

RST ***How individuals evaluate the decision context***	**ATF** ***How individuals evaluate the decision context***
Extent of Need (In)Congruency between current performance level and required performance target Congruent = Low need Incongruent = High Need	*Motive Consistency* Is this situation consistent with/conducive to achieving what I want (i.e. PRP target)? Yes = motive consistency No = motive inconsistency
Reserve Levels Accumulated level of performance	*Certainty* Did I expect this level of performance? /Do I know what is happening? Yes = Certainty No = Uncertainty
Probability Perceived likelihood of positive/negative change in performance	*Responsibility* Who is responsible for this situation? Someone else = Other-responsibility Me = Self-responsibility
	Control Am I/Can I be in control of this situation? Yes = self-control No = situational control

5.4. Activating mechanisms: need frame and appraisal tendencies

RST posits that the extent of perceived need (i.e. high vs. low need frame) influences risk behaviours (Gonzales et al., 2016; Mallpress et al., 2015). The ATF posits that specific patterns of appraisal dimensions evoke distinct emotions. Specific emotions then carry appraisal tendencies to influence subsequent risk-related decisions in line with the original appraisals (Han et al., 2007). Thus, the specific need frame an individual perceives and the nature of their appraisal tendencies are the mechanisms which activate and influence risk behaviours. The conceptual framework proposes that how an individual perceives their performance relative to

the PRP target impacts need framing and appraisal tendencies. As presented in the following two sub-sections, the perceived need frame and appraisal tendencies differ in accordance with being below or above target.

5.4.1. Below target

Need levels are influenced by an individual's perceived extent of need, reserve levels and probability (Mallpress et al., 2015). When below target, an individual will perceive incongruence between current performance level and required performance level (i.e. unmet need). Thus, it is likely they will perceive a level of high need. This is one of the central tenets of RST, where need refers to a disparity between current state and desired state (Mishra and Lalumière, 2010). Perceived reserve levels and probability further contribute to the overall perception of need. For example, a salesperson who has achieved only 10% of their monthly sales target (i.e. low reserve levels) and further believe there is little room for improvement because it is a slow sales month (i.e. negative probability), would conclude high need from their contextual evaluation.

The pattern of appraisal dimensions evoked by being below target also function as activating mechanisms. When working towards a performance target, the motive consistency appraisal enables an individual to assess their performance in respect of their target. Analogous to the evaluation of need central to RST, when below target an individual would perceive motive inconsistency (i.e. this situation is not consistent with my target level). Furthermore, the situation will be appraised along the dimensions of certainty, responsibility and control. An individual will appraise certainty if they expected to be at that level of performance but uncertainty if they did not. If they perceive that another individual (or object) is hindering the achievement of the target, they will appraise other-responsibility, as opposed to self-responsibility when they attribute poor performance to themselves. In addition, they may perceive that they can still do something to achieve the target (i.e. self-control). Alternatively, they may believe they cannot do anything about it, particularly if the event is thought to be brought about by the nature of the situation (i.e. situational control). As will be shown in section 5.5, the particular pattern of appraisals triggers specific emotions and appraisal tendencies, which in turn influence subsequent risk behaviours.

5.4.2. Above target

Having achieved the required performance target or when in a situation conducive to target achievement, an individual is likely to perceive low need. This is based on the premise of RST that low need arises when an individual's current state is congruent with their desired state or is supportive of achieving their desired state (Mishra and Lalumière, 2010). Furthermore, having achieved a satisfactory level of performance, the individual will have accumulated reserve levels and will perceive that positive outcomes are probable, further contributing to the perception of low need.

With regards to appraisal dimensions, achieving the PRP target is certainly conducive to an appraisal of motive consistency (i.e. the current situation is consistent with my target level) (Demir et al., 2009). The appraisal dimensions of certainty, responsibility and control are affected by similar evaluations to that of the below target context. However, given the positive experience of achieving target, it is likely the individual will appraise certainty, rather than uncertainty, as they are certain of having met the required performance level. Yet, they may perceive either themselves to be responsible for the achievement of the target (i.e. self-responsibility), or another individual such as a co-worker who helped (i.e. other-responsibility), or even the situation itself such as in a good sales month. This also contributes to appraisals of control, whereby the individual may perceive the positive situation is under self-control or situational control.

In sum, perceptions of high need and motive inconsistency are triggered by being below target, while perceptions of low need and motive consistency result from having achieved or surpassed a performance target. However, the appraisal dimensions of control, certainty and responsibility are influenced by how the individual has interpreted the nature of the event, such as the reasons for achieving/not achieving the target. Thus, as depicted in table 5.2, such appraisals are not directly associated with being above or below target, as is the case with need levels and motive consistency appraisals. As will be discussed in the following section, appraisal dimensions are central to evoking specific emotions and in turn influencing risk behaviours across decision frames (i.e. high need vs. low need, below vs. above target).

Table 5.2: The activating mechanisms of need frame and appraisal tendencies.

Below Target		Above Target
High Need Needs unmet (i.e. target unmet)/ situation unconducive to meeting needs. Limited reserve levels Negative probability	*Control* Self/situational-control *Responsibility* Self/other-responsibility *Certainty* Uncertainty/Certain	*Low Need* Needs met (i.e. target achieved)/situation conducive to meeting needs. Accumulated reserve levels Positive probability
Motive Inconsistency Current situation not consistent with motives (i.e. target)		*Motive Consistency* Current situation consistent with motives (i.e. target)

5.5. The outcome for risk behaviours

In combining the perspective of RST and the ATF to develop a conceptual framework, risk behaviours are considered an outcome of the need frame the individual perceives, in conjunction with the specific emotion evoked by the appraisal pattern of the situation. PRP targets act as the overall decision context and point of reference, impacting how individuals think and feel about their immediate situation as they assess their performance in respect of it (Heath et al., 1999a; Larrick et al., 2009; Rablen, 2010). In recognition of findings that specific emotions can exacerbate or ameliorate the impact of decision frames on risk behaviours (e.g. Cassotti et al., 2012; Druckman and McDermott, 2008; Seo et al., 2010) (see chapter four for review), the following sections explore how different emotions can arise from different appraisal dimension patterns, and influence risk behaviours in a manner not predicted by cognitive theories of decision framing (i.e. RST). The following sections present how and when risk-taking and risk-averse behaviours arise because of the decision frame and emotion.

5.5.1. Risk-taking behaviour

The cognitive framing account of risk behaviours, provided by RST, posits that risk-taking is triggered in high need situations when a low risk option does not enable an individual to meet the desired goal state (Mishra and Fiddick, 2012; Mishra and Lalumière, 2010; Stephens,

1981). As Witt (2016, p. 4) explains "the more deprived a need is, the stronger is the motivation to take actions that are directed at reducing or removing deprivation. If the need is satiated, deprivation vanishes and so does the motivation to act". Thus, risk-taking is an outcome of perceived disparity between current state and desired state but is not expected in a situation where needs are met or likely to be met (i.e. target achieved/achievable). However, when considering the impact of emotions on risk-taking described in empirical ATF literature (e.g. Beisswingert et al., 2015; Kugler et al., 2012; Lu et al., 2013), risk-taking behaviour may not be restricted to high need frames (i.e. below target). This is because different emotions, triggered by how the individual has appraised a situation, produce a tendency to respond to a situation per the characteristics of the emotion rather than the characteristics of the situation (Ferrer et al., 2016; Han et al., 2007). Emotions can both override and augment the impact of decision frames on risk-related choice (Kusev et al., 2017; Seo et al., 2010). This is where the centrality of appraisal dimensions in the effect of risk behaviours comes to the fore in understanding risk-taking.

The appraisal dimensions of certainty and control significantly influence risk-taking (Beisswingert et al., 2015; Lerner and Keltner, 2001; Lerner and Tiedens, 2006). This is because the specific emotion characterised by such appraisals leads future decisions to be considered predictable and controllable (Drace and Ric, 2012; Han et al., 2007). Consequently, individuals make optimistic judgements about risk (Han et al., 2007; Lerner and Keltner, 2001). Anger, happiness and pride are all highly characterised by appraisals of certainty and self-control and thus may trigger risk-taking behaviour (Smith and Ellsworth, 1985). Indeed, as reviewed in chapter four, happiness and anger are both associated with risk-taking (Beisswingert et al., 2015; Drace and Ric, 2012; Foo, 2011). Yet, recognising the differences in the appraisal dimensions and tendencies of each emotion provides insight on the decision frame within which they are likely to arise and their subsequent impact on behaviour.

In addition to certainty and self-control, anger is further characterised by appraisals of motive inconsistency and other-responsibility (Beisswingert et al., 2015; Demir et al., 2009; Lerner and Tiedens, 2006). Thus, anger can be triggered below target (i.e. motive inconsistency), when the individual attributes this negative situation to the behaviour of another person or object (i.e. other-responsibility). Furthermore, anger carries a core appraisal theme of 'other-blame' or being slighted (Lazarus, 1991; Nezlek et al., 2008). Importantly for risk behaviours;

> "Appraisal themes systematically trigger a predisposition toward specific action tendencies, behavioural patterns aimed at overcoming obstacles or meeting goals made salient by the emotion and its core appraisal theme" (Ferrer et al., 2016, p. 6).

Consequently, anger activates an 'attack' tendency, as individuals seek to overcome what is blocking their goal attainment (Beisswingert et al., 2015; Roseman, 2001). Hence, individuals become risk-taking when angry about being below their performance target.

Conversely, happiness and pride can be differentiated from anger by appraisals of motive consistency and self-responsibility. Both happiness and pride arise when the individual perceives high motive consistency (Demir et al., 2009), thus are likely to be experienced on the achievement of a PRP target. Furthermore, both emotions are characterised by high appraisals of self-responsibility, meaning the individual attributes the achievement of the target to their own actions (Smith and Ellsworth, 1985; Tong, 2015). Happiness is characterised by an appraisal theme of positive progress towards a goal, which motivates individuals to seek future events which enable the experience of similar happiness (Tong, 2015). Pride is accompanied by an appraisal theme of having accomplished a relevant goal and motivates the individual to take on new challenges (Campos et al., 2013). Thus, similar to anger, pride and happiness are activating emotions which motivate individuals to attend to situations or seek out future positive or challenging goals (Tong, 2015). This, accompanied by the sense that future situations are predictable and controllable (derived from certainty and control appraisals), results in happiness and pride motivating risk-taking behaviour, even when performance targets are achieved (i.e. low need frame).

In sum, anger, happiness and pride have the potential to motivate risk-taking (Lerner and Keltner, 2000; Lerner and Tiedens, 2006; Tong, 2015). The key difference is the context in which they are likely to arise. As Seo et al., (2010) explain, positive frames, such as achievement of PRP target (i.e. low need) are related to pleasant emotions, while negative frames, such as being below the PRP target, are related to negative emotions. Hence, anger is conceptualised to occur when below target and pride and happiness when above target. Nevertheless, as shown in the following section, contextual appraisal and emotional experience can also produce risk-aversion across decision frames.

5.5.2. Risk-averse behaviour

According to RST, low need frames result in risk-averse behaviour (Gonzales et al., 2016; Mishra and Fiddick, 2012). This is because of satisficing; when the immediate situation meets the individual's needs or is conducive to supporting the achievement of their goals, there is no

requirement for risk-taking (Gonzales et al., 2016). Yet, the inclusion of the emotional experience of the decision frame highlights that risk-averse behaviour may also occur across high and low need frames (Druckman and McDermott, 2008).

The ATF posits that the appraisal dimensions of uncertainty and situational control trigger risk-averse behaviour (Lerner and Keltner, 2001, 2000). Fear and hope are characterised by appraisals of uncertainty and situational control (Smith and Ellsworth, 1985). Moreover, empirical findings suggest that both hope and fear lead to risk-averse judgements (Foo, 2011; Lerner and Keltner, 2001; Lu et al., 2013). The relationship between fear, hope and risk-aversion is attested to the impact of uncertainty and situational control appraisals on future decisions. Essentially, when individuals perceive that events are unpredictable and out of their control, they are more likely to make pessimistic judgements about risk, leading to risk-aversion (Han et al., 2007).

However, fear and hope differ in their appraisals of motive consistency. Fear is characterised by motive inconsistency and hope by motive consistency (MacInnis and Chun, 2006; Roseman, 2001; Tong, 2015). This provides some insight into the decision frame within which hope or fear are more likely to be experienced. As fear is characterised by motive inconsistency appraisals, it is likely to be triggered when an individual finds themselves below target. On experiencing fear, people report that "the situation is negative and not of their own doing….but they are highly uncertain about what has happened and what will happen" (Tiedens and Linton, 2001, p. 974). Therefore, fear is likely to be triggered when an individual finds themselves below target but are uncertain about what has happened, or what may happen (Demir et al., 2009). Furthermore, fear is accompanied by an appraisal theme of imminent danger (Lee and Andrade, 2015). Consequently, it motivates a tendency to move away from or shut out the situation and act more cautiously (Demir et al., 2009; Lu et al., 2013; Smith and Ellsworth, 1985). As such, individuals become risk-averse when fearful about being below their performance target.

Hope can be differentiated from fear by appraisals of motive consistency and pleasantness (as opposed to unpleasantness) (MacInnis and Chun, 2006; Smith and Ellsworth, 1985). Therefore, hope is likely to be triggered by a low need frame. However, what is interesting about hope is that motive consistency here does not signal the achievement of a goal (as with happiness or pride) but that the environment is congruent to the achievement of one's motives (MacInnis and Chun, 2006). As a result, hope carries an appraisal theme of yearning for the best outcome

and a belief that it is possible (Lazarus, 1991). Although hope is characterised by being uncertain about the outcome and in the control of the situation, it activates a strong belief that a favourable outcome is possible. Given hope's association with an environment that is congruent to the achievement of a goal, it is likely that it is experienced within a low need frame but one where the PRP target has yet been achieved (i.e. some accumulated reserve levels and high probability of a positive outcome). Yet, as hope remains highly characterised by outcomes perceived as unpredictable (i.e. uncertainty appraisal) and controlled by the situation (i.e. situational control appraisal), it leads to risk-averse behaviour because of pessimistic judgements of risk (Foo, 2011). Indeed, hope signals 'unknown risk' (Ferrer et al., 2016). Hence, an individual who experiences hope when close to achieving their PRP target (i.e. low need frame) will be risk-averse.

In sum, an interaction between perceived need frames, where PRP targets act as a cognitive reference point, and the emotions triggered by the decision context influences risk behaviour outcomes. The impact of different appraisal dimensions, associated emotions and their appraisal tendencies on risk behaviours across decision frames are depicted in table 5.3. Nevertheless, as described in the following section, emotion regulation strategies can influence the overall impact of emotion on risk behaviours

Table 5.3: The influence of need frame and emotions on risk behaviour outcomes

	Need frame	Appraisal Dimensions		Potential emotion	Appraisal tendency
Risk-taking	High need (below target)	Certainty Self-control	Other-responsibility Motive inconsistency	Anger	Negative event is caused by another. Strong desire to attend to situation by 'fighting' back
	Low Need (achieved target)		Self-responsibility Motive consistency	Happiness Pride	Positive event is predictable and brought about by self. Seek out future positive events and new challenges
Risk-Aversion	High need (below target)	Uncertainty Situational Control	Motive inconsistency	Fear	Potential for danger. Negative event is unpredictable and controlled by the situation. Seek to move away from and not deal with situation.
	Low Need (near to achieving target)		Motive consistency	Hope	Believe positive outcome is possible but some unknown risks.

5.6. The impact of emotion regulation

In designing an appropriate conceptual framework for this study, it is important to recognise the moderating and/or mediating role of emotion regulation (ER) in the relationship between emotions and risk behaviours (see chapter four, section 4.4 for review). Individuals are known to routinely make an effort to control and regulate their emotions (Heilman et al., 2016). For instance, an individual who experiences happiness at the achievement of a PRP target may not automatically default to risk-taking behaviour. They may try to control its influence on their decisions. This can be due to the employment of ER strategies, namely cognitive reappraisal or expressive suppression (Gross, 1998). As depicted in figure 5.1 (pg. 62), cognitive reappraisal is an antecedent-focused ER strategy. It involves altering appraisals of the situation before they activate "full-blown emotional response tendencies" (Heilman et al., 2016, p. 4). Thus, it requires an individual to modify their perception of the immediate decision environment (Gross, 1999). For example, an individual who believes they have no control over what is happening may inhibit the 'full-blown' experience of fear if they reappraise the situation to conclude that there are some actions they can take to attend to the situation. Conversely, as depicted in figure 5.1 (pg.62), expressive suppression is a response-focused ER strategy which inhibits the outward expression of the emotion (Gross, 2001). For instance, an individual who is angry because they perceive another individual has hindered attainment of their goal may actively suppress expressing their anger when engaging with this individual and the related context.

Importantly, cognitive reappraisal strategies are found to have the most significant impact on risk behaviours (Heilman et al., 2016, 2010; Szasz et al., 2016). Findings suggest that reappraisal increases risk-taking behaviour, while expressive suppression strategies do not appear to influence risk behaviours (e.g. Heilman et al., 2010; Panno et al., 2013; Szasz et al., 2016). It is argued that cognitive reappraisal can downregulate the impact of emotions on risk behaviours, thus increasing risk-taking (Heilman et al., 2016). However, this is an emerging body of literature and findings are not yet conclusive. Nevertheless, it is important to recognise that individuals are known to actively control their emotions and the specific ER strategy they employ impacts risk behaviours. As Heilman et al. (2016, p. 2) note, "ER strategies generate predictable systematic differences in people's decisions in the face of the same emotion". Yet, much of the existing literature on the ATF overlooks the impact of ER (Heilman et al., 2010), hence the inclusion of emotion regulation in this study's conceptual framework. Having

described and presented each component of the conceptual framework, the following section details this study's research questions.

5.7. Research questions

This chapter's conceptual framework presents the key concepts through which this thesis explores the nature of the relationship between PRP and risk behaviours. Exploring these concepts further, through empirical observation, is a key step in the development of this study's understanding of risk behaviours. Moreover, such empirical exploration can further support the development of theory, by providing the 'flesh' of knowledge to enhance the theoretical 'skeleton' (Laughlin, 1995). The research questions presented in this section guide this empirical exploration, connecting the conceptual framework to the empirical research design. The questions deal with the primary components of the conceptual framework — PRP, activating mechanisms (i.e. need framing and emotional experience) and emotion regulation — to develop an understanding of how, when and why risk behaviours are effected in the context of PRP.

PRP

RQ 1. How does PRP influence an individual's evaluation of the decision context?

This question encourages exploration of which aspect of PRP influences individual subjective perception of the decision context. Based on the conceptual framework of this study, it is theorised that PRP targets influence an individuals' evaluation of their decision context. Such exploration aims to understand the extent to which individual's use targets as a point from which to evaluate their decision context. Furthermore, it seeks to explore how they characterise the decision context based on that evaluation.

Activating Mechanisms and Risk Behaviour Outcomes

RQ 2. How do situational characteristics influence need framing and stimulate emotions?

This question encourages a focus on identifying the features of the decision context which construct high and low need levels and trigger specific emotions. Namely, reserve levels, probability, appraisal dimensions and appraisal themes. This develops understanding of individual's subjective perception of the decision context and contextual features important to developing this perception.

RQ 3. How do need levels and emotions influence risk behaviours?

This question guides an exploration, supported by the previous research question, of the interaction between contextual evaluation, need levels, emotions and risk behaviours. It aims to understand how different perceptions of need, in concurrence with the emotional experience of the decision context, influences risk behaviours.

Emotion Regulation

RQ 4. To what extent do emotion regulation strategies impact risk behaviours?

This question encourages exploration of what strategies, if any, individual's use and the extent to which strategies regulate the impact of emotions on risk-related decisions. It aims to identify specific strategies and develop insights on the context within which they are utilised and their overall influence on behaviour.

5.8. Conclusion

This chapter developed a conceptual framework to explore the influence of PRP on risk behaviours. PRP targets were identified as a mechanism through which PRP influences how someone thinks and feels about their decision context. As this thesis has discussed, risk behaviours are highly subjective, varying according to how individuals perceive their decision context. As such, the conceptual framework, developed by integrating RST and the ATF, provides a lens, or skeleton, through which such individual subjectivity can be explored. It identifies features of the decision context, such as goal disparity, self/situational control, self/other responsibility and (un)certainty, which influence how individuals cognitively and emotionally perceive the decision context of PRP targets. Furthermore, it recognised the role of emotion regulation in impacting risk behaviour outcomes, which much of the research overlooks. Understanding what circumstances evoke risk behaviours provides a schema for further empirical exploration to enhance knowledge of PRP's relationship with risk behaviours. However, as described, in line with middle-range thinking the purpose of this schema is to provide a language and structure to appreciate the PRP-risk behaviours relationship. It is not designed to strictly pre-define or prescribe that nature of that relationship. The following chapter sets out the research methodology, encompassing both the philosophical and technical aspects of this study, which will support the exploration of the concepts discussed in this chapter in the field.

CHAPTER SIX: METHODOLOGY AND RESEARCH APPROACH

6.1. Introduction

This chapter sets out this thesis' methodology and research approach. It first presents the philosophical background of this thesis and its influence on research design. In seeking to understand risk behaviours and what influences them through subjective perceptions of the decision context, this study is characteristic of an interpretive philosophy (Schwartz-Shea and Yanow, 2012). This philosophy guides the research approach, where a qualitative method, using narrative interviewing, is developed. Accordingly, this chapter sets out justification for this approach by discussing the value of narrative interviewing for accessing the subjective perceptions of individuals and for overcoming the identified difficulties in exploring risk behaviours in the field. This chapter is structured as follows. The first section sets out the interpretivist paradigm of this study, encompassing its ontological and epistemological position and justifying its relevance to this thesis. Following this, the qualitative narrative research approach is introduced and its efficacy for exploring individual subjective perceptions presented. The final section of the chapter sets out the ethical considerations of this study.

6.2. Paradigm: interpretivist

The research paradigm encompasses the philosophical element of research methodology (McGregor and Murnane, 2010), guiding and influencing how the research is conducted (Creswell, 2007). The choice of research paradigm for this study is driven by its aims and conceptualisation of the topic and the researcher's positionality. This thesis seeks to enhance *understanding* of how PRP influences risk behaviours, by tapping into the *subjective* perceptions individuals have of the decision context, both cognitively and emotionally. This focus, on developing *understanding* through *subjective* perceptions, reflects both the need to overcome the limitations of extant research and the values and beliefs of the researcher. Consequently, this study requires a paradigm which will propagate such insights, whilst reflecting the researcher's worldview (Savin-Baden and Major, 2012). As such, an interpretivist paradigm is chosen.

An interpretivist paradigm engenders a concern for developing and enhancing *understanding*, rather than seeking explanation (Schwartz-Shea and Yanow, 2012). As such, it aligns well with

the aim of this study to overcome inconclusive findings of PRP's relationship with risk, by seeking to understand, rather than explain, how subjective perceptions of the decision context influence risk behaviours. Moreover, in seeking knowledge and determining reality in the experiences, understanding and perceptions of individuals, this study reflects the belief of the researcher that knowledge is created through subjective experience. As such, this study is implicitly underpinned by an interpretivist paradigm (Thanh and Le Thanh, 2015).

Interpretivism emerged as an alternative to positivism (Bryman and Bell, 2011). It focuses on the subjective meanings individuals attach to phenomena and seeks to understand the phenomena through this meaning (Orlikowski and Baroudi, 1991). Interpretivism is concerned with exploring why and how a phenomenon comes about (Elliott, 2000). Such a paradigm allows the researcher to "view the world through the perceptions and experiences of the participants" (Thanh and Le Thanh, 2015, p. 24) and find answers to research questions through constructing and interpreting understanding from those perceptions and experiences (Thanh and Le Thanh, 2015). Throughout, this study has considered risk behaviours as being subjectively determined, whereby an individual's cognitive and emotional perception of the decision context influences behaviour. Thus, applying an interpretive philosophy ensures this study is appropriately guided as it seeks to understand the relationship between PRP and risk behaviours from the subjective experiences of participants. Moreover, this study argues that the concept of risk behaviour can only be adequately understood by understanding the meaning of this concept to those involved and engaged in this behaviour. Such a philosophy is central to interpretivism (Grint, 2000). Furthermore, the view that the world is interpretively constructed and that the researcher is part of this construction is a central feature of middle-range thinking, which as described in chapter five, underlies this study's theoretical and methodological approach (Laughlin, 2004, 1995). The remainder of this section discusses the ontological and epistemological premise of interpretivism. It contrasts these with the extant PRP–risk behaviour literature, which takes a predominantly positivist approach, to highlight the value of applying an interpretivist paradigm in the study of an abstract and subjective subject such as risk (Smith et al., 2006).

6.2.1. Ontology

Ontology is concerned with "the nature of reality and what there is to know about the world" (Ritchie et al., 2014, p. 4). The ontological position adopted reflects the researcher's view and

assumptions of how the world operates (Saunders et al., 2007). By seeking to engage with individuals and understand their perceptions and experiences, this research uncovers multiple, individual realities. It is important to recognise this and ensure the different perspectives of individuals are presented and represented (Creswell, 2007). The nature of interpretive research implies that the researcher embraces multiple realities (Creswell, 2007). In this regard, a relativist ontology is adopted, as reality is viewed as being subjective, differing from person to person (Guba and Lincoln, 1994). Interpretivists use the views of participants and their personal knowledge and background to create or construct reality (Thanh and Le Thanh, 2015). Hence, in seeking to understand risk behaviours, this study follows the interpretive ontology of viewing the reality of risk behaviours as deriving from different perspectives of individuals in different contexts (Schwartz-Shea and Yanow, 2012). This representation of reality adheres to the predominant view in the risk literature, that risk behaviours vary according to an individual's subjective cognitive and emotional perception of the decision context (Slovic et al., 2004; Weber et al., 2002; Weber and Johnson, 2008).

Extant research on the relationship between PRP and risk behaviours has a very different ontological view to the relativist position adopted in this study. As much of this extent literature is guided by agency theory (Cuevas-Rodríguez et al., 2012; Devers et al., 2008), what 'counts as reality' is a view of human behaviour as self-interested, risk-averse utility maximisers (Levine et al., 2015; Watt, 2002). This implies a realist ontology, taking the view that the social world can be viewed objectively, external from the researcher, and that this single viewpoint holds a truthful account of that reality (Schwartz-Shea and Yanow, 2012). This ontological view adopted by extant research is particularly constraining when exploring something as complex and idiosyncratic as risk behaviours. It 'skews' researchers towards viewing risk behaviours as a singular reality — a stable preference — rather than constructed as a variable outcome of individual perceptions of contextual factors (Levine et al., 2015). Indeed, Smith et al. (2006) argue that many studies are hindered by their reification of risk, as they take a realist approach to its conceptualisation and measurement, assuming *a priori* definitions of the nature of risk in the research context (Henwood et al., 2010). This is reflected throughout the extant research, where prior assumptions are often made of what risk means, rather than exploring this as part of the study. Henwood et al. (2010) argue that this approach to measuring risk behaviours forces it into pre-defined categories. This hinders the wider understanding of risk behaviours by lessening the important and dynamic role played by people's values, cultural identities, commitments and broader social context, in the process of making judgements and

decisions (Henwood et al., 2010).

In response, there is a need to design a study which accounts for the complex, context-driven, nature of risk behaviour and how this relates to the circumstances created by PRP. As both Henwood et al. (2010) and Satterfield et al. (2000) argue, when studying risk it is more appropriate to focus on how people develop their responses to uncertainty and risk, and how they arrive at a judgement or decision in relation to it. Following a relativist ontology, by viewing and accepting the multiple realities constructed by participants and the researcher, provides this insight. It ensures that how individuals perceive the context created by PRP, both cognitively and emotionally, are captured and accepted. This provides a much more holistic and dynamic insight of the relationship between PRP and risk behaviours.

6.2.2. Epistemology

Epistemology is the study of knowledge, encompassing how knowledge is acquired, and what is regarded as acceptable by the discipline and researcher (Bryman and Bell, 2011; McGregor and Murnane, 2010). It is an explanation of how a particular field of study thinks. In line with the researcher's personal viewpoint on what constitutes as knowledge, interpretivism follows an epistemological position of subjectivism. Knowledge is not considered something which can be viewed objectively but is co-created between the knower and the respondent (Schwandt, 2000). Interpretivist research emphasises the importance of subjective meaning over objective knowledge. As Orlikowski and Baroudi (1991, p. 13) explain:

> "This tradition does not assume that organisational structure or social relations are objectively known and unproblematic, but attempts to understand how and why individuals, through their socialisation into, interaction with, and participation in a social world, give it a certain status and meaning".

Hence, this research accepts the subjective views and accounts of individuals regarding risk and risk behaviours as acceptable knowledge of what those phenomena are. Essentially, this research finds knowledge in the views of participants and in the researcher's interpretations of that knowledge.

Risk is an abstract concept, whose existence depends on the individual's subjective interpretation of factors which lead them to perceive the presence of risk (Brehmer, 1987). It is therefore difficult to define, identify and measure risk by objective means. Rather, an individual's risk behaviour is a response to their subjective interpretation of their decision-making context, such as its perceived costs and benefits, rather than the influence of risk in and of itself (Weber and Johnson, 2008). Therefore, a subjective approach which seeks knowledge

from individual interpretations of risk and the factors which affect risk behaviours is efficacious in seeking to understand the PRP–risk behaviours relationship. In contrast, extant research on this topic takes an objective approach, making *a priori* assumptions of what risk is and how it can be viewed. Consequently, in designing research methods, such studies focus on gaining knowledge from pre-defined measures of risk such as volatility or outcome variance in market or accounting measures (Brink and Rankin, 2013).Yet, when there is no singular or definitive measure for risk, it is difficult to comprehend how it can be measured objectively (Zinn, 2005). Furthermore, taking such an objective view arguably biases the researcher and study participants towards viewing risk according to such *a priori* assumptions (Smith et al., 2006). It does not allow risk behaviour, and the meaning and understanding attached to it, to emerge naturally from the research site. Hence, a subjectivist epistemology allows knowledge of risk behaviours to emerge from the subjective understanding individuals place on risk and PRP. Furthermore, an objective approach hinders understanding of how an individual's subjective evaluation of the decision context affects risk behaviours. Therefore, this research finds knowledge and meaning of risk behaviours by engaging with the subjective perceptions of individuals in the context of PRP.

Having set out the underlying philosophical views implicit in this research, the following section discusses the research approach, which is informed and influenced by the paradigmatic views discussed in this section.

6.3. Research approach: qualitative narrative research

In following an interpretive philosophy, this study focuses on exploring how individuals subjectively experience and perceive the decision context informed by PRP, and why such experiences (i.e. cognitive and emotional) influence risk behaviours. Hence, the chosen method must enable access to individual experiences and the perceptions of and meaning they attach to PRP and risk.

This study aims to understand the nature of the relationship between the key concepts of risk behaviours (i.e. cognitive and emotional evaluation) and PRP (i.e. performance targets), rather than test them. Through reviewing the literature and developing a conceptual framework, this study has developed an understanding of how PRP and risk behaviours are dealt with in extant literature and developed guiding research questions from this. However, in line with a middle-range methodology, the aim of the research method is not to test the accuracy of these questions, but to create a design that allows meaning and understanding of these questions to

be developed (Broadbent et al., 2001; Schwartz-Shea and Yanow, 2012). The research approach must develop a suitable strategy to address the research questions, overcome the challenges inherent in developing understanding of risk behaviours, while remaining guided by the underlying interpretative philosophy. Essentially, the aim is to enable findings to "emerge from the field" (Schwartz-Shea and Yanow, 2012, p. 18) without undue hindrance from pre-defined assumptions about risk or PRP. Based on these research elements, this study employs a qualitative approach, using a narrative interviewing method. The following section describes the nature of qualitative research in further detail and provides a rationale for the choice of narrative interviewing.

6.3.1. Qualitative research

Qualitative research seeks to develop an understanding of "how things work in particular contexts" (Mason, 2002, p. 1). Thus, qualitative research supports the central aims of this study because it enables the exploration of subjective perceptions of individuals in context. As Denzin and Lincoln (2005) explain, qualitative research allows researchers to get closer to the perspective of participants. Its aim is not to end up with "unequivocal and quantifiable meanings" (Kvale, 2007, p. 13) but to provide insights and develop understanding of how PRP influences risk behaviours, particularly of the means by which and the circumstances under which risk behaviours emerge. Furthermore, in reflecting the position of the researcher, qualitative research emphasises that understanding is shaped through human interaction and that the researcher plays a central role as interpreter of participant reality (Ahrens and Chapman, 2006).

Taking a qualitative approach differentiates this study from the predominant employment of quantitative methods in the extant PRP–risk behaviours literature (Dong et al., 2010; Efing et al., 2015; Gregg et al., 2012). The issue with a quantitative approach is that it "typically seeks detail in certain aspects of correlations between variables" (Silverman, 2005, p. 9). Thus, quantitative methods are not sensitive enough to tap into the elements of interest in this study, such as individual perceptions, their understanding of PRP, and the meanings they assign to risk (Henwood et al., 2010). If one seeks to understand the deeper, richer particulars of a relationship or correlation, then a qualitative approach is most appropriate (Silverman, 2001).

However, qualitative methods are often criticised for eliciting what individuals 'talk' about the topic, not what they 'think' about the topic (Lincoln and Guba, 2003). This is an issue particularly pertinent for risk behaviours, as individuals are not often found to have a clear

awareness of their motives for engaging in risk-taking (Camerer and Hogarth, 1999).The way in which questions are worded or posed can influence responses (Ritov and Kahneman, 1997) or even cause individuals to change from their original response (Slovic, 1987). Most importantly, asking questions directly about risk can bias an individual's response to their opinion of risk, rather than the more important question of how they arrive at that judgement or what influences their decisions (Henwood, 2008; Satterfield et al., 2000). Smith et al. (2006, p.5) explains this issue, noting that:

> "Researching risk perception as a given phenomenon — either by asking people about 'risk' or interpreting their responses to given events/issues in terms of risk — arguably creates a double hermeneutic: the act of researching risk perceptions reinforces the belief that people perceive risk".

Therefore, there is a need to separate the focus of the method from asking questions directly about risk behaviours, yet still ensure that individual behaviours and experiences within that context can be uncovered. Furthermore, in seeking an understanding of an abstract concept such as risk, it is arguably more appropriate to explore how individuals *experience* risk, rather than try to characterise what risk is (Weber et al., 2004). As is discussed in the following section, a narrative method is chosen for these reasons.

6.3.2. Narrative interviewing

Narrative research is an interviewing method which asks individuals to recount and tell stories about their experiences, allowing the researcher to gain insights into their perceptions, their representations of the self, and the influence of wider social factors on their opinions (Squire, 2008a). It involves focusing on the structures of narrative, or language, and the context of that discussion, providing insights into behaviour or thoughts (Andrews et al., 2008). It is chosen, first and foremost, for its benefits in overcoming the difficulties in exploring and understanding risk behaviours, but also for its ability to provide rich detail on the experiences of participants and the influences on their behaviour. As Jovchelovitch and Bauer (2000, p. 58) explain, "by telling, people recall what has happened, put experiences into sequence, find possible explanations for it, and play with the chain of events that shapes individual and social life". Narrative interviewing creates a setting where participants are encouraged and stimulated to recount experiences relevant to them, significant to their understanding of events and reflective of the meaning they attach to important elements in their environment (Jovchelovitch and Bauer, 2000). By doing so, participants make sense of events and present this personal and subjective justification of what happened and why, to the researcher.

The specific value of narrative research for this study is that it allows the researcher to 'de-centre' the question of risk (Smith et al., 2006). A number of studies seeking to explore people's perception of risk have employed it for this reason (see Henwood et al., 2010; Smith et al., 2006). As Henwood et al. (2010, p.18) explain:

> "The use of narrative methodology is one way for researchers to avoid suppressing epistemic differences, neglecting diverse sources and contexts for risk knowledge, and being limited to interpreting people's risk responses only within their own prior investigative frames".

Providing a setting within which individual experience and perceptions can be explored without directly asking questions about risk, ensures that responses are not biased towards the participants' opinion of risk (Smith et al., 2006). The focus of narrative research is to stimulate discussion of individual experiences, within which the meaning attached to risk and factors which influence risk behaviours may be embedded (Henwood et al., 2010).

The broad attraction of narrative research lies in its ability to uncover different layers of meaning and understand more about the individuals in the study context (Squire, 2008a). As individuals tell stories using words and meanings specific to their experience, the study of narratives offers a rich insight into the individual's personal experiences, detailing events and actions (Jovchelovitch and Bauer, 2000). Asking an individual to describe or tell a story of their experiences, results in them reconstructing the context, offering insights of the event, the time and their motivations (Bruner, 1990; Jovchelovitch and Bauer, 2000). By emphasising an experience-centered approach, narrative research proposes that "experience can, through stories, become part of consciousness" (Squire, 2008a, p.41). Thus by asking participants to recount these stories of experience, a narrative method can unlock this consciousness, by offering an insight into how individuals understand, perceive, make sense of and represent the narrative context (Squire, 2008b). The researcher can then develop understanding and interpret meaning from these multiple perspectives and experiences of individuals. Collecting narratives of experience of PRP enables the researcher to gather detailed insights on how people think about their pay systems and the decision context, what influences their decisions and how their risk behaviours arise. The researcher can then use these rich, contextually embedded accounts to gain an insight of the role of individual perceptions of contextual factors and interpret their influence on risk behaviours. Furthermore, reflexivity is embedded in narrative research (Squire, 2008a), as the researcher must continuously examine oneself, their pre-conceptions and their relationship with the research.

The choice of a qualitative approach using a narrative interviewing method is a response to the limitations of the extant research on this topic and the need to 'get closer to the action' (Devers et al., 2008). Without gathering rich data in context, comprised of individual perceptions and understanding, it would be difficult to understand what influences risk behaviours in the context of PRP. As Lukka and Modell (2016, p. 4) explain, this approach is useful "when the phenomena of interest are viewed as socially constructed or a product of highly subjective projections of the human mind". Exploring this subject qualitatively provides an understanding of PRP, from the perspective of individuals, and has the potential to offer insights beyond those originally envisioned by the conceptual elements of this study. Furthermore, taking a narrative approach allows the researcher to prevent any *a priori* assumptions from biasing the design of the data collection phase and overcomes the potential contaminating effect of questions directly related to risk. However, before any interviews are undertaken, it is necessary to take steps to ensure the research progresses in an ethical and responsible manner. The following section discusses the ethical considerations of this study.

6.4. Ethical considerations

Qualitative research carries with it particular ethical issues. This is because "it generally involves emergent and flexible research design, and usually entails collecting relatively unstructured data in naturalistic settings" (Hammersley and Traianou, 2012, p. 8). Lichtman (2006) highlights several ethical principles which qualitative researchers should follow when conducting research. These include; do no harm; respect the privacy and anonymity of participants; practice confidentiality; ensure informed consent; provide a trustworthy environment; do not be excessively intrusive and; do not misrepresent or misinterpret data.

In following these guidelines, this research first sought, and received approval, from the University's research ethics committee to conduct interviews on PRP and risk behaviour (see Appendix A, pg. 247, for approval confirmation letter). On recruiting individuals for the study, participants were supplied with details of what the study involved and what was expected of them (see Appendix B, pg. 248, for participant information sheet). Their informed consent for participating in the research was sought via email. Permission from individuals to record their discussion was sought at the commencement of interviews. In order to protect the privacy and anonymity of participants, recorded interviews and transcribed data were stored securely in a private folder on the University's network. Furthermore, in seeking to understand participants' meaning and perceptions of the phenomena of study, care has been taken during the

interpretation of data to retain the views of participants, reducing the likelihood of misreporting opinions. Overall, the interviews were designed to be conducted in a manner that is respectful to all participants and did not ask any overly personal or confidential questions.

Ensuring confidentiality is a particularly pertinent ethical consideration for the research sample; financial traders. Bank traders, in particular, trade large sums of money on behalf of well-known clients and organisations, which could be mentioned during the course of interview. Therefore, it is imperative that the confidentiality of both organisations and traders is ensured. As such, the research has been careful to protect participant confidentiality by ensuring that no personal or organisational names, or information which may identify an individual or organisation, is included in data analysis and the write up of findings. In addition, following interview each participant was supplied with the interview transcript, allowing them to highlight any points they wish remained confidential.

6.5. Conclusion

This chapter presented the research methodology and research design of this study. The chosen methodology and design is a response to the needs of this study, its overall focus and purpose. In valuing the subjective perceptions of individuals to understand what influences risk behaviours, this study is informed by an interpretive philosophy. A qualitative approach was identified as the most suitable research design to access such subjective meaning. This encompassed the use of a narrative interviewing method, specifically for its strength in overcoming issues related to the challenges inherent to the study of risk. By prompting individuals to recount stories of their experiences, the narrative method removes any direct focus on the question of risk, ensuring that responses are not biased by either the participants or researcher's opinion of risk. The following chapter presents the application of this methodology to gather data from financial traders in the field, and details the template analysis approach used to analyse the collected data.

CHAPTER SEVEN: RESEARCH DESIGN — NARRATIVE INTERVIEWS WITH FINANCIAL TRADERS

7.1. Introduction

This chapter presents the research design and empirical exploration of this study. The design of the study centres around the need to elicit the perceptions of the chosen case study of financial traders. As such, this chapter's first section sets out how the narrative interviews were designed and how their design was tested during a pilot study. Following this, it discusses the sampling approach and how participants were recruited. The research strategy is then introduced, discussing how it informs data collection and analysis. Further detail is provided on how data is collected and the technique used to analyse the rich data provided by the narrative interviews. Finally, the steps taken to ensure the quality and rigour of this research study are set out.

7.2. Interview design

When designing narrative interviews, the objective is to devise questions which elicit stories related to the research aims and provide the insights needed to answer the research questions. In their study of risk perceptions, Henwood et al. (2010) recommend a more focused approach to traditional forms of narrative interviewing[5], by utilising specific questions which concentrate on the topics of interest. Although such questions may appear to be similar to that taken in a semi-structured thematic interview they are asked in a narrative style, i.e. "can you tell me about your experiences of…". In addition to these broader questions seeking experiences, Henwood et al. (2010) suggest that participants may not always have enough relevant information embedded in their experiences to engage with the topic of interest in depth, or in a meaningful way. Therefore, they recommend the addition of "designing questions to draw out shorter, more focused, yet experientially relevant stories" (Henwood et al., 2010, p.9).

In consideration of the design recommendations of Henwood et al. (2010), the next step is to

[5] Although narrative research does not describe a clear process for narrative interviewing, the general preference is to take a biographical approach, where individuals are prompted to "tell me about your life" (Henwood et al., 2010), resulting in a detailed but lengthy account of their life experiences, while the researcher remains a passive (i.e. does not interrupt or prompt further questions while participant is telling their story) but active listener throughout (Suárez-Ortega, 2013).

fit the design of this method to the research aims of this study. When designing the interviews, it is important to keep in mind that the aim of the narrative interviewing method is to uncover and elicit how participants understand and make sense of "their part of the world of interest to the researcher" (Blaikie, 2010, p. 90). Thus, the objective for interview design is to develop questions which encourage individuals to tell stories related to their subjective perceptions of the decision context, and the meaning they attach to risk behaviours, without directly asking questions about risk. Within a narrative interview design, questions remain quite broad, operating in the vicinity of the areas of interest, but not asking direct questions related to the specific interests of the study. This logic is central to narrative interviewing, where participants are encouraged to describe and discuss experiences by an initial prompting question, but their response to this is constructed from their own personal perceptions and what they deem explicit and meaningful within the experience they choose to discuss. In other words, in the absence of direct questioning about risk (or factors related to it; e.g. emotions, PRP), it should only come through in a participant's narrative if it is an explicit and meaningful element of their experiences.

To encourage 'episodic narratives' (Henwood et al., 2010) of interest to this study, the interview format was designed to focus on three broad themes: (1) the experience of being a trader, (2) emotions and emotion regulation and (3) the performance-driven nature of trading. These themes are chosen for their relevance in prompting discussion of the features of interest to this study. Namely, their experience of the decision context and their subjective perceptions of it (theme one), how negative and positive experiences make them feel (theme two) and the meaning they attach to PRP and their perception of performance targets (theme three). In following the logic of narrative interviewing, these themes are purposively broad. The researcher is seeking insights of participants' interpretations of their own world and what they attach significant meaning to. Utilising the broad approach of narrative interviewing, rather than direct questioning, ensures any prior assumptions of the researcher do not contaminate the response of participants (Henwood et al., 2010). By encouraging participants to describe their personal experiences of the trading environment, risk behaviours and what influences them should come through naturally if they are central to that experience.

In one of the few guidelines on how to conduct narrative interviews, Schutze (1977)[6] recommends the following four-step approach. The researcher should first begin with an

[6] This was later translated by Jovchelovitch and Bauer, 2000.

initiation, where they describe the context of discussion and how narrative interviews work, making it clear to the participant that they will not ask continual questions, but will ask one primary question and only follow this up once the participant has finished telling their story (Jovchelovitch and Bauer, 2000). Then the *main narration* begins, where the researcher asks their initial prompting question. Once it is clear the participant has finished recounting their main narrative, the *questioning* phase begins. Throughout the main narration, the researcher should note experiences, events or topics which can be used for further questioning and probing during the questioning phase. Once the questioning phase has been completed, the *concluding talk* phase should naturally begin (Schutze, 1977). As they have reached the end of the interview, the participant should be more relaxed and additional narratives and experiential accounts of topics of interest will likely arise within the concluding talk (Jovchelovitch and Bauer, 2000). To suit the more experience-focused approach of this study, Shutze's (1977) process is applied to each of the three themes separately. That is, each theme — the experience of being a trader, emotions, and the performance-driven nature of trading — is first prompted by a broad initiation question (i.e. How performance driven is the environment?), before being followed up by more focused questions related to points which emerged during the main narration of each theme. This design is depicted in table 7.1.

To test the suitability of this approach and its efficacy in gathering data for this study, the following section describes a pilot study undertaken with four initially recruited traders.

Table 7.1: Interview design

Theme	1. Initiation	2. Main Narration		3. Questioning Phase (Examples of prompts)	4. Concluding Talk
1. 'Being a Trader'	Introduction to the topic of interest, i.e. I am interested in your experiences of the trading environment and the features of that environment which influence how you trade and make decisions. Description of narrative approach, i.e. I am just going to focus on three broad themes, around your experiences of being a trader, your decision-making, experiences and performance. So, I'll just be listening and taking notes as you talk, rather than asking you continual questions. I'm here to listen to your opinions and experiences.	What is it like to be a trader?	Active listening – noting further prompting questions	• What has kept you motivated throughout your career/encouraged you to remain a trader? • How would you describe your decision-making style? • What do you look at/think about when you are deciding how to make a trade?	Note down additional points/topics of interest
2. Emotions and Emotion Regulation		Can you tell me about a situation where things have gone well? Can you tell me about a situation where things have gone not so well?		• What is it like? • What is going on/happening at the time • How did it affect you? • How do you manage this?	
3.Performance		How performance-driven is the environment?		• How do you gauge your performance? • What is the benefit of performing well? • In your experience, do you trade differently when you are performing poorly than when you are performing well? • What is your experience of targets? • In your experience, what would prompt you to change your bet size or change your position? What has happened to prompt this?	

7.2.1. Pilot study

A pilot study is a small-scale version of the planned study (Kim, 2011), which allows the researcher to get a feel for the field (Kezar, 2000), assess the suitability of the chosen methodology, refine approaches and questions and adapt the research design (Sampson, 2004). The main aim of the pilot study is to determine the suitability of the research method for exploring the phenomena in question. For this study, the interview design described in the prior section was piloted on four financial bank traders. Inclusion of the pilot study data in the main study is unusual (Sampson, 2004). However, the use of the narrative interviewing method made it possible to do so. Due to the broad and indirect form of questioning used, the questions did not require extensive updating after the pilot study, as would be the case with a more direct interviewing approach. Indirect questions can produce a range of different responses according to the personal experiences of individuals (Squire, 2008a). Therefore, assessment of the pilot study does not centre on whether questions elicited the 'right' responses, but whether questions were broad enough to encourage story-telling and allow individuals to deeply engage in recounting their experiences. As the interviews with four initial traders produced rich narratives and insights of subjective perceptions of the PRP context, initial interview design was retained and pilot study interviews included in the main data set.

7.3. Sampling approach and participant recruitment

Financial traders were selected as a suitable sample for this study because of the prevalence of bonus incentive systems and performance targets in this environment, and how inherent risk-taking is to the process of trading (Locke and Mann, 2005; Oberlechner and Nimgade, 2005). Specifically, the participation of discretionary traders was sought. Discretionary traders use their own individual decision-making and judgement in controlling the timing and execution of their trades (Bushman and Indjejikian, 1995). Thus, their subjective perceptions influence their judgements and decisions, making them a suitable sample with which to explore the role of individual perceptions in determining risk behaviours. Having identified a suitable group of individuals to explore the central tenets of this study, the sampling approach becomes important. It defines the "principles and procedures used to identify, choose and gain access to relevant data sources from which to generate data using the chosen methods" (Mason, 2010, p. 121).

Purposive sampling is the sampling approach most suitable for qualitative research (Bryman and Bell, 2011). It involves targeting a segment of the population expected to have the most

salient levels of the characteristics of interest (Guarte and Barrios, 2006). It is a non-random approach relying on the judgement of the researcher to identify the segment most relevant to the research questions (Bryman and Bell, 2011). The rationale for taking a purposive approach is to ensure the sampled individuals have the characteristics and experiences relevant to the research questions (Bryman and Bell, 2011).

However, gaining access to and recruiting financial traders for interview soon became the foremost challenge of this thesis. Initially, the HR managers of large financial institutions in the UK were contacted via email or Linkedin, explaining the nature and the purpose of the research and seeking permission to interview interested individuals on their trading desks. Responses were all similar, stating they did not require such research to be undertaken at this time, and politely declining. Following this, the researcher contacted and secured a meeting with a representative of the U.K. Financial Conduct Authority, who expressed interest in the research but were unable to help with accessing suitable participants. As a result, the researcher felt it best to try and recruit individual traders directly rather than seeking to access organisations. Using the Linkedin premium account search function, suitable individuals in bank trading were identified and their participation sought via the direct mail application of Linkedin. Of over 50 individuals contacted, 16 replied declining, but two bank traders expressed interest and agreed to participate in the study.

Following initial recruitment of these two individuals through the purposive approach, the study altered to a snowball sampling approach. This approach was taken due to the difficulty in gaining access to suitable individuals (Blaikie, 2010). Specifically, the two participating traders were asked to identify and locate additional individuals suitable to participate in the study. This approach proved fruitful, leading to the recruitment of a further nine bank traders. At this point, the snowballing approach did not lead to any additional participants. As such, additional approaches to recruiting further participants were tried. These ranged in their creativity from attending 'Meetup' groups of financial traders in London, contacting the former chief economist of a large financial institution in Ireland, and even contacting a Financial Times journalist who had recently interviewed a prominent 'rogue trader'. Although the journalist did very kindly put the researcher in touch with the trader, the response received was from the individual's lawyer who expressed regret at having to advise his client against participating in this study. Thus, the eleven participants comprised the final total of bank traders in this study.

After this, it became clear that further participants would have to be sought from a slightly

different outlet to that of bank trading. As such, the participation of retail traders was sought. Retail traders are also commonly referred to as day-traders and are individuals who trade full-time using their own personal accounts (Lo et al., 2005). Thus, they perform the same role as bank traders (i.e. taking positions on the market and risking capital), with the primary differentiation being they trade with and risk their own capital, rather than that of a bank or bank clients. Indeed, retail traders were particularly interesting as they provided an opportunity to compare the influence of PRP in bank trading with the clear influence of personal reward in retail trading. As retail traders trade with their own account, any profits they make are their direct reward, meaning they have a clear performance–pay relationship. When exploring how PRP influences risk behaviours, such a sample is advantageous as it provides a setting free from additional organisational noise. Arguably, retail traders experience a 'pure' form of PRP, where high performance results in direct personal reward. Comparing any potential differences in the risk behaviours of retail and bank traders, and the factors underlying this, may thus shed additional light on how, when and why PRP influences risk behaviours and the relevance of PRP to risk behaviours.

Suitable retail traders were identified by researching blogs and twitter accounts of retail traders and contacting them via email or through Twitter's direct messaging function. Indeed, Twitter proved the most useful tool to identify retail traders as there is a strong community of retail traders who are very active on Twitter. In addition to contacting potential participants directly, a snowball sampling approach was again taken simultaneously. This led to the recruitment of ten retail traders. Additional participants were sought through posting on online trading forums. However those who expressed interest were unsuitable (i.e. they did not trade full-time). Nonetheless, it appeared that data saturation had been reached, as no additional new information was obtained, rather, each interview supported the views of the other and had no major outlying concepts (Mason, 2010). Thus, when further participants were not forthcoming, it was reasonable to cease recruiting additional participants.

However, to further enhance the rigour and strength of study findings, an informant was sought. An informant is an individual;

> "Whose social positions in a research setting give them specialist knowledge about other people, processes or happenings that is more extensive, detailed or privileged than ordinary people, and who are therefore particularly valuable sources of information to a researcher" (Payne and Payne, 2004, p. 134).

The key informant for this study is an internationally renowned trader performance coach and psychologist who estimates to have worked with over 1000 traders on their emotions,

behaviour and decision-making. Thus, his insights, as will be discussed further in section 7.8, were key to enhancing dependability of the study's conceptual framework and findings.

The sample of this study thus comprises of 21 financial traders in total: 11 bank traders and 10 retail traders, and one informant. The bank traders all worked in a variety of different organisations and different locations (i.e. London, Dublin and Zurich). The retail traders were a global sample, located in Australia, the U.S.A., Canada and the U.K. The average years of experience of the overall sample is 14. Table 7.2 presents the demographic details of each participant, including their age, gender, location, years of experience and the markets they primarily trade on. Having discussed the chosen approach to sampling, the following section describes the research strategy of this study and how it informs the approach taken to data collection and analysis.

Table 7.2: Sample demographics

	Gender	Age	Years of Experience	Location	Markets Traded
Bank Traders					
IV1	Male	30-35	10	London	Forex
IV2	Male	40-45	23	Dublin	Forex/Commodities
IV3	Male	40-45	25	Dublin	Forex
IV4	Male	40-45	17	Zurich	Forex
IV5	Male	45-50	28	London	Forex
IV6	Male	25-30	10	London	Options/Forex
IV7	Male	40-46	25	Dublin	Forex
IV8	Male	35-40	6	London	Forex
IV9	Male	35-40	10	London	Commodities
IV10	Male	40-45	20	London	Forex
IV11	Male	40-45	22	London	Forex
Retail Traders					
IV12	Male	35-40	2.5	Perth, Australia	Forex/Equities
IV13	Female	40-45	15	Sydney, Australia	Forex/Equities

IV14	Female	30-35	1.5	Quebec, Canada	Stocks/Futures
IV15	Female	40-45	15	London	Forex
IV16	Female	35-40	11	Boston, U.S.A.	Stocks/Futures
IV17	Male	35-40	15	Perth, Australia	Commodities/Forex
IV18	Female	35-40	5	Chicago, U.S.A	Forex/Futures
IV19	Female	35-40	5	London	Forex/Equities
IV20	Female	35-40	11	London	Forex/Equities
IV21	Male	40-45	20	London	Stocks
Informant	Male	40-45	10	London	All types of trader

7.4. Research strategy

An important step in research design is selecting a suitable strategy to guide the process of data collection, analysis and research question response. As Blaikie (2010, p. 18) explains, "research strategies provide a logic, or a set of procedures, for answering research questions, particularly 'what' and 'why' questions". Abductive reasoning is the strategy which informs interpretive research (Schwartz-Shea and Yanow, 2012; Urdari and Tudor, 2014), which, given the underlying interpretive philosophy of this study, is the approach chosen for the research strategy.

Abductive reasoning begins with "a puzzle, a surprise, or a tension, and then seeks to explicate it by identifying the conditions that would make that puzzle less perplexing and more of a 'normal' or 'natural' event" (Schwartz-Shea and Yanow, 2012, p. 27). An abductive approach encourages a simultaneous back and forth strategy, between the field, the gathered data and theory, as the researcher seeks possible understanding and meaning of the phenomena under investigation. The ultimate aim of such a strategy is to develop an interpretation that makes sense of the research puzzle (Schwartz-Shea and Yanow, 2012). In this study, the 'puzzle' arose with the initial recognition of an imbalance between what is known to effect risk behaviours and the conceptualisation of risk behaviours in the PRP literature. This prompted this study to further explore what factors contribute to the variance of risk behaviours and how this can be applied to enhance understanding of the PRP–risk behaviours relationship.

Abductive reasoning is circular in nature, requiring the researcher to engage with all aspects of the research at once, i.e. data, theory and existing literature. It offers a means to develop a 'bridge' between the field and theory (Urdari and Tudor, 2014). In this regard, following recognition of the initial 'puzzle', this study moved to engage with extant literature to determine what is known about the PRP–risk behaviours relationship, while simultaneously exploring risk theory to gain knowledge of how risk behaviours arise. Importantly, an interpretative abductive strategy encourages the researcher to remain open in their approach, not rushing to find explanations, allowing "new concepts, relationships, explanations or accounts [to be] created in the process of theorising surprises or puzzles" (Schwartz-Shea and Yanow, 2012, p. 33). Therefore, at every stage of research design, despite the extent of detail and planning it encompasses, the researcher must remain open and flexible. Thus, this cyclic approach continued during data collection and analysis as the researcher allowed research to

emerge naturally from the field, interpreting it through the conceptual knowledge gained from the literature analysis but remaining open to new insights which required further exploration.

In this manner, an abductive strategy is used to answer 'what' and 'why' questions, and is focused on producing understanding rather than explanation (Blaikie, 2010). Furthermore, it plays a pivotal role in enabling the empirical 'flesh' uncovered during data collection and analysis to be linked back and fitted to the skeletal conceptual framework, thus extending theoretical understanding (Laughlin, 2004). Hence the suitability of this strategy for informing the design of this research. The following section describes the design of a narrative interviewing method appropriate to the chosen sample of financial traders.

7.5. Data collection: narrative interviews

Having confirmed the applicability of the interview design for gathering insights relevant to this study, interviews were conducted in a similar manner with all 21 financial traders. Due to the international locations of many of the traders (see demographics table 7.1) it was not possible to conduct all interviews in person. Those who were based outside of the U.K. and the Republic of Ireland were interviewed over Skype. On average, the interviews lasted 53 minutes. Interviews with bank traders took place from February to May 2016, while interviews with retail traders took place from December 2016 through to March 2017. Of the total sample, 7 were female, and 14 were male. All were recorded with the participants' permission and later transcribed in full. No particular difficulties were encountered. However, during Skype interviews, cameras had to remain off to ensure sound quality of the recording. Nonetheless, this did not hinder the quality or depth of discussion during the interview, with no marked differences in length or content of discussion between Skype and face-to-face interviews. Table 7.3 presents the date of each interview, its length and whether the interview was conducted in person or over Skype.

The interviews began with the initial prompting question of "what is it like to be a trader?"[7]. Once the narrative related to this theme and additional questions were completed, the further themes of emotion and performance were prompted and explored. However, in most cases, the initial question prompted a lengthy narrative and description of the trading environment, which

[7] Choosing this as the initial question of the interview is a reflection of the biographical approach predominantly applied in narrative interviewing. However, rather than prompting a participant to discuss their life story, this question is more focused to prompt discussion of participants' experiences or story as a trader. This gives a rich insight of what aspects of the environment they attach considerable meaning to and how they make sense of this environment.

often involved the discussion of performance requirements and perceptions of risk. Furthermore, some of the themes were interrelated within traders' narratives or transcended across others. For instance, emotions were often the first thing mentioned when discussing what it is like to be a trader. For this reason, the interviews did not always follow the exact order described in the interview design. Rather, once a theme was brought up in discussion, the researcher followed up on it with further probing questions, once the main narrative was completed (Schutze, 1977). This is a common characteristic of semi-structured interviewing, meaning the researcher must remain flexible in their approach, recognising that it is more appropriate to ask a question earlier than it appears on the schedule if it follows on from what a participant just said (Smith and Osborn, 2008). Also, it is important to note that the probing questions in the *questioning phase*, were not always the exact questions as phrased within the interview design in table 7.1; those listed serve as examples. Rather, probing questions were based on what the participant brought up or discussed during the main narration phase. This flexibility and adherence to exploring the individuals 'story' is central to narrative interviewing (Squire, 2008b).

Throughout, the purpose of utilising narrative interviews as a means to 'de-centre' the question of risk, was maintained. However, discussion of risk came up regularly in traders' narratives. Adopting the narrative interviewing method resulted in participants being facilitated to discuss their experiences as a trader, and their perceptions of the salient influencing features of that environment, rather than these being pre-defined by the researcher (Smith et al., 2006). Furthermore, as any explicit questions regarding risk were avoided, the resulting narratives which included discussion of risk were generated from the participants' point of view and perceptions, without being prejudiced by the researcher (Smith et al., 2006).

Additionally, it is important to note that due to the classification of traders as "highly skilled, professionally competent, and class-specific" (McDowell, 1998, p. 2135), they are considered a group of 'elites' (Harvey, 2011). When interviewing elites, the positionality of the interviewer becomes important for the development of trust and the dynamic of the interview (Harvey, 2011). In this regard, the positionality of the researcher as a young female with limited knowledge of trading or the financial industry presented a non-threatening position, which enhanced the developed of openness and trust during interview. The researcher felt that participants were more willing to engage with her and discuss experiences in detail because of this outsider position.

The informant interview did not follow the same protocol as the trader interview. Here, the

focus was not on gathering data, but on discussing the conceptual framework and the main findings of this study. In this regard, the researcher showed the informant the visual depiction of the study's conceptual framework (figure 5.1, pg.62) and explained each element. The researcher then asked, "How does this representation relate to your experiences when mentoring individual traders?". This then prompted a lengthy discussion, lasting 1.5 hours, where the informant discussed their experiences of and insights on what affects traders' decisions. As is discussed later in this chapter, in section 7.8, the purpose of the informant interview is to enhance the dependability of the study's findings, by cross-cheeking them with an individual privileged with in-depth knowledge and experience of trader behaviour. The following section describes how the collected interview data was analysed.

Table 7.3: Interview details

	Date of Interview	Length of Interview	In-person/Skype
Bank Traders			
IV1	01/03/2016	37.51 minutes	In-person
IV2	22/03/2016	1hour 25 minutes	In-person
IV3	23/02/2016	43.01 minutes	In-person
IV4	02/03/2016	38.07 minutes	Skype
IV5	10/05/2016	1hour 22 minutes	In-person
IV6	11/05/2016	34.42 minutes	In-person
IV7	23/02/2016	37.31 minutes	In-person
IV8	06/04/2016	49.58 minutes	In-person
IV9	14/04/2016	42.48 minutes	In-person
IV10	04/04/2016	55.21 minutes	Skype
IV11	09/05/2016	1hour 27 minutes	In-person
Retail Traders			
IV12	18/01/2017	47 minutes	Skype
IV13	16/01/2017	1hour 13 minutes	Skype
IV14	09/01/2017	43.18 minutes	Skype
IV15	26/01/2017	35 minutes	Skype
IV16	14/12/2016	50 minutes	Skype
IV17	26/01/2017	44.36 minutes	Skype
IV18	27/01/2017	40.22 minutes	Skype
IV19	25/01/2017	1hour 37 minutes	In-person
IV20	08/03/2017	31.47 minutes	Skype
IV21	14/03/2017	45.32 minutes	In-person
Informant	24/03/2017	1hour 20 minutes	In-person

7.6. Data analysis

Template analysis was used to analyse the collected and transcribed interview data. Template analysis is a form of thematic analysis (Brooks et al., 2015) and is a technique most suited to handling rich qualitative data (Brooks and King, 2012). It encourages the researcher to focus on the areas where data is richest and themes are most relevant to the research questions (Brooks et al., 2015). A particular consequence of utilising a narrative method of interviewing is that, although it provides rich insights on traders' perceptions and behaviour, it generates lengthy narratives and large quantities of data (Waring and Wainwright, 2008). Hence, the focused approach of template analysis makes it particularly suitable to the needs of this study. It provides balance between the need to reduce the data so that final conclusions can be drawn (Miles and Huberman, 1994), with protecting the views of participants and allowing new themes to emerge. As such, it further supports the interpretive philosophy of this study, by giving precedence to the individual perceptions of participants (Brooks et al., 2015). Indeed, King (2012) describes how it can be applied within an interpretative framework, where "the researcher assumes that there are always multiple interpretations to be made of any phenomena, which will depend upon the position of the researcher and the context of the research" (p. 427).

Key to the success of template analysis in handling rich sets of data is the development of a coding template. The template is first developed by analysing an initial subset of data for relevant emergent themes and through the use of *a priori* codes[8] (Brooks et al., 2015). Once this is created the analysis of further transcripts does not have to involve preliminary coding (King, 2012). Rather, "analysis progresses instead through an iterative process of applying, modifying and re-applying the initial template" (King, 2012, p.430). This makes template analysis an efficient approach, as the researcher can choose to code only the data relevant to the research aims, without reducing the depth and richness of analysis (King, 2012). Furthermore, although it allows the researcher to develop some themes in advance, based on key concepts of the study, it insists that these be applied "tentatively" (King, 2012, p.430) so that new themes can emerge from the data itself. This approach to coding is highly applicable to this study, where key concepts from the conceptual framework have been developed, but the views of individual participants still need to be protected and not overruled by *a priori* assumptions.

[8] *A priori* codes are created by using the themes of interest in the conceptual framework and research questions (Brooks et al., 2015).

The first step to template analysis is *familiarisation* (Brooks et al., 2015). Familiarisation began with the initial transcription of each interview. Following transcription, each interview was read through several times to develop a deeper familiarity with the content of each interview. Following this, the transcriptions were entered into Max QDA. This is a software package which supports the coding and analysis of data sets. Using this software made the process of coding and template development more manageable, as codes and themes could be changed, updated and modified as the template developed across the initial subset of transcriptions.

Having developed a deep level of familiarity, the first major step in analysis is to identify the *preliminary themes*, either using *a priori* themes, or themes developed from an initial subset of the data (Brooks et al., 2015). The subset of data selected were the first two bank trader interviews and the first two retail trader interviews. Preliminary themes were then developed using both *a priori* and emergent themes. In following the recommendations of King (2012), *a priori* themes came from the key concepts of the study, captured within the conceptual framework. This included PRP and risk behaviours, given their centrality to this study. In addition, cognitive (i.e. need framing) and emotional evaluation (i.e. appraisal dimensions and appraisal themes) formed *a priori* themes as risk behaviours are influenced by how an individual cognitively and emotionally evaluates the decision context and are a key aspect of this study's conceptual framework (Beisswingert et al., 2015; Mallpress et al., 2015; So et al., 2015; Weber and Johnson, 2008). Emotion regulation also formed an *a priori* theme, to reflect findings were traders discussed strategies to manage their emotions. Furthermore, performance targets formed an *a priori* theme, reflecting findings that performance targets impact an individual's risk-related decisions (Chow et al., 2007; Heath et al., 1999a; Larrick et al., 2009), and its centrality to the conceptual design of the study.

Analysis continued in this manner to further transcripts so that an *initial template* could be developed (Brooks et al., 2015, King, 2012). During the analysis of each subsequent transcript, the *a priori* themes remained consistent. However, additional emergent themes which often characterised or offered further insight to the *a priori* themes emerged. This included the meaning participants attached to PRP systems and their perception of them, encompassing how they value and understand PRP. In addition, participants were found to focus on additional targets beyond PRP targets. Specifically, they evaluated their decision context according to profit and loss levels (i.e. whether they are making or losing money), a survival focus (i.e. the minimum performance required to keep job/cover living costs) and, to a lesser extent, according to personal goals, such as improving performance. Understanding of risk behaviours

was further enhanced by emergent themes of risk-taking and risk-aversion, encompassing situations where participants discussed risk-averse or risk-taking behaviour. Each emergent theme was clustered and grouped to an appropriate superordinate theme, which in each case was an *a priori* theme. Thus, the developing template captured the initial concepts of the study and further emerging, more detailed, characteristics of these themes. As each theme developed, the Max QDA software was used to select the sections of transcribed data which reflected a particular theme. This ensured the participants' point of view remained central to the coding approach.

Once this initial template, including emergent and *a priori* codes in hierarchical and related clusters, was developed, the remaining transcripts were worked through systematically. This led to some *modifying of the template,* as emerging themes were grouped within an appropriate hierarchical structure to connect them to superordinate and subordinate themes. Specifically, an additional emotion regulation strategy termed situational avoidance emerged and was grouped within the emotion regulation code. Following *coding of further data,* it became clear that no additional themes different to those already captured by the template were emerging. Thus, this led to the *finalisation of the template.* The final template included superordinate codes, derived from the *a priori* and emergent themes, and further connected subordinate themes. A descriptor was assigned to each code so that further analysis of remaining data using the template would be consistent. This final template is presented in table 7.4.

The process of analysing the data is primarily a means to organise the data in preparation for interpretation. The following section discusses the importance of interpretation.

Table 7.4: Table of coded themes

Theme	Origin of Theme	Descriptor
1 Demographics	*A Priori*	Age, Experience
2 PRP	*A Priori*	Discussion and experience of PRP
2.1. Meaning attached to PRP	Emergent	What PRP means to participants, the understanding and value they attach to it
2.2. Perception of PRP	Emergent	How PRP is perceived, what participants' think about it
3 Performance Targets	*A Priori*	Monetary target (budget) set to participants
3.1. Profit & Loss	Emergent	The meaning attached to profit and loss levels and the influence on behaviour
3.2. Survival Focus	Emergent	The meaning attached to the minimal level of performance required to survive/keep job
3.3. Personal Goals	Emergent	The meaning attached to personal goals and motivations and the influence on behaviour
4 Risk Behaviours	*A Priori*	When and why participants demonstrate risk behaviours
4.1. Risk-taking	Emergent	Situations when participants act in a risk-taking manner
4.2. Risk-aversion	Emergent	Situations when participants act in a risk-averse manner
5 Emotional Evaluation	*A Priori*	Evaluation of the decision context underlying emotions
5.1. Positive Emotions	*A Priori*	Situations which evoke positive emotions (i.e. happiness and contentment)
5.2. Negative Emotions	*A Priori*	Situations which evoke negative emotions (i.e. fear and anger)
6 Cognitive Evaluation	*A Priori*	Individual’s cognitive evaluation of the decision context
6.1. High Need	*A Priori*	Situations perceived as disparate to desired state and influence on behaviour
6.2. Low Need	*A Priori*	Situations perceived as conducive to desired state and influence on behaviour
6.3. Reserve Levels	*A Priori*	How perceptions of accumulated resource levels influence behaviour

6.4. Probability	*A Priori*	How perception of probability of expected outcomes influences behaviours
7 Appraisal Dimensions	*A Priori*	The characteristics of an individual's appraisal of a situation
7.1. Motive Consistency	*A Priori*	Situations perceived to be consistent with current goals
7.2. Motive Inconsistency	*A Priori*	Situations perceived to be inconsistent with current goals
7.3. Self-control	*A Priori*	Situations perceived to be in the individual's control
7.4. Situational-control	*A Priori*	Situations perceived to be out of the individual's control
7.5. Other-responsibility	*A Priori*	Situations perceived to be caused by another
7.6. Self-responsibility	*A Priori*	Situations perceived to be caused by themselves
7.7. Certainty	*A Priori*	Situations perceived as certain/predictable
7.8. Uncertainty	*A Priori*	Situations perceived as uncertain/unpredictable
7.9. Appraisal Themes	*A Priori*	The overarching description of a situation
8 Emotion Regulation	*A Priori*	The strategies individuals use to manage the impact of emotion on behaviour
8.1. Cognitive Reappraisal	*A Priori*	When individuals actively engage in changing the meaning of a situation
8.2. Expressive Suppression	*A Priori*	When individuals express the outward expression of an emotion
8.3. Situation Avoidance	Emergent	When individuals remove themselves from the emotion-eliciting situation

7.7. Data interpretation

This study seeks to understand the nature of the relationship between PRP and risk behaviours by exploring the subjective perceptions individuals have of this context. Specifically, their cognitive and emotional perceptions and the extent to which they influence the variance of risk behaviours. Interpretation requires the researcher to make sense of the analysed themes and interpret their relationship to the research aims (Smith and Osborn, 2008). In line with middle-range thinking, the conceptual framework helps the researcher make sense of the data, while remaining open to new insights which can extend or reform the conceptual framework (Laughlin, 2004).

This is the purpose of the subsequent three chapters, which presents the main findings and a detailed interpretation of them, developed from the researcher's engagement in meaning making with the participants (Schwandt, 2000). To enable this interpretation, the researcher focused on reducing the data by selecting themes according to the richness of the attached data and their relevance of enhancing understanding of the phenomena of interest to this study (Smith and Osborn, 2008). As Miles and Huberman (1994, p. 11) describe, "data reduction is a form of analysis that sharpens, sorts, focuses, discards, and organises data in such a way that 'final' conclusions can be drawn and verified". As such, the findings chapters organise the main insights according to their relevance to the research questions and interprets them according to the conceptual framework and existing research on this topic, while remaining attentive to findings not captured in this study's conceptual framework. The following section discusses steps taken to ensure the quality and rigour of this study.

7.8. Ensuring quality and rigour of research

An important element of any research study is ensuring the quality and rigour of its method and data collection process. Moreover, in an interpretive study, a further key element is to ensure that the collected data and the researcher's interpretation of it remain true to the views of participants (Schwartz-Shea and Yanow, 2012). As such, this section sets out the steps taken to ensure and assess the rigour of this study.

Quantitative studies often rely on assessments of validity, generalisability, reliability and replicability (Seale and Silverman, 1997). However, Lincoln and Guba (1985) argue that such criteria are not suitable for qualitative research. Thus, they proposed that qualitative research should be assessed based on its credibility, dependability, confirmability and transferability

(Lincoln and Guba, 1985). As such, these criteria are used to ensure and assess the rigour of this study.

Credibility refers to the trustworthiness of findings (Houghton et al., 2013; Lincoln and Guba, 1985). In other words, it encompasses a researcher's approach to engendering confidence in the 'truth' of its findings. A primary issue for this study is ensuring participants give a truthful account of their perceptions of PRP and risk behaviours. Previous qualitative studies exploring risk behaviours have noted that "one can raise the question of whether the results convey what managers 'think' about risk or what they 'talk' about risk" (Shapira, 1995, p. 14). In other words, when directly asking people to self-report or describe their risk behaviours, it is difficult to ascertain whether findings are truly reflective of an individual's behaviour, or just how they wish to portray their behaviour. Moreover, the topic of PRP and risk-taking is a delicate subject in the context of financial trading, considering increased regulation of this relationship since the financial crisis (Financial Services Authority, 2009). It is for this reason that the narrative interviewing method is chosen. By making no explicit references to risk or PRP, the potential for direct questions to prejudice individual responses to what they talk about risk behaviour, rather than how they act and behave is overcome (Lincoln and Guba, 2003; Smith et al., 2006). As such, the narrative interviewing method enhances the credibility of findings by ensuring the outputs of this research reflect traders' experiences rather than what they think is an appropriate answer.

Dependability refers to demonstrating the consistency or reliability of findings (Seale, 1999). To ensure the interpretation of traders' experiences are consistent, this study endeavours to present a clear audit trail. As will be demonstrated in the following chapter, it achieves this by ensuring that any interpretation of traders' behaviours is accompanied by a direct, illustrative quote to demonstrate where this information came from. Moreover, to further ensure the dependability of this study's approach and findings, the design of the conceptual framework and an overview of the main findings were discussed with the informant. Following an in-depth discussion, he substantiated the conceptual framework, describing that trader behaviour is very context dependent and sensitive to the nature of the decision context:

> *"So, I think there is a very strong evolutionary component to long-term successful trading. As humans have to adapt to the environment, and traders have to adapt to the environment by shifting and changing, they can't be rigid"* (Informant).

In addition, the informant further supported the view of the conceptual framework that individuals are risk-sensitive, whereby they seek to avoid losses rather than maximise gains:

> *"So, the environment is very risk-sensitive, they would much rather have nice steady low numbers of performance than go for a big number and risk losing a big number, there are fewer people now that are happy with that. There is more of an aversion bias or low risk bias in the market"* (Informant)

and that emotions and cognition are inextricably linked:

> *"This is how we work, when we are feeling, we are thinking, and if we don't have emotion then this is the output: you won't be able to decide which restaurant to go to or which shirt to put on, let alone if you are going to go short in Microsoft or whatever"* (Informant).

Thus, the conceptual framework and main findings of the study are substantiated by the informant, enhancing the dependability of this study's design and findings.

Transferability is somewhat analogous to generalisability and refers to whether or not findings can be transferred to other situations, settings and people (Houghton et al., 2013). Lincoln and Guba (1985) describe that transferability can be enhanced by ensuring the central tenets of the research and the research context are clearly described so that future researchers can assess the suitability of transferring the research to a context they may wish to study. Thus, throughout, this thesis has endeavoured to provide a clear description of where central tenets derived, how the conceptual framework was created and the procedure for data collection and analysis.

Confirmability encompasses ensuring that findings are shaped by the participants, not the biases or preconceptions of the researcher (Houghton et al., 2013). Confirmability is particularly important with interpretive research, where the researcher must be careful to ensure their interpretation of participants' narratives is reflective of participant behaviour. To ensure the confirmability of the findings of this study, the transcribed interview data were sent back to participants for their review, giving them the opportunity to change any points they did not feel were accurate. None of the participants asked for information to be changed, but some did ask not to have certain points included in the final analysis (e.g. particular background stories which may indicate where they worked). As such, these sections were removed at their request. Following completion of data analysis, a summary report of findings was sent to each participant to request their feedback and confirmation on whether interpretation accurately reflected their experiences. Not all traders replied, but those who did confirmed findings as representative and interesting, as illustrated by the below feedback:

> *"Your report is very interesting and from my experiences, I'd agree with the majority of your thesis. Applying risk-sensitivity theory was clever, and the results are pretty accurate"* (IV7, bank trader).

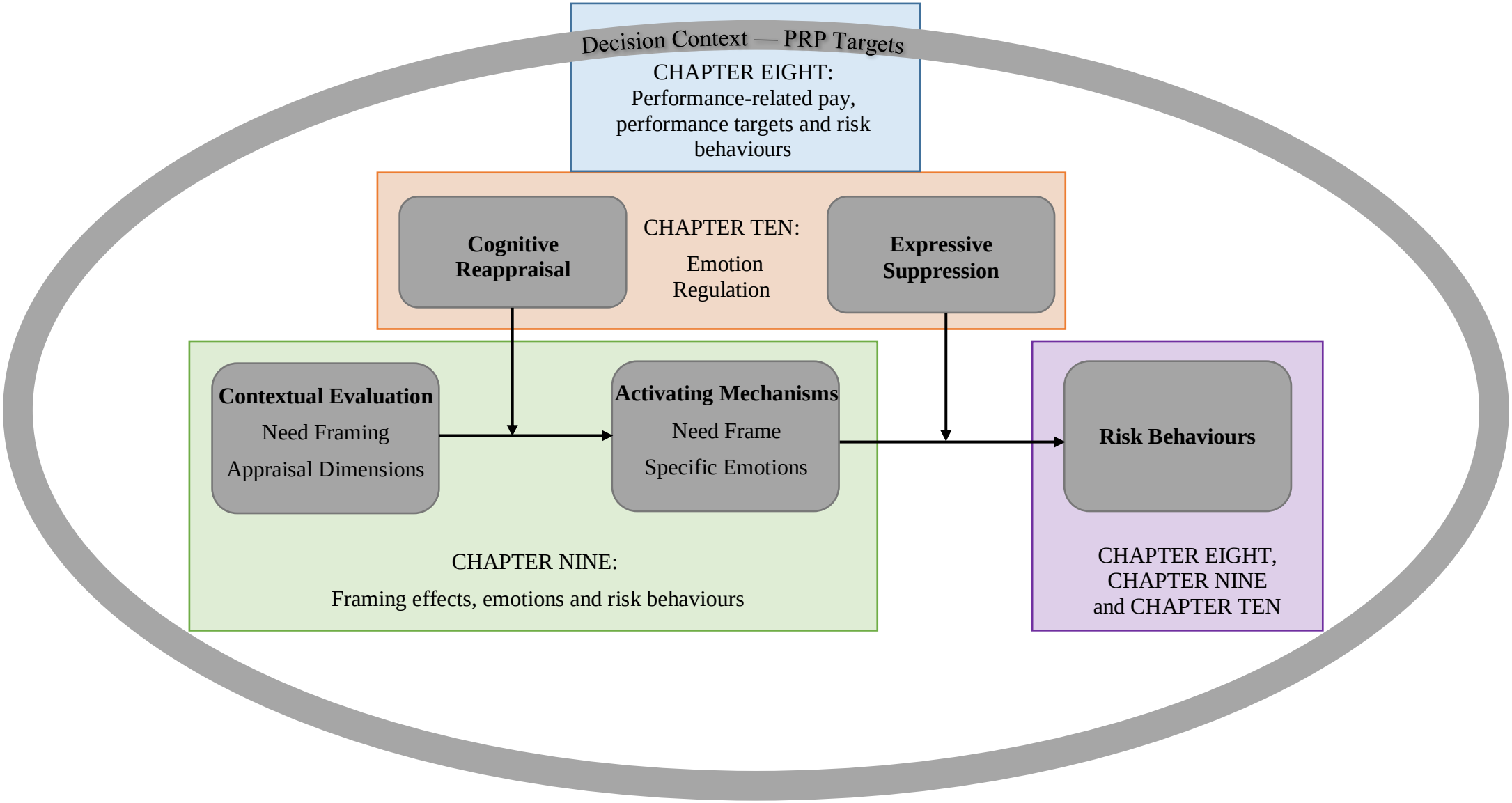
In sum, this study has taken several steps, as recommended by Lincoln and Guba (1985), to enhance and ensure the rigour of this qualitative study.

7.9. Conclusion

This chapter presented the design and implementation of this study's empirical research. The narrative interviewing approach produced rich narratives and insights of traders' subjective perceptions of the PRP context. Furthermore, analysis of traders' narratives revealed detailed accounts of how traders perceive risk and PRP and the meaning they attach to the core concepts of this study. By providing a means to circumvent direct questions regarding risk, the narrative method allowed the opinions and perceptions of individual participants to come through naturally. This ensured that recounted experiences of PRP and features of the context which influenced risk behaviours were reflective of traders' behaviour and decision-making. Additionally, template analysis provided a useful framework for handling the rich and lengthy narratives produced by the narrative method. It ensured the researcher remained focused on data most relevant to the research aims, enabling the data to be reduced in a meaningful way.

The findings captured and organised by the template analysis approach are interpreted in greater detail in the following three chapters, which set out the main findings of this thesis. Here, traders' narratives are reported directly to ensure the study appropriately reflects their lived experiences, and where applicable, the opinions of the informant are also presented to illuminate further and enrich understanding of traders' behaviour. As shown in figure 7.1, each findings chapter presents insights related to the main aspects of the conceptual framework. The following chapter (chapter eight) presents findings related to PRP, performance targets and risk behaviours. The subsequent chapter (chapter nine) presents findings on framing effects, emotions and risk behaviours. The final findings chapter (chapter ten) then discusses insights on emotion regulation and its impact on traders' risk behaviours.

Figure 7.1: Relation of findings chapters to conceptual framework



CHAPTER EIGHT: FINDINGS AND INTERPRETATION PART ONE — PERFORMANCE-RELATED PAY, PERFORMANCE TARGETS AND RISK BEHAVIOURS

8.1. Introduction

This is the first of three findings chapters in this thesis. The purpose of this chapter is to explore how traders experience PRP and performance targets and the influence this has on their risk behaviours. The findings suggest that the incentive effect of PRP does not have a salient impact on traders' risk behaviours due to subjectivity in the allocation of reward. However, traders do look to their PRP targets to evaluate the decision context. This influences how they characterise situations, thus influencing risk behaviours. This chapter is presented as follows. The first section gives an overview of the nature of PRP in financial trading. This is followed by discussion of the PRP–risk behaviours relationship and the subjectivity of reward. Subsequently, the importance of performance targets in affecting risk behaviours are discussed. Finally, a summary of these main findings is presented in addition to the insights they provide for the first research question — how does PRP influence an individual's evaluation of the decision context? As such, this chapter provides insights relevant to the first part of the conceptual framework: the decision context of PRP targets.

8.2. The nature of PRP in the trading context and the meaning attached to risk

The purpose of this section is to present the nature of PRP in financial trading, as told by participants, interpreting how they view and experience risk.

Financial trading is a demanding working environment which is inherently and explicitly centred on performance:

> *"Trading as a profession is very performance driven…. your P&L*[9] *is your boss, and my boss constantly says that line, our P&L is our ultimate boss"* (IV8, bank trader).
>
> *"It is the ultimate of a performance-driven thing. It is the ultimate one…. because no one cares, you know, did you do a very pretty trade…no one cares, they care about what was the return"* (IV3, bank trader).

[9] The trading platforms used by traders keep a continual tally of their profits versus their losses. This number can be always visible to the individual on their trading screen. It allows them to gauge their performance in terms of whether they are losing or gaining money overall.

Traders define performance as the returns they are generating. For bank traders, this is how much money they are generating for the bank:

> *"The best performance would be the year where I made the most money. So it is very money driven, it's not, you know being nice, it's basically my best year, my best year is when I perform the best… that's how I get paid"* (IV5, bank trader).

For retail traders, it is how much they generate in their personal portfolio:

> *"Now I actually made 25% last year as a whole, which is pretty good"* (IV12, retail trader).

Thus, the nature of PRP is different for bank and retail traders. For bank traders, PRP is contingent on their performance in respect of an objectively set performance standard (i.e. performance target/budget) and the bonus level is decided by bank management:

> *"If you make x amount of money, they'll give you like 5% of it…. you should get clearly rewarded for, for performance"* (IV6, bank trader).

For retail traders, PRP is the amount they decide to pay themselves. This is usually an amount in excess of what they need to keep in their portfolio to generate more returns. In other words, as the following quote illustrates, it is making money above the minimum threshold they need to survive:

> *"Making more than what I need"* (IV20, retail trader).

With regards to the experience of risk, it is apparent that risk is inherent to trading. Every decision a trader makes involves risk. Although risk is a highly subjective concept, traders do appear to converge on defining risk as the potential for loss. As the following narrative illustrates, the level of risk comes from how much you can lose on a trade:

> *"What is your appetite for risk? How much are you prepared to lose?"* (IV1, bank trader).

Therefore, traders calibrate the extent of their risk-taking in terms of how much they are willing to lose (i.e. risk) on each trade:

> *"I'm looking for at least, say, at least 2:1, risk-reward ratio. So, risking a little bit to make two times as much, at least two times or three times"* (IV4, bank trader).

Riskier behaviour is evident when traders have a larger bet size. This means they have put on a large amount of money and thus risk losing a large amount of money:

> *"I'll double my size, or I'll put more on it"* (IV20, retail trader).

Cautious (or risk-averse) behaviour is evident when traders take smaller trades (i.e. they put less money on) or reduce their trading activity (i.e. trade less), in order to reduce the overall amount they can lose:

> *"You reduce your share size"* (IV16, retail trader).

In sum, both PRP and risk are central aspects of the trading environment and are evident throughout both bank and retail traders' narratives of experience. The following section explores this further by examining the nature of the relationship between PRP and risk behaviours, emerging from traders' narratives.

8.3. PRP and risk behaviours

The purpose of this section is to illustrate how traders experience PRP and their perception of it. The sub-sections present two further themes which appear to influence the nature of PRP's impact on risk behaviours: subjectivity in the allocation of reward and a survival focus. Subjectivity in the allocation of reward leads traders to believe that their personal performance has little to do with how they are rewarded, thus constraining the potential for PRP to influence risk behaviours directly. In addition, traders' risk-related decisions appear to be further influenced by a focus on survival (i.e. doing enough to keep their jobs and survive), and this appears to offset the motivation to take large risks in pursuit of large gains and rewards.

Regarding the experience and perception of PRP, traders do appear to be motivated by the potential of personal monetary reward to some extent. As the following narratives illustrate, it is what initially attracted them to the job and can have a sorting effect throughout their career:

> "*And I had the one goal, and it was to get to the dealing room. And if I'm brutally honest, it was where you got paid really well, and you could get paid really well without having to go to university"* (IV11, bank trader)
>
> *"Everyone is trying to get something else out of trading, for me at the beginning it was money, like for everyone"* (IV 13, retail trader)
>
> *"But I've always moved on, mostly because I've got a better deal…. well we'll pay you a higher percent, and I said well ok"* (IV5, bank trader).

However, traders strongly assert that the potential to maximise personal reward is not what exclusively motivates them:

> *"Beyond basic security, I don't get any joy from the monetary aspect of the business; I find it to be very destructive actually"* (IV 2, bank trader)
>
> *"I think in trading you have to be competitive, and you need to want to be the best among your peers, but it's not a money situation in itself, I think that just sort of*

comes with it…. for me it's more about being good at something, and being right" (IV8, bank trader).

Rather, they emphasise how they are strongly motivated by their own goals and aspirations. They are driven by improving, learning and becoming better at what they do as means of 'winning the game':

> *"You can always try to get better. You know that's the thing, even though I'm doing it for years, I'm always trying new things, you know every day I try something different"* (IV5, bank trader)
>
> *"Every day is still rewarding in the sense that I learn something new…as time has gone on, it's more about becoming better at what I do"* (IV 11, bank trader)
>
> *"It is becoming the best person I can ever be, and trading is my vehicle to achieve that because I constantly, again like an athlete, have to work on many aspects of my life to perform at the highest levels"* (IV 13, retail trader)
>
> *"So, it's about, it's about trading well, being better, and you know trying to be the best tennis player you can be on the field. The best trader you can be"* (IV17, retail trader)
>
> *"I think I am someone that craves competition and success. I like to play games, and I like to be successful at them, and ultimately, it is not about the money, I see this as a kind of game that I really want to win"* (IV4, bank trader).

Consequently, PRP, *per se*, appears within traders' narratives as something which does not directly influence their behaviour. The following section further interprets why PRP's incentive effect appears so limited. As is discussed, subjectivity in the allocation of reward and a focus on surviving rather than maximising further hinders any direct influence PRP has on incentivising risk-taking or motivating behaviour.

8.3.1. The impact of subjectivity in the allocation of reward

The incentive effect of PRP, in the case study of bank traders, appears to be significantly limited due to subjectivity in how reward is allocated. Indeed, all bank traders overwhelmingly, and often vehemently, assert that the way in which reward is allocated is highly subjective:

> *"Bonuses have always been discretionary in banks….it will always be down to the banks to decide"* (IV9, bank trader)
>
> "*Especially in a bank, where the goal posts are not clear, and the performance metrics are not clear"* (IV6, bank trader).

The allocation of reward for bank traders is primarily determined by subjective factors such as internal politics, the overall performance of the bank, personal relationships with managers and the nature of the trading desk's product:

> *"People that perform really well are not rewarded. Big banks, big institutions, the way in which their bonuses and the pool of bonuses work, there is a lot of politics involved"* (IV1, bank trader)
>
> *"Your reward is based on your P&L and little else, and I'll throw in a nice dose of nepotism there as well…. very political too"* (IV7, bank trader)
>
> *"If you make x you make 5%, if you make y you make 10%, whatever, we never had that where I worked, ever ever ever, it is totally arbitrary and generally reflective of how well the bank is doing"* (IV3, bank trader)
>
> *"So trading as a profession is very performance driven because there are managers and they kind… well, it can be quite political and also you have seats[10] which naturally make more money because of the franchise flow"* (IV8, bank trader).

Consequently, they do not experience a clear link between performance and reward:

> *"It's not that you think if you've made money on a day, oh I'm going to make x% and therefore I can earn this"* (IV8, bank trader).

The lack of a clear link between performance and reward is a source of frustration for bank traders and something which they perceive as being unfair:

> *"Well when I started first, the reason I wanted to get into trading was because I perceived that you come in, you make your money, go home and then at the end of the year you will have a certain amount of money that you will have made, and then you will just get paid a cut, and you will go home. Unfortunately, in reality, that is just not the way it is, there is a huge amount of politics and a huge amount of variables. You know they can come up with any reason not to pay you and that frustrates me"* (IV10, bank trader).

This breakdown in what bank traders perceive should be a clear and objective link between performance and reward appears to have caused a misalignment in the PRP system. Rather than motivating traders to pursue the performance desired by the organisation, there is evidence of traders strategically managing their behaviour:

> *"If you make too much money in the one year, you're not going to get really paid, but then the expectations for the year after go up, so you know, there is a bit of management in that…. because you don't like, you know if you make 150% of your budget one year, don't get rewarded for whatever reason because stuff is out of your control, the next year the expectation is 15% higher, so you might not be able to do that"* (IV6, bank trader).

Or, perhaps more worryingly, the breakdown in the reward–behaviour alignment appears to cause dysfunctional behaviour:

[10] "Seats" here refers to the type of product/currency the trader is dealing in. For example, a trader dealing with Swiss Franc may be able to generate profits quicker than someone dealing with the New Zealand Dollar, simply because there are more people buying and selling the Swiss Franc than the New Zealand Dollar (i.e. there is greater flow). Managers may subjectively take this in to account when allocating rewards.

> *"Like a friend of mine last week he had this trade where it started off worth very little money, because it was such a huge move in the market then all of a sudden it started to look like it would be worth a lot of money, so he could have sold some of it and locked in a profit of about 2 million euros, but because he was being paid a zero bonus the week before he went, basically as he said, a devil may care attitude, he went f**k it, I'm not, I'm just gonna run it, because within a day it would either be worth ten million euros or it would be worth zero, at the moment, it was worth two. He said in the old days he would have actually maybe sold some of it, and locked in some profit but he was just like f**k it, like they're not gonna pay me any bonus anyway I might as well just run it. As it turns out, he ran it, and it ended up being worth the ten million. I think he made about eight million that day, but it is ironic right, so he perceives his employer f****d him over by paying him a zero bonus, so what did he do, went out and made him ten million euros out of spite, so go figure that. So that is all it was, so he wasn't breaking any of his risk parameters, he was effectively being a reckless trader based on earning a less bonus than before"* (IV10, bank trader).

In sum, there is strong suggestion of a break down in the relationship between performance and reward amongst bank traders. The reward they receive is not directly related to how well they have performed. As such, findings suggest that traders' risk behaviours are not directly influenced by the incentive effect of the PRP system.

However, subjectivity is not the sole reason for PRP's limited impact on traders' behaviour. Such an insight emerges when bank traders are contrasted with retail traders. Unlike bank traders, retail traders experience a clear, direct, and objective, link between their performance and their reward:

> *"You basically have a business where you are not dependent on how well the economy is doing…. you don't have any clients…. you are not dependent on whether your suppliers are supplying anything. So, everything that is going right or wrong is purely down to you, and what you are doing…. I just like taking calculated risks and getting paid for it"* (IV20, retail trader)

> *"If you're the top of your game you get paid a huge amount of money. Bottom of the game you get paid nothing. Well, I guess in trading you go broke. So, it's not that you don't get paid, you just run out of money"* (IV17, retail trader).

However, despite this clear link, retail traders do not appear motivated to increase risk-taking in pursuit of personal reward. As the following section presents, all traders (bank and retail), appear more sensitive to loss than gain and thus place greater emphasis on avoiding losses than maximising returns. Essentially, the need to survive by not losing a lot of money (i.e. not taking excessive risks) offsets the desire for maximising personal returns. As a result, it appears that subjectivity is not the primary cause for PRP's limited effect on behaviour, but a more innate factor of human behaviour.

8.3.2. The impact of a survival focus on risk behaviours

An emerging discourse within traders' accounts is a need to balance the potential for loss with the potential for gain. Indeed, most traders describe how the potential to maximise returns is not so attractive as to cause them to ignore or overlook the potential for loss inherent to risk-taking. Rather, in traders' minds, the negatives which accompany losses (e.g. losing job) outweigh any potential benefits of maximising or pursuing large gains:

> *"I was quite mindful of, well if I totally blow this up and lose a lot of money then I'm out the door, so that did affect, so I'd probably try and balance making money in order to seek reward but not wanting to lose a lot of money"* (IV9, bank trader).

Indeed, there appears to be a clear difference in how traders experience loss from gain; the experience of loss can be so bad that an equal level of gain cannot negate this:

> *"I find it myself, if I'm losing money, I feel worse than if I'm making money at the same level. So, if I say, probably two to one, in the sense that to have the same level of satisfaction or dissatisfaction, I'd probably need to make twice as much as I'm losing, even though, you know, they should be similar"* (IV8, bank trader).

Thus, traders place more importance on avoiding losses than on maximising gains. This particular sensitivity to loss materialises as a survival focus. As retail traders assert, the need to safeguard and protect their money, in order to survive, has a salient impact on how they perceive losses and gains, and thus influences their attitude to risk:

> *"When you are actually using your own money it's a completely different ball game…. it's money that I have worked hard for…. I hate risking money you know…. I'm always thinking about saving money. So, I'm not this person that is like, oh you know, yeah let's take a risk on this, sort of thing, but obviously with trading you have to take the risk, so that is forefront in my mind, I hate risking money"* (IV12, bank trader)

> *"The trader that needs this money in order to maintain either, you know their lifestyle or pay their bills or their mortgage because this is what they do for a living, they value that profit, and they also value the loss in a different light, because they need it. So, they're not going to take on a huge amount of risk because they know they have to be structured because this is what they do…they're not aiming for a home run in other words"* (IV 16, retail trader).

For retail traders, trading with their own money and seeking to minimise losses, motivates them to closely manage their risk behaviours and carefully control their trading processes:

> *"I have mechanisms that I use, and I have set amounts that I'll risk per trade, so I won't trade something unless it meets all of my criteria, like they all have to be A trades or I'm not taking them"* (IV15, retail trader)

> *"If I'm trading a high price stock, and say I have 400 shares of it, but it's going to move a dollar, that is $400. Why would I need to trade a lower price stock, have 2000*

> *shares of it, and have a higher risk. To me the risk tolerance is lower, I can let the stock have more movement to it when it's a higher price stock because my share size and potential for loss is lower. It goes to, you want your risk tolerance basically to be 1 to 3, so if you're risking $100, you want to be making at least $300"* (IV 14, retail trader).

For bank traders, they have a clear awareness that there is only so much you can lose before you lose your job:

> *"The problem with trading is that because it is quite brutal in terms of capital, if you blow up and you lose your capital you got to get the capital from somewhere else and start again….and if it is a bad enough sequence of losses or bad enough period of performance then you will get fired, and then it is difficult to get a job because then you have got to go and justify it"* (IV3, bank trader)

> *"What's my worst situation in my trading, is I get fired. Like that is my downside…. then you would definitely go in your trading, ok I want to do all this, but I can't screw up enough that I get fired"* (IV5, bank trader).

Consequently, bank traders take the view that although they might want to take large risks, they recognise that they cannot do it to the extent that they would lose their job. Hence, the focus is on carefully managing their risk in order to prevent the potential negatives carried by excessive risk-taking:

> *"Well the art of surviving is money management, really, without a doubt, and I would say that for anybody in any walk of line with trading, be it a hedge fund manager, or whoever, you know the survival of your career is based on money management. And if you have got a good money management ethic then you should be able to sustain yourself in the industry. I mean because what most institutions do is give you enough rope to hang yourself. They will, you know, they will let you literally shoot yourself in the foot"* (IV11, bank trader).

This survival focus behaviour may seem surprising in the context of trading, where it is expected that traders will be seeking to maximise outcomes and maximise reward. Yet, as the informant explains below, if you consider the wider context involved, it is more about protecting what they have than trying to make more:

> *"Well it comes down to what is rational and irrational. So, let's say if someone didn't take enough risk, or could have taken more risk, is that irrational? You might say economically: yes. If you look at it in purely economic terms, that he could have taken more risk so therefore that makes that decision irrational. But if we then looked at it in terms of, you know the guy has made a decent number for the year, and he gets a good bonus, the bank has been making some redundancies, markets have been tricky and challenging. Even though the risk might be small, the damage, the symmetry of the risk-reward is skewed, so it's much better sometimes to make less than to try and make more with the potential for losing more"* (Informant).

In sum, although both retail and bank traders have the potential to maximise personal returns, they place a greater emphasis on limiting the downsides. They are more sensitive to loss and

risk than they are to gain and reward — *"you want to avoid the worst"* (IV11, bank trader) — and this limits the capacity for PRP to motivate risk-taking. PRP emphasises the upside of gain and reward, whereas traders demonstrate a more innate focus on loss. Moreover, they appear to be satisficers rather than maximisers. Consequently, PRP, *per se*, does not appear to have a strong incentive effect for either bank or retail traders. However, as will be explored further in the following section, performance targets do effect traders' risk behaviours.

8.4. Performance targets and risk behaviours

Due to the performance-driven nature of financial trading, performance targets are a significant aspect of the environment, particularly for bank traders. This section explores the influence of performance targets on the risk behaviours of both bank and retail traders. Findings suggest that targets influence traders' perceptions of their current performance and thus, their risk behaviours. For bank traders, the yearly budget (i.e. the target amount of money they are expected to make) has a strong influence on their behaviour and decisions. Interestingly, many retail traders stress the dangers of setting such specific monetary performance targets. Nevertheless, retail traders do focus on a survival threshold; the target required to support their basic living needs.

Within bank traders' narratives of experience, performance targets appear as a meaningful and salient aspect of the environment. When traders discuss PRP, it often centres around their performance target; the 'budget' allocated to them by their organisation. Budgets indirectly influence risk behaviours via an impact on traders' perception of the decision context. Targets provide traders with information on how they are performing and working towards achievement of the budget is meaningful to them. They use it to gauge their performance;

> *"At the end of the year I judge myself, and I judge that by a number, next to my name"* (IV5, bank trader)

determine how much they can risk;

> *"It lets me know my drawdowns…so my budget is 6 million, so the way I look at that is that I need to make a set amount, so winning trades have to make me 300/400 thousand, but also I can't risk more than a million in a month…from your budget you work backwards so you know your capital drawdowns, you know, how much you can risk"* (IV8, bank trader)

and see it as a central aim of their role;

> "*It is very much target focused in a bank…. that is the ultimate game, that is the aim of a trading desk, is meeting the financial targets"* (IV4, bank trader).

Achievement of the yearly budget can even determine whether traders keep their job. Hence, budgets are a contextual feature salient to traders' judgements and decisions:

> *"You could make your budget and get paid like, hardly anything, and you could lose money and lose your job right, or not make your budget and lose your job"* (IV6, bank trader).

The centrality of performance targets to how bank traders view and evaluate their performance and the decision context has a significant influence on their risk behaviours:

> *"So if I have, if I've got to make 20 million euros trading, it's the same outcome, in terms of that is our target, as long as limits are, the risk limits are proportionate to that, then you are fine…. but suppose the risk limits from the bank are x…and I've got to take risk of 10,000x, so I have 10 times more risk to take, so it's the risk-taking to make the return, and that is where the pressure comes from really"* (IV3, bank trader).

By providing bank traders with a performance standard they have to meet, PRP targets can place a tremendous amount of pressure on traders to perform:

> *"Whilst we're questioning the integrity of traders and salespeople, perhaps they themselves put too much pressure on individuals to perform, and did that force people to cut those corners, and did that force people to reach those targets because it was do or die"* (IV11, bank trader).

Furthermore, this pressure to meet targets is described as continuously increasing, as good performance one year means that the following year managers increase the target:

> *"Demanding because banks want everyone to make x % more every year. X % is generally somewhere between 10 and 13%, and that is completely and utterly unrealistic, on a perpetual basis…. Well you have no choice. So, if senior management come down and say look this year we want you to make x and last year was x divided by 2, well then you can't, well I mean you can reason with them, but that doesn't matter, they are an investment bank, they have double coming down from the top, so it comes from the CEO and just trickles all the way down. So you have no choice…. your budget last year was 10, and this year you want to make 15"* (IV7, bank trader).

Consequently, they become focused on meeting the target, and this can influence when they take risks and the level of risk they take. Specifically, traders describe how they evaluate their performance position in respect of their target, and this influences their behaviour:

> *"You do naturally reach a point when you say you have hit the budget that they would like you to meet, at the month, you do naturally kind of ease off a bit"* (IV11, bank trader).

Thus, meeting the performance target appears to have a satisficing effect. However, individuals who find themselves down on their target towards the end of the year are much more likely to take more risks to try and meet the target. Whereas those who have achieved the required

budget reduce their trading behaviour and focus on maintaining and protecting what they have achieved:

> *"The first one who has done what they need to do, is just going to wind back their risk, you know, sit on it and just sort of tend, you know make sure they don't screw it up. And the other person is probably going to put one some big position to see if they can sort of have a late run"* (IV9, bank trader).

Indeed, the informant interview further substantiates this, describing how the context surrounding the target can influence behaviour. Towards the end of the year, a trader who has made their target may be less likely to take a risk in pursuit of opportunity, as they do not want to risk falling below target with no time left to make up the shortfall:

> *"So you can't afford to overlook too many of those good opportunities, and that becomes interesting then because, if for example it is, I don't know, it's late in the year, you know you have made some good money, you're going to get a decent bonus, and then an opportunity comes along and you know it is good, you've got to be really good, and then your bonus maybe becomes x % more, but if you get it wrong, you lose, and you lose your bonus, so then suddenly, you know if that was early in the year you would take it, but later in the year, under those conditions, you don't. So you've got the same set of conditions that are market-based, but you've got the risk, not just financial risk, but reputational risk, career risk, bonus risk, whatever you want to call it, all those factors do play a part, and I don't think for most people you can remove that, it's a contextual consideration you have to look at"* (Informant).

Thus, findings demonstrate that traders often reduce trading once targets have been met, but when below target they increase risk-taking to have some chance of achieving the target. This indicates that performance targets influence how traders perceive the decision context, as the following statement illustrates:

> *"The guys that are like ok, I need to make, say, 400 quid today, they'll buy something, it'll go up, it'll be say £350 profit, and everything will tell you that it's at a level where they can take profit, but they don't take profit based on what the charts are telling them or what the market's telling them, they go oh no, I'll take profit at 400, because I need to make 400 every day"* (IV10, bank trader).

Thus, performance targets can cause bank traders to trade based on the required target level they need to achieve, rather than based on how the market is acting. It is for this reason that many retail traders choose not to set themselves specific monetary performance targets:

> *"I never ever set myself a goal for the week. No way. I was advised not to a long time ago. You put too much pressure on yourself because you never know what is going to happen in the market next"* (IV12, retail trader).

They do not want to be trading to a target as it hinders decision making. As the following narrative presents, targets lead them to trade to the target level they have in mind rather than how the market is behaving:

> *"You don't accept reality, and you don't accept what you need to accept any more. If you are in a losing trade, you know, I had this trade, and it was one of my best trades. DAX had just collapsed, and I made $4998.50, I still see the numbers in front of me. I wanted the $5000 and it never went there, and in the end, I got out with a $200 profit. This is what happens when you are outcome focused. So instead of looking at the market, it was clearly a dodgy reversal, it was giving me a clear signal to get out and take my money and run! $4000 would have been massive for me, in a day. Never going to achieve that in my life. The thing is that you only filter in, you know confirmation bias kicks in, so you only look for reasons why it can continue in your direction"* (IV13, retail trader).

Consequently, the only performance target most retail traders set themselves is a survival threshold, i.e. meeting the minimum requirement to fund their lifestyle:

> *"Then as long as I make money to pay my rent and pay my life and survive, I don't have the issues of taking my profits too early"* (IV13, retail trader)
>
> *"I look more at, like I try to make my goal our basic needs for the month, our mortgage everything like that, our monthly bills"* (IV14, retail trader)
>
> "*Each day that I make profits, I take about like half or so, depending on the amount that I made and put it in, get the bills all paid for, you know I put that in another account…. once I take care of that piece I can go forward and go from there"* (IV18, retail trader).

However, it is important to note that performance targets only influence risk behaviours when traders are directly focused on them. Often, traders are focused on the previously discussed personal goals of wanting to improve and 'be the best'. When focused on such outcomes, traders continue to perform and seek returns beyond their performance targets. Such differences are illustrated in the following narrative as a personal-goal focused trader compares themselves to a monetary-target focused trader:

> *"Like one guy, let's say xxxx for example, he would have made the 200 grand, and it wouldn't be 205, it wouldn't be 195, it would be 200 grand. So, he would take as much as he can from those trades, and that is it, but he won't try and do anything more. Whereas I may try throughout the day to create P&L, so I might be up 300 or 100, or down 100, it depends. I wasn't prepared to just sit there and twiddle my thumbs all day and just wait. Certain people are"* (IV 7, bank trader).

In sum, targets play an important role in influencing how an individual evaluates the decision context. Targets give traders a point from which to evaluate their immediate state (in terms of performance) and thus make risk-related choices. The following section provides a summary of this chapter's findings and their implications for the first research question.

8.5. Summary of main findings on PRP and performance targets

This chapter's exploration of how traders experience PRP, risk and performance targets has uncovered several insights important to understanding the relationship between PRP and risk behaviours.

First and foremost, the incentive effect of PRP does not appear meaningful to either bank or retail traders. For bank traders, the potential for PRP to have a direct impact on their behaviour is limited by the subjective way in which PRP is allocated. Traders perceive they have little control over the variable element of their bonus pay; meeting the targets on which bonus pay is contingent does not guarantee they will receive the bonus they expect. External factors such as the overall performance of the bank, managerial discretion and the nature of the product they trade can all impact the reward they receive. Consequently, bank traders do not perceive a clear enough link between their personal performance and reward for it to directly motivate risk-taking. Moreover, despite retail traders perceiving a clear link between performance and reward, they too are not motivated by PRP's incentive effect. Rather, any motivation to engage in risky behaviour in the pursuit of personal reward is moderated by the potential to lose their hard-earned money.

Second, and closely related to the previous point, traders place greater emphasis on a survival focus than a maximising focus. Of course, they do want to maximise returns and perform well, but they are not willing to do this at the expense of extreme losses. The potential for loss appears to limit any motivation to take excessive risks in the pursuit of return. Hence, traders appear to have an innate sensitivity to loss; they would rather reduce or avoid a loss than achieve gain. Consequently, because PRP emphasises maximising returns, its influence on individuals' risk behaviours is limited, as traders would rather avoid the downside than pursue the upside of personal reward.

Third, PRP targets influence how bank traders perceive the decision context. The 'budget' appears meaningful throughout bank traders' narratives of experience. Traders look to their budget to determine how much they can risk, gauge their performance and can even determine job retention. Findings suggest satisficing behaviour; traders below target increase risk-taking, while those who have achieved target reduce their risk and focus on protecting what they have achieved. What is particularly interesting, however, is that retail traders consider such strict monetary targets disadvantageous. In their experience, focusing on targets while trading causes individuals to think in terms of how far they are from reaching the target when they should be

focusing on reading market signs. This can hinder effective decision-making. As they work for themselves (as opposed to the organisational context of bank traders), they thus choose not to set any performance targets beyond a base-level survival threshold to cover their living expenses.

8.5.1. Insights findings provide to research question one: How does PRP influence an individual's evaluation of the decision context?

This research question guided exploration of which aspects of PRP influence how an individual evaluates the decision context. As this chapter's findings and interpretations have presented, PRP targets have a salient influence on traders' perceptions and decisions. Notably, bank traders do use performance targets as a point from which to evaluate the decision context. Indeed, the experience of PRP and performance targets (i.e. budgets) are somewhat inextricably linked within traders' narratives. Such a finding thus supports the tenet of this thesis' conceptual framework that PRP does not influence risk behaviours via its incentive effect, but indirectly via performance targets. However, it is important to note that PRP targets only affect behaviour when traders are focusing on them (e.g. towards the end of the year). At other times, they are focused on more immediate targets of P&L levels and a survival threshold. However, it could be argued that both factors are related to overall PRP targets for bank traders. Namely, to achieve performance targets, bank traders must meet appropriate levels of profit, and to keep their job it is important to meet PRP targets. Yet, what is particularly interesting to note is the lack of performance targets amongst retail traders. They explicitly choose not to set themselves performance targets to avoid the influence of targets on their contextual perception, and thus, their behaviour. This points to traders having a clear awareness that performance targets can influence their evaluation of the decision context. Indeed, as will be discussed in the following chapter, performance targets further influence how traders' frame situations, in turn, impacting their risk behaviours.

The main findings discussed in this chapter are presented in table 8.1. Such findings are particularly pertinent for understanding how traders perceive the decision context and what factors influence contextual evaluation. The subsequent chapter presents findings on how traders' frame and emotionally experience the decision context. Performance targets certainly play an important role here, as traders' use them as a reference point from which to assess current decision frames. Furthermore, achieving and not achieving targets can trigger swings

in emotion. However, as the next chapter will present, perception of the decision context is multifaceted, and several factors can influence risk behaviours.

Table 8.1: Summary of main findings on PRP, performance targets and risk behaviours

Theme	Nature of evidence	Illustration
PRP: Incentive effect	The incentive effect of PRP is weak. Traders are not solely motivated by money and experience a weak link between performance and reward (see subjectivity of reward). In addition, traders are more concerned with preventing potential loss of money to be strongly incentivised to take excessive risks in pursuit of personal reward (see survival focus).	*"I think it is the same as if I had played really well in a game of tennis and had won, the reward is winning the game. It's not like I think, oh I can go out and buy a new car, or I can afford to send my kids to school, it is more abstract than that"* (IV4, bank trader)
PRP: Subjectivity of reward allocation	For bank traders, the allocation of reward is not black and white. It is not a case of 'meet your targets, and you will be paid x amount'. Rather, subjective factors such as bank performance, internal politics, and managerial discretion determine the level of reward. Thus, the link between performance and reward is unclear.	*"If I made 10 one year, and then I made 20 the next year, well the manager would go, well hold on a minute, we had twice as much volume this year so obviously you are going to make twice as much, so we are still going to pay you the same amount as last year…. that is the politics of it you see"* (IV3, bank trader)
Survival focus	Traders have a keen and strong awareness that they must balance the maximising of outcomes on the upside with the potential for loss on the downside. Consequently, they appear more sensitive to loss and thus seek to minimise losses, even at the expense of maximising gain.	*"Like the fear of losing is real, and when you're trading for yourself, your capital is all you have, when you run out of money you'll run out of a job"* (IV15, retail trader)
PRP Targets	Bank traders look to PRP targets to gauge their performance and make risk-related decisions. Risk-taking behaviour is observed when below target, and risk-reducing behaviour observed when achieved target. Retail traders recognise the impact targets have on their behaviour and thus choose not to set explicit monetary targets beyond the minimal threshold of money they need to cover expenses and survive.	*"People used to describe it as sort of the Hail Mary, so it's kind of like well the only way I'm going to get paid a bonus this year is if I make a lot of money now, so you just whack on some enormous risk position"* (IV9, bank trader)

CHAPTER NINE: FINDINGS AND INTERPRETATION PART TWO — FRAMING EFFECTS, EMOTIONS AND RISK BEHAVIOURS

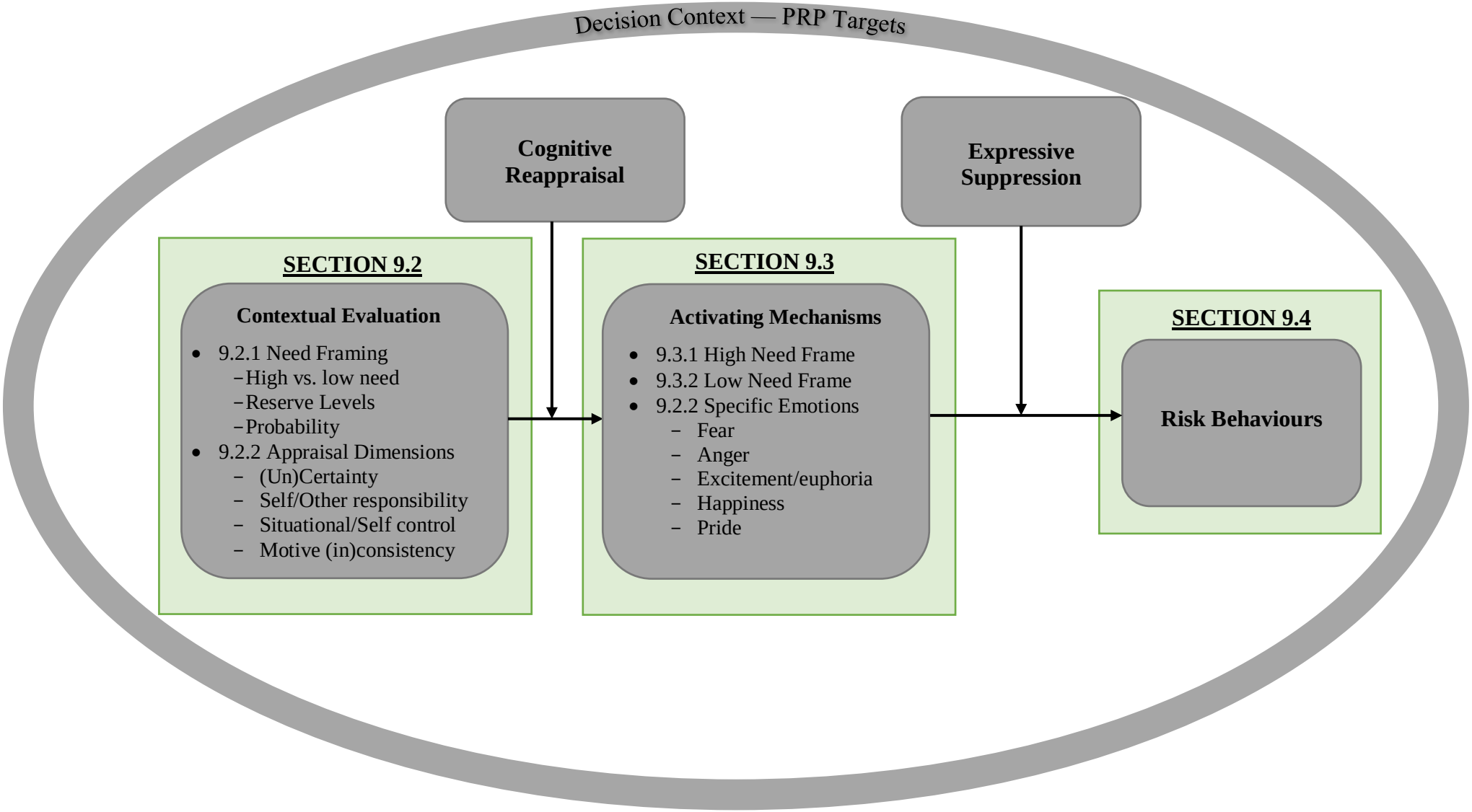
9.1. Introduction

This chapter seeks to explore how traders frame situations, how emotions arise within these frames, and how such perceptions influence risk behaviours. In pursuit of this aim, findings will be presented and interpreted along the components of this study's conceptual framework, as illustrated in figure 9.1. Specifically, this chapter explores what contributes to the perception of need and how this influences risk behaviours. Furthermore, it explores how emotions arise, via appraisal dimensions, and the characteristics of the situation within which they arise. Finally, it aims to bring these findings together to explore how an interaction between need framing and emotional experience influences risk behaviours in the context of PRP. The chapter concludes by highlighting the insights findings provide for the understanding of research questions two and three — (2) How do situational characteristics influence need framing and stimulate emotions? (3) How do need levels and emotions influence risk behaviours?

9.2. The nature of contextual evaluation

Traders look to features of the decision context when making judgements. A number of different factors, which impact how they perceive situations, appear within their recounted experiences. Namely, current profit and loss (P&L) levels, performance targets, the level of performance they have accumulated (i.e. reserve levels) and the probability of outcomes (i.e. negative or positive). The purpose of this section is to explore the way in which these contextual features impact traders' perceptions and decisions. Specifically, how do situational characteristics influence need framing and stimulate emotions? (research question 2). As such, the following sections interpret how traders evaluate the decision context through the central tenets of risk-sensitivity theory (RST) and the appraisal-tendency framework (ATF).

Figure 9.1: Relation of chapter nine sections to conceptual framework



9.2.1. Construction of need frame

According to RST, an individual's cognitive evaluation of the decision context is made up of an evaluation of their immediate state (i.e. current state in respect of desired level of performance), reserve levels (i.e. accumulated performance levels) and probability (i.e. the perceived likelihood that any change will be positive/negative). Such evaluation contributes to the construction of the need frame (i.e. high or low need) the individual perceives.

In regards to evaluating their immediate or current state in respect of a desired state, traders describe how they evaluate their performance in respect of current P&L levels and performance targets. As traders describe, they constantly have information on their performance and their current P&L:

> "*With trading it is instant…. that is the thing about it, you have instant feedback on your profit and loss every minute, so you can't really get away from it"* (IV4, bank trader)
>
> *"Because right there's my system, figures on my P&L"* (IV5, bank trader).

Such contextual factors contribute to the construction of need and how traders' cognitively frame a situation. Traders are constantly evaluating whether they are *"making money"* (IV1, bank trader) or *"losing money"* (IV7, bank trader). Then, in relation to performance targets, they often assess whether they are *"in the green"* (IV12, retail trader), or *"in the red"* (IV16, retail trader).

Most traders describe having a particular P&L level they want to achieve in their mind before they put on a trade (i.e. a level of expected return):

> *"I guess in my head, the expected return I kind of had got to it"* (IV8, bank trader).

Furthermore, traders have specific performance targets they need to achieve (i.e. the budget for bank traders and survival threshold for retail traders):

> *"You always have got these big round numbers in your head, you know a target of 10 million dollars"* (IV5, bank trader)
>
> *"I need the account to stay above this level because this is how I withdraw my money weekly to pay myself"* (IV16, retail trader).

Such factors thus appear as a specific reference level traders have in their mind. In other words; a desired state they wish to achieve. Consequently, changes either side of this level influences their perception of high need and low need frames. However, perception of **high need** appears

as more than just a frame of loss or being below target. It is described as an undesirable situation which can have a detrimental impact on their decision making:

> *"It's a relatively pressured environment…and the pressure is more internalised because you feel the pressure with movement and your P&L"* (IV8, bank trader)
>
> *"We can sit and lose a million dollars in a blink, and the destructive nature of that loss can affect you for months"* (IV11, bank trader).

Similarly, the perception of **low need** is presented as more than a state of gain or profit, but as a desirable situation which has a positive and even 'relaxing' effect. In other words, they are satisfied as they are achieving their desired goals and needs:

> *"When you see that a trade is going in your direction, and you're in the green…. then it would be more of a positive sensation, obviously, you know when you have a gain, that is great, that is the ultimate goal, right"* (IV14, retail trader)
>
> *"When you are making money, it works the other way around; I don't even watch the screens…. I'm so relaxed you know"* (IV1, bank trader).

It is these two opposing scenarios, of being in low need (i.e. positive P&L/achieving performance targets) and high need (i.e. negative P&L/below performance target) which influence how traders think about a situation.

However, there is further evidence within traders' narratives of evaluating the decision context successively, rather than just their immediate or current state. In other words, traders look not only at 'Have I just lost or made money?', but also at 'Have I been *losing* or *gaining* money?' or 'How likely am I to lose or gain money?'. Such evaluation can be further encompassed under RST's central tenets of reserve levels and probability.

Reserve levels are characterised by accumulated performance or depleting performance (i.e. gaining vs. losing). Perception of accumulated reserve levels arise from either being ahead of performance targets:

> *"You're ahead of your budget"* (IV11, bank trader).

or having experienced a series of gains leading to positive P&L:

> *"You're up money"* (IV5, bank trader).

Conversely, depleting reserve levels arise following a series of losses:

> *"I hit the dark period of profitability which I am going through now actually, four weeks it is"* (IV11, bank trader).

Probability encompasses a traders' subjective view of what they think is going to happen in the market. Traders describe how they tend to have a personal opinion of what are the likely

events in the market, then if they see some of those thoughts beginning to unfold they perceive positive probability and consider it a good opportunity to trade:

> *"I tend to have a few big views of major, of what is going to happen this year for example, what is going to happen in the next few months. I'm kind of biased towards those views, so then if I see what I think is a good opportunity to get in, to profit from those views, then that makes me want to trade. So for example, if I think the euro is eventually going to go below one to the dollar, so the euro is going to carry on weakening, then if it has a day were it goes against that, something makes it really strengthen a lot in one day, then I'm quite likely to enter a trade and sell. So that would be a good entry point for me"* (IV4, bank trader).

Moreover, traders recognise and describe how probability is not something which is quantifiable; rather it is based on their subjective perception of the environment:

> *"So that is what you are really trading, not the probability outcome itself, you're trading the probability of whether those pricings are correct, and that, that you can't quantify. But that's just the judgement call"* (IV6, bank trader).

As a result, traders' perception of positive probability strengthens if initial performance (i.e. gaining) is favourable:

> *"I lean on levels for entry, and once they have triggered, and went in my favour quite quickly. In my head, psychologically, it's confirms to me that that was a good area"* (IV19, retail trader).

Essentially, probability is a traders' subjective view of how likely they think a trade is to produce a positive amount of money. The greater the positive probability, the more favourable they perceive the situation:

> *"Sometimes I might think it's actually a 10% chance that this happens, but if it does happen, I'm going to make you know a significant upside versus what I lose*" (IV8, bank trader).

In sum, traders cognitively evaluate their immediate decision context in respect of performance targets and P&L levels. Additionally, reserve levels and probability contribute to how they perceive and evaluate the decision context. High need frames arise when traders experience negative P&L or being below target in their immediate state. Conversely, an immediate state of positive P&L or achieving performance targets constructs a low need frame. Furthermore, it is possible that depleting reserve levels and negative probability may augment the perception of high need and accumulated reserve levels and positive probability may heighten the perception of low need. Nonetheless, probability and reserve levels appear to exist within a slightly different context than that of negative P&L and target related performance; reserve levels and probability come into effect following a series of gains and losses rather than immediate gain or loss. However, it is important to note that all of these factors can be occurring

simultaneously and it is impossible to separate them. Moreover, as will be presented in the following section, there is further evidence within traders' narratives of evaluating the decision context along the appraisal dimensions and themes captured by the ATF.

9.2.2. Appraisal dimensions

Appraisal dimensions are a key tenet of the ATF. They exist to characterise the primary elements of an individual's interpretation of a situation. In regards to influencing risk behaviours, the appraisal dimensions of control (i.e. am I/can I be in control of this situation?), certainty (i.e. did I predict/expect this situation?) and responsibility (i.e. who is responsible for this situation?) are considered important. Furthermore, motive consistency (i.e. is this situation consistent with/conducive to achieving what I want?) was conceptualised in this study to be important in the context of performance targets. The concepts of motive consistency, control, certainty and responsibility appear throughout traders' stories of their experiences. It appears that how a trader appraises being below target, or why current P&L is at the level it is, along the appraisal dimensions, characterises different emotions.

Motive consistency appears somewhat analogous to the need thresholds of RST (i.e. evaluation of current state versus desired state). Here traders evaluate whether they are making money, and therefore in a state conducive to their goals:

> *"Those patterns did work and very quickly….it was in the green"* (IV19, retail trader),

or whether they are losing money, and therefore in a state of motive inconsistency:

> *"Coz say it's trading at 30, all of a sudden it's trading 60 and its making 30, and if you're down a lot of money you just want it back at 60 and you just feel like, ahhh...it's right back to 30 again"* (IV5, bank trader).

Control also appears extensively within traders' narratives, where they describe a sense of either being in control (i.e. self-control) or having no control (i.e. situational control). Self-control arises when traders perceive they are controlling their decisions and external influences are not affecting them:

> *"So in the bank role that I do, I have the risk that I choose to take, and then that is controlled risk that I can have, and normally that, I have my parameters beforehand about the level of risk I am willing to take, the level of movements I am willing to take, etc. So while I can have pressure on that, normally that is relatively controlled in the sense that I have certain events that might come up, so for example, the Fed[11] minutes come out, I'll load my risk into that"* (IV8, bank trader).

[11] The 'Fed' refers to the Federal Reserve, which is the central bank of the United States.

Conversely, appraisals of situational control often arise when the movement of the market makes traders perceive they have little control over their trades and can't predict what will happen:

> *"It is just a very very difficult market. And with the S&P[12]doing all-time highs and everything, and then all the stats in the market, and Brexit and the flash thing, and Trump. No one knows what it's going to do to the markets, and it brings a lot of, you know, just the markets are very nervous. And I think people, I'm thinking if I had 10 billion pounds right now, where would I invest? In gold, I don't know, like oil, like no one knows, and this is why, with these moves in the markets and the sentiments, you can't even explain it"* (IV19, retail trader).

Traders also describe how they appraise **certainty**, most often following a period of positive performance (i.e. positive P&L/accumulating reserves):

> *"When you're making profits on your errors, you know, it's a very iffy market, it's hard to put a foot wrong as such. So then you know things start to, you know you get confidence, and you start doing things, and part of this is, and this goes all the way back to sentiment, people get very bullish when things are easy and very good because you start thinking, you know, well I can't do anything wrong"* (IV17, retail trader).

Conversely, uncertainty arises from the fact that they do not know what the outcome is going to be for most of the decisions they make. Uncertainty is inherent to trading:

> *"I'm trading a lot because I think there is opportunity, it's just hard to be right that much. So you always say to yourself that if I could just trade less, you know trade less of the bad ones, but obviously, you don't know what the bad ones are going to be!"* (IV5, bank trader)
>
> *"So nobody actually knows what happens, they are just guessing because everybody else is guessing"* (IV3, bank trader).

Furthermore, appraisals of **responsibility** in terms of self-responsibility or other-responsibility (i.e. another person/object or the situation) are an important feature of how traders' think about and perceive a situation. Self-responsibility arises in two contexts. Either they appraise that they are responsible for a negative event:

> *"But I still make stupid mistakes"* (IV12, retail trader).

Or they appraise that they are responsible for a positive event:

> *"I got it right, I read it right*" (IV15, retail trader).

Conversely, they can appraise other-responsibility when they believe someone else or something else is responsible for the situation they are in:

[12] The 'S&P' refers to the Standard & Poor's 500 which is a stock market index of the United States which lists companies with common stock on the New York Stock Exchange or Nasdaq Stock Market.

> *"What had happened was I put in a stop order, and for whatever reason, my brokerage cancelled it, I didn't cancel it! They cancelled it"* (IV14, retail trader)

> *"Just choppy markets, like they seem to be going your way, and then they run back the other way, but they are not really stopping you out, or they are stopping you out and then going the right way again"* (IV20, retail trader).

Most often other-responsibility arises from a negative event, such as losing money or the market going against them. Positive events are almost exclusively perceived though self-responsibility, as illustrated previously.

In sum, as this section has demonstrated, traders closely evaluate the decision context, and this informs their perception of situations. A variety of different features of the environment influence this perception. However, the predominant process appears to be an evaluation of current state in respect of desired P&L level and/or performance targets along with an assessment of reserve levels and perceived probability. The output of this evaluation (i.e. high or low need) is then further evaluated in terms of its motivate consistency, control, certainty and responsibility. As will be presented in the following section the specific perception of need and the appraisal factors characterising it are what activate within-person variance of risk behaviours.

9.3. Activating Mechanisms: need frame and specific emotions

Central to both RST and the ATF, is that the way in which individuals perceive a situation (i.e. in terms of the specific need level or emotion) determines how the individual responds. Hence, this study interprets these factors as the activating mechanisms which influence within-person variance of risk behaviours. As such, the purpose of this section is first to explore and interpret how traders experience and respond to high and low need frames. In addition, it also seeks to interpret how specific emotions are evoked by the perceived appraisal dimensions and themes of a situation.

9.3.1. High need frame

Traders appear to experience high need frames following the experience of loss. As previously discussed, loss is signalled by negative P&L or being below target and may also be linked to depleting reserve levels and perceived negative probability. Traders place a lot of emphasis on loss and on managing their responsive behaviour. The general wisdom or mantra, which is a theme continuously returned to in traders' narratives, is that they must aim to cut losers and let winners run:

> *"Ultimately trading is not about accuracy; it is not about being right, it's about cutting losers and running winners"* (IV2, bank trader).

In other words, reduce risk when experiencing losses and increase risk when experiencing gains. However, it is clear from traders' narratives that this behaviour does not come easily. Rather, when in a situation of high need, their instinct is to chase losses:

> *"There are regularly times when people are reaching their limits and then didn't want to cut the trade. I think that is a big part of human nature; they think that if they hold on a bit longer then things are going to come back, and they can recoup the losses. So, it's quite a hard thing to do actually, cut out of a trade, and take the loss"* (IV4, bank trader)

> *"You don't want to take the loss, because when you close it, so while it's still an open position it can still come back, so it is an unrealised loss, but once you close it, you have realised the loss, you have set it in stone at whatever price it is"* (IV15, retail trader).

Consequently, the ability to cut losers and run winners is something traders place considerable emphasis on. However, they describe how developing an ability to not chase losses, and thus reduce risk-taking in a high need frame is something they have to learn to do:

> *"You have to do it to survive. If you don't learn it, you wouldn't be in the industry anymore. So, you're almost like, if you're still doing it you're forced to learn it, if you haven't learned it you're not doing it anymore. And that happens to a lot of people, where they just lose and, you know, they start betting bigger, because they want to make it back…. but then I'm risking a lot of money, and you risk losing. So, that has happened to a lot of people"* (IV5, bank trader)

> *"I believe through experience and through time, this helps with handling to let your runners run and cutting your losers short"* (IV16, retail trader).

Yet despite this learning, all traders, even those who are highly experienced describe how their decisions and behaviour are influenced by the nature of the decision frame. When experiencing loss (i.e. negative P&L), they are much more likely to seek to recoup losses and try to break-even (i.e. reach a desired need state):

> *"Because there are days too where I do exactly what I told you not to do, where like I've worked all day, and I'm short say at 87, and now if it goes up to 87, even though 87 means nothing in the real world, I'm just going to buy it back coz I don't want to lose any money. So, I do that too and that is just P&L, you know I've done it all day and its short 87, and if it comes back at 87 I'm going to just stop out, and that is just pure P&L"* (IV5, bank trader).

Furthermore, performance targets, as discussed in the previous chapter, can influence such behaviours; being below target contributes to the perception of need and can thus influence individual behaviour:

> *"You get ups and downs when you are meeting your targets and when you are not meeting your targets…when you are missing the targets, you tend to get very defensive"* (IV4, bank trader).

Thus, there is strong suggestion within traders' narratives that a high need frame can motivate risk-taking behaviours.

However, following a series of losses when traders perceive depleted **reserve levels**, this propensity for risk-taking behaviour appears to reverse. Traders describe how, when they have been losing money, they just cannot afford to take further risk:

> *"As soon as it goes minus 15% it is just gone, I don't even look at it, I just get rid of it"* (IV21, retail trader)

> *"So, let's say you have two consecutive bad days, and the third one is just the same, rule of thumb, you reduce your share size. So, that is exactly what I would do. So, if I am used to trading with a thousand shares, I am cutting that in half to 500"* (IV16, retail trader)

> *"If I'm losing, but if you're already down then I say I'd better just cut it, so your parameters change, so it's much harder to trade when you're down coz you can't take the risk"* (IV5, bank trader).

Essentially, when they are down money, they do not have the necessary reserve levels to support their risk-taking. Thus, as this section has presented, the behaviour a high need frame activates depends on the circumstances prior to decision-making. Traders largely seek to prevent risk-seeking behaviour following a loss but describe how risk-taking is often the natural reaction. However, if they have experienced a series of losses and thus are down quite a lot of money, they are then likely to cut their losses and reduce their risk. This is related to the survival focus presented in chapter eight. It appears that following a series of losses (i.e. depleting reserve levels) traders' point of reference shifts; they are no longer focused on wanting to meet a desired need level related to P&L or performance targets, but on maintaining a state where their job survival is not threatened. Hence, high need frames have the potential to motivate either risk-seeking or risk-averse behaviours depending on the overall circumstances of the situation.

9.3.2. Low need frame

Low need frames are experienced when traders are in a desired situation. This can be in terms of making the level of profits they want and require (i.e. positive P&L) or meeting or achieving needed performance standards (i.e. budget). Again, the trading mantra of 'cutting losers and running winners' is important in this context. Traders assert that when they are making money, they should capitalise and seek larger returns, usually by increasing their risk-taking. However,

there is strong suggestion within traders' narratives of satisficing behaviour in this context. Specifically, when traders experience profits they often tend to take them too early:

> *"And in terms of letting the winners run, when you see that profit, you're just kind of like overwhelmed and you just want to take the money off the table instead of letting it run"* (IV16, retail trader)
>
> *"The human mind…. you know, you want to cash in when you are up, and you take profits too early, yea so I think that is very real. I don't know if that has changed or not; I think that is just how we are"* (IV8, bank trader).

Although fluctuations in P&L have a strong impact on risk behaviours due to traders' continual awareness of P&L position, it also links to the effect of performance targets on risk-taking. Bank traders need to have a P&L level at the end of the year that meets the required budget (i.e. PRP target), and retail traders need to have a positive P&L to survive. Thus, the effect of P&L and performance targets on risk behaviours are somewhat interrelated. Indeed, as the previous chapter demonstrated, when down on target many traders increase risk but satisfice once targets are met:

> *"The first one who has done what they need to, is just going to wind back their risk, you know, sit on it and just sort of tend, you know make sure they don't screw it up. And the other person is probably going to put on some big position to see if they can sort of have a late run"* (IV9, bank trader).

As the informant explains below, there is an evolutionary force driving this behaviour. When targets are met, the individual has essentially met the required need threshold in terms of what is required to keep their job and survive. As such, the benefits of trying to make more (i.e. risk more) in a low need situation are minimal; it is better to satisfice and reduce risk or exposure to loss:

> *"For the last few years, for a lot of people, particularly in banks, the environment has been asymmetric in terms of the benefits of really going for it are small, because your bonuses are smaller and if you get it wrong you are out the door quicker. So, I would say that in that situation, for that guy, that decision is completely rational, because he has secured a good bonus for the year, enough to meet his needs, he's protected his career and his reputation, and he's secured the fact that he is in the markets for the next year, so in evolutionary terms he is still in the game"* (Informant).

Thus, there is evidence that a low need frame can motivate risk-reducing or risk-averse behaviour as traders seek to maintain the current desired need state. In other words, when focusing on the current state of a desired performance target, traders demonstrate satisficing or risk-averse behaviour.

However, again, there is evidence of a reversal of such behaviour following a *series* of gains (i.e. I have gained/am gaining a significant level of performance). When traders perceive accumulating **reserve levels** they tend to increase their risk-taking:

> *"You definitely trade more aggressively when you're up money….and that is just because you can risk more"* (IV5, bank trader).

They perceive that because they are already in a positive P&L position, they can risk more as extant reserve levels provide a cushion for their risk-taking. This can also be related to having achieved their required performance targets:

> *"When your profitability is exceeding the level that you're expecting, you then become, like...what you tend to do with your money management is you expand it, so, you know as you're ahead of budget, you tend to put a bigger placement of trades on, or you've got a bigger mindset, so rather than having 10 million on I'll have 15 million on, or I'll go 50% higher this time"* (IV11, bank trader).

In addition, the perception of positive **probability** that a low need situation brings can also contribute to greater risk-taking. As traders describe, the greater probability of a positive outcome they perceive, the greater the risk they will put on in order to capitalise on the opportunity for returns:

> *"I have really strong views, and then not so strong views, so I still trade on the not so strong views, but I would do a smaller size. I kind of rate it, I have a maximum size I will trade up to, so if it's a really strong view I will go all in with the maximum trade size, if I have a strong view, meaning I think the probability is really in my favour"* (IV4, bank trader).

Positive probability leads to an increase in risk-taking as traders have more conviction that the trade will be profitable.

> *"But what I do is I add the stakes, or I up the stakes when I get a lot more confident in it"* (IV21, retail trader).

Such a finding perhaps stems from the nature and purpose of a trader's role — to make money. Consequently, their focus in evaluating probability is the risk-reward ratio. The greater they perceive the likelihood for reward is, the greater the risk they are willing to take.

> *"So I am looking for a trade that has the potential to pay multiple R [i.e. return] to the risk I take…if I basically just entered the trade and it moves directly in my favour…I'll double my size or I'll put more on"* (IV20, retail trader).

Thus, there is evidence of a low need frame having the potential to activate both risk-taking and risk-averse behaviour. Again, this is dependent on the overall situation and the trader's point of focus. If they value a recent gain, for instance when it enables them to meet a required performance target or because they want to achieve a positive or desired P&L they tend to take

profits ‘early’ and satisfice. However, when they have accumulated reserve levels and perceive positive probability, they are motivated to increase risk as they perceive such a situation cushions their risk-taking and signals an opportunity to increase returns. These differences in how situational factors activate risk behaviours across high and low need states are summarised in table 9.1. Nonetheless, as the following section demonstrates, emotions play a hugely important role in the effect of risk behaviours and further ameliorate findings.

Table 9.1: Summary of risk behaviours across need frames

Need Levels	Situational Factors	Risk behaviours	Illustration
High Need	Loss (i.e. negative P&L) and/or difficulty making target	Risk-taking	*"There is a natural tendency, at times, when you keep getting it wrong, to keep going 'till you've balanced it"* (IV11, bank trader)
	Negative probability and low reserve levels	Risk-averse/satisficing	*"So clearly I will not up my bet size if I have had a losing couple of days…. I will do that if I am in the money, decent and the level is very attractive"* (IV20, retail trader)
Low Need	Profit (i.e. positive P&L) and/or target achieved/achievable	Risk-averse/satisficing	*"They've made 100 grand, they sit back, close up shop and go and get a coffee and walk around"* (IV5, bank trader)
	Positive probability and high reserve levels	Risk-taking	*"I lean on levels for entry, and once they have triggered, and went in my favour quite quickly. In my head, psychologically, it confirms to me that that was a good area…. and this is usually when I will add to my position. Just because that is just because I think it is going to be going in a good direction"* (IV19, retail trader) *"I mean when you're on the up you're definitely a much bigger risk taker…. you do see day to day that if you're up, you're willing to take that extra, like I'll risk that extra 50 grand"* (IV5, bank trader)

9.3.3. Specific emotions

How an individual evaluates the decision context, specifically their perception of profit and loss, influences their emotions. Based on the experiences of participants, it is evident that risk behaviours cannot be understood without accounting for emotions. Traders place considerable emphasis on the oscillating nature of the emotions they experience. The constant fluctuation in profit and loss and the pressure in taking risk effects this:

> *"It is hard not to get emotionally involved in the daily performance as well. You get big daily swings; I think it is all about the performance and that number on the screen, with the profit and loss"* (IV4, bank trader).
>
> *"It's really uncomfortable, it really is. I don't think people realise if they're trading their own money, the kind of psychology of it… psychologically it's quite a gruelling thing to do; risk, take risk, and actual risk especially"* (IV15, retail trader).

Throughout traders' narratives, the description of losing or making money is nearly always accompanied by a specific emotional or visceral experience, and these specific emotions have different impacts on risk behaviours. A range of different emotions emerge throughout traders' narratives, triggered by how the individual evaluated or perceived a situation. Twenty-three different emotions were mentioned by participants[13], however, only five were mentioned in connection to risk behaviours: fear, anger, excitement/euphoria, happiness and pride. Inconsistent with this study's conceptual framework, hope did not influence risk behaviours. The following sections explore each of these five emotions more closely, highlighting the appraisal dimensions and themes which trigger them and how they activate behaviour via their appraisal tendencies. These five emotions, ordered from most salient to less salient, are summarised in table 9.2.

[13] Emotions which emerged from traders' narratives included: depression, anxiety, worry, satisfaction, disappointment, greed, shame, regret, surprise, defensive, hope, grumpy, pride, loneliness, euphoria/excitement, challenge, boredom, sadness, pain, frustration, happiness, fear and anger

Table 9.2: Summary of emotions, appraisal characteristics and impact on behaviour

Emotion	Appraisal Dimensions			Appraisal Theme	Impact on behaviour/Appraisal Tendency	Risk behaviours outcome
	Control/ Responsibility	Certainty	Motive Consistency			
Fear	Situational control/ Responsibility	Uncertain	Inconsistency	Danger Self-doubt	*"You don't want to take the next trade when you're in the draw down, you feel afraid right"* (IV2, bank trader)	Risk-averse
Anger	Other-responsibility/ Self-control	Certain	Inconsistency	Other-blame	*"People revenge trade, they feel like the market will owe them…. ok the stock is going against them, oh well it's great, that is a bargain now, I'll double up my position, which in essence, would make the loss seem lower at the moment"* (IV14, retail trader)	Risk-taking
Excitement /euphoria	Self-responsibility/ Self-control	Certain	Consistency	Surprise Future positive outcomes possible	*"I mean you want to celebrate and you want the world to know like, this is what I did today, I made this much money, and like you're excited!... And then yea, the next day you probably add on more size"* (IV16, retail trader)	Risk-taking
Happiness	Self-responsibility/ Self-control	Certain	Consistency	Self-progression	*"If you're going well and you are highly confident, then you will do more and more because it feels great"* (IV9, bank trader)	Risk-taking
Pride	Self-responsibility/ Self-control	Certain	Consistency	Personal attribution	*"I would say that usually it is hubris, being a bit too cocky… So, xxxx, in that particular case, he was taking much too big position sizes and much too bigger, and then just a different approach, as in a bigger position size and then running it for longer, not chopping it out, doubling it up"* (IV3, bank trader)	Risk-taking

9.3.3.1. Fear

Of all the emotions mentioned and discussed by traders, fear is the most salient:

> *"Fear is probably the biggest one, it's the fear of missing out on something, it's the fear of losing all my money"* (IV21, retail trader).

Fear arises within traders' narratives from **appraisal dimensions** of motive inconsistency (i.e. loss/losing):

> *"Fear I think, yea fear. And until you have some really bad losses I don't think people realise, so the best traders are often brand-new people. So yea. It's like jumping into the deep end of the swimming pool because they don't know what it feels like"* (IV15, retail trader),

uncertainty, where traders don't know what is happening:

> *"And a lot of the thing is, you don't know what is going to happen, so you buy something, coz a) you're scared, but b) you're scared it's going to keep going higher if you don't buy it right"* (IV5, bank trader),

and situational control, where traders perceive they have little control over what has happened:

> *"If it's out of their control, then they will definitely fear it"* (IV14, retail trader)

> *"And I've had some long losing spells, for 6 months…. like everything you do, you touch anything and it just goes the other way, like wow, how did that happen!?"* (IV5, bank trader)

> *"How have these levels triggered all of a sudden!?.... No one knows what it's going to do to the markets"* (IV19, retail trader).

Furthermore, fear is characterised by an overall **appraisal theme** of potential danger or self-doubt. Here, theme refers to the overarching view traders have of a situation and its implications for them. It appears that perceiving situational control and uncertainty implies, perhaps on a subconscious level, that there is a potential for danger. As one trader describes:

> *"There is both resourceful and un-resourceful fear, so it's good to be afraid. I am afraid a lot, and it keeps me safe. But it's this fear that is un-resourceful that stops you, that paralyses you, and you can't make good decisions anymore because your brain goes into brain freeze"* (IV13, retail trader).

Hence, although fear's theme of danger can be helpful, it also has a theme of self-doubt where traders' doubt their decisions and consequently, hesitate:

> *"Well I know from my own experience; you think more and you don't seize the chance as much. You are, so you are more, yea you are more in fear"* (IV8, bank trader)

> *"Physically can't buy or sell a currency, I'm talking like, you see people who can't actually go like [made motion as if to click a mouse], they shake, they can't buy or sell, the step is too far, because they are scared of losing money"* (IV11, bank trader).

The appraisal dimensions and themes which thus characterise fear carry over to influence future situations via **appraisal tendencies**. When experiencing fear, traders feel more uncertain about future outcomes; they feel they don't have much control and also doubt themselves:

> *"If I'm in a bad run of things I lose confidence and I don't think that the trade is going to be the right one, I don't make as many trades for example. I'm less active; you go back into your shell almost. Protective mode"* (IV4, bank trader).

This manifests in fear having a deactivating effect on behaviour, leading to risk-reducing or risk-averse behaviour:

> *"If something has fallen a long way, you'll think to sell it coz you are afraid, you go oh my god I'll sell it now"* (IV10, bank trader)
>
> *"But then there is still that little tiny bit of fear that I didn't want to risk my full 2% at the beginning…. and I didn't want to risk it. I risked like half a percent or something"* (IV12, retail trader).

However, depending on the situation, there is also evidence of fear having an activating effect on behaviour. Specifically, if they have been in loss and then begin to make back some profit, fear can activate them to take the profits quickly, rather than let them run, because they are afraid of losing again:

> *"I think that is when the fear factor kicks in. If you see that you have made that little bit of profit, there is a tendency to want to lock it in"* (IV4, bank trader).

Furthermore, a less common theme, but an important one nonetheless, is of fear having a signalling effect for traders. It appears that when experiencing fear, traders become very attuned to the situation and such a signal appears to emphasise potential opportunity to trade:

> *"By the way, I am scared to f*****g death of this short, and that is why I know it is a great trade because it scares the living s**t out of me"* (IV2, bank trader).

9.3.3.2. Anger

Anger[14] also arises from appraisals of motive inconsistency (i.e. loss/losing).

However, what differentiates anger most clearly from fear is the **appraisal dimension** of responsibility. Specifically, anger arises when the loss or difficulty in achieving target is attributed to another person or object (i.e. other-responsibility):

> *"I'm very frustrated because I had an issue with my trading platform, where I put in a stop order to protect myself… and for whatever reason, my brokerage cancelled it, I*

[14] Within the emotion literature, frustration is "considered a central component of anger" (Kuppens and Van Mechelen, 2007, p. 59) thus when traders discuss the experience of frustration it is included in this sections analysis.

didn't cancel it! They cancelled it. And so it was very very frustrating because, I had had an order in, to lock in a profit. Well, they cancelled it, I didn't cancel it…. So, I've done what I needed to do, in a positive sense, but it ended up costing me say about $1500 today" (IV14, retail trader).

"Thinking someone else is responsible…. people blame the market maker, it is somebody else's fault, it's not my fault for making the mistake, that is very powerful" (IV21, retail trader)

"Y*ou get married to a position, so I've had days where…. some guy.... let's just say I'm up 200 grand, then this guy has come in, and let's say he's dealt a tiny trade, like a 5-unit trade, and I can cover like a 5,000-dollar loss and I'm still going to be…. let's say my daily target was probably 150,000, so this is great, I'm fine. Whatever ok, well it's a multiple of my budget. And then I've got angry, and I've doubled up, trebled up, quadrupled up, and then I've ended up 200 grand down. And that has happened on a regular basis"* (IV7, bank trader).

This also implies an appraisal dimension of certainty, where traders perceive they know what has happened; that they have lost money because of the actions of another. Moreover, the overall **appraisal theme** of anger is a sense of other-blame, where it is someone else's actions which have caused theirs to go awry:

"So I was very negative, I was very frustrated. I was, you know I was very very much not in a good mindset. And I was frustrated because I did what I needed to do, as a person and a trader, to protect the profit but the computer system and something that was out of my control, basically caused other things to happen" (IV14, retail trader).

All of these factors then contribute to how an angry individual perceives and thus behaves in future situations. Anger leads to activating **appraisal tendencies**, whereby individuals perceive they can exert some control over the situation they are in if they overcome what is hindering them:

"More frustration, just trying to get even with the market" (IV16, retail trader).

Consequently, when losing money is experienced through anger, resultant behaviour can be to increase the bet size, in other words, take more risk;

"*Last Monday I lost 330,000 dollars, in like 2 minutes....and immediately you're angry! Immediately your thought process is in the negative spiral of thought process, now I've been there before…. if you take that negative thought process, and that spirals, that 300 will be 500 within 2 hours. And at that point, you are now breaching your sort of daily trading limits, and there are a lot of people asking a lot of questions. And rightly so*" (IV11, bank trader).

Yet, what is particularly interesting is that anger is trigged in many traders not from the actions of another but their personal actions. If their actions result in them losing money, they become angry and frustrated with themselves (i.e. self-responsibility appraisal):

> *"I'm using too much leverage. So, that is the emotion that is getting me at the moment; it's like I'm making myself so angry, you know what I mean, that is the biggest one for me at the moment, it's the anger that I keep on doing this now"* (IV12, retail trader)

> *"I was surprised at how mad I was…. I was so mad, and I was surprised, coz it wasn't even a big, it was just like that I did dumb things, so I was more mad at being dumb, than losing money"* (IV5, bank trader).

The impact of situational factors, and how the individual appraises them, in evoking different emotions is aptly described in the following narrative, where a trader discusses how the nature of a loss influences how they feel:

> *"It depends how it happened, depends if it's self-inflicted, as in me over trading, or whether it's a client-driven loss…. if it's from a client, and we're acting as a principal, and we're providing prices and liquidity to our clients, if it was that one, I'm a little bit more relaxed about the loss, emm, because some of that can be out of your control. If it was me in that spiral, I was talking about of the over trading. That makes me really, I'm really disappointed with that, really disappointed with that. Even today, even doing it this long, I get really frustrated from that"* (IV11, bank trader).

Such findings demonstrate how specific appraisals may not consistently trigger the same specific emotion. Rather, the specific context of the appraisal becomes important. Having been a trader for many years this individual appraised losses, out of their control, in a relaxed rather than fearful manner, as they know they cannot do much about it. Conversely, they are angered by their own mistakes (i.e. it is my fault). However, the clear relationship between anger characterised by other-responsibility and risk behaviours is not evident when anger arises from self-responsibility appraisals.

9.3.3.3. Excitement/Euphoria

Excitement/euphoria[15] arise in a context of motive consistency when traders perceive they are making money:

> *"I actually made some money I would get like so excited, and you would actually start to shake sort of thing"* (IV12, retail trader).

Furthermore, it is strongly characterised by attributing this positive outcome to personal actions (i.e. self-responsibility), certainty and self-control:

> *"That is winning the game. It's a great feeling when you have made a, you have made a call on the markets, and you are proved to be right, I guess, it's like the gamblers emm, there is the thrill of gamble coming off, it's not much different to being in a casino, and wanting that feeling of winning"* (IV4, bank trader)

[15] There did not seem too much difference within traders' narratives between excitement and euphoria, hence they are discussed as a similar emotion.

> *"When you know you are making money, you feel extremely happy, you have this feeling of, a sense of euphoria, and you know, the thing is, if there is a protracted period of euphoria, you become, in a narcissistic way, you know, very very self-confident, you feel like I am indestructible"* (IV1, bank trader).

However, what really appears to differentiate excitement/euphoria from other positive emotions is its **appraisal theme**. In other words, the overarching perception the trader has of an immediate situation. Specifically, excitement/euphoria carries a theme of surprise, where traders recognise that they are making money, but they are surprised by just how much money they have been making:

> *"I'd be happy even if it is up 1%, which is my boundaries of expected return, but if I exceed that, then I am very very happy. And that goes to exponential. If it is up 3%, you know that is euphoric"* (IV1, bank trader).

Consequently, excitement/euphoria appears to carry an **appraisal tendency** to focus on positive outcomes and perceive that more positive outcomes are likely. This can have a very activating effect on behaviour, as traders take risks to capitalise on the further positive outcomes they think are likely:

> *"So like I've found that when I get excited about seeing green… So when something is green, and I'm up however much, you know I'm feeling good, so then you're like well it's going to go more I'll wait till it's more and more and then it starts not being more, and then less and less, and it's like oh well it'll come back"* (IV19, retail trader)

> *"You know I have a feeling that this stuff can make money, it can be profitable, or it can be hugely profitable, and then I am very very excited"* (IV1, bank trader)

> *"Yea so you make money if you are right. And then you have to watch for euphoric...if you stop making money then after a good run, you want to get that feeling back, so you want to be aware of that"* (IV20, retail trader).

However, traders also appear to recognise the dangers associated with the somewhat optimistic outlook excitement/euphoria induces. The following narrative illustrates the impact of excitement/euphoria on future decision-making via appraisal tendencies of certainty and self-control:

> *"If I get euphoric. If I notice myself get euphoric, I shut it down, [because it creates the] feeling that you can call the market perfectly all the time"* (IV20, retail trader).

In sum, excitement/euphoria is an intensely positive emotion traders experience when they are making money, specifically when they are surprised by how much they are making (i.e. it exceeds expectation). As excitement/euphoria is characterised by appraisal dimensions of certainty, self-responsibility/control it leads individuals to appraise future situations as being positive, predictable and within their control. Consequently, excitement/euphoria appears to carry a tendency to perceive further positive events being likely. Hence, traders describe a

tendency to increase risk-taking. Nonetheless, traders do demonstrate an awareness that it can have a negative effect on behaviour.

9.3.3.4. Happiness

Happiness, like excitement, arises when traders perceive motive consistency (i.e. making money), certainty, self-responsibility and self-control. However, as happiness is a less intense emotion than excitement/euphoria, it arises when traders perceive they are doing well (as opposed to surprisingly/exceedingly well):

> *"When things are going well it affects your, actually the results affect your mood, I find, when things are going well, you are happy and I feel confident in making decisions that they are going to be the right ones"* (IV4, bank trader).

As illustrated in the previous narrative, happiness leads to a sense of certainty — 'they are going to be the right ones' — and a perception that the individual can control the situation — 'I feel confident in making decisions' — thus indicating that happiness is characterised by certainty and self-control appraisal dimensions.

However, what appears to differentiate happiness from other positive emotions is the **appraisal theme** of the situation within which it arises. When traders experience happiness it is most often in relation to a sense of self-progression. Meaning they are achieving their personal goals of being a good and effective trader, doing a good job and making effective decisions:

> *"If you get to the end of the month, and you think you've made the budget, and you know you've provided the sales desk with the right coverage they need, and achieved the budget that the bank's happy with, then you know, you've ticked all the right boxes, you've done everything in the correct fashion…. and you've done a lot of good things and you're decision process has been clean and clear, that makes me happy"* (IV11, bank trader)
>
> *"But actually I'm really happy with how far I've come in such little time"* (IV12, retail trader)
>
> *"So I feel happy when I trade right"* (IV17, retail trader).

Thus, by evoking a sense of certainty, self-control and a theme of goal achievement or progression towards a goal, happiness can motivate risk-taking behaviours, primarily through the impact of elevated confidence:

> *"I think in nearly all circumstances, the confidence of doing well will drive your risk-taking up and you will take bigger positions and you feel you know, it just builds"* (IV9, bank trader)
>
> *"It can make you want to trade more or stay in a trade that you should be getting out of"* (IV18, retail trader).

Essentially, happiness can cause a tendency for traders to seek out further, similar events because they want to maintain the positive experience:

> *"You will do more and more because it feels great"* (IV9, bank trader).

> *"This comes back to why did you take profits, is it because it felt good?"* (IV17, retail trader).

9.3.3.5. Pride

Pride is a further positive emotion which arises from appraisals of motive consistency, certainty and self-control. However, what appears to differentiate pride from excitement/euphoria and happiness is a strong sense of self-responsibility. When traders attribute the positive situation to their ability, effort or personal achievement they experience pride:

> *"Now I know based on my statistics, because I keep really tight statistics, that when I have three or four winning trades in a row, I start getting super-woman syndrome"* (IV13, retail trader)

> *"When you feel great, and you are on a high, you are on a s**t hot run, you think you are the d**s b******s, and everything else… and everybody else is getting their shirt handed to them, and you're just so proud"* (IV2, bank trader).

Thus, pride arises from an **appraisal theme** of personal attribution, where traders very strongly perceive that it is their ability and their skill which has enabled the positive situation they experience. Such appraisal characteristics then influence subsequent decisions where traders demonstrate a tendency to believe in their personal ability and thus think they can control situations:

> *"I got too cocky… I just upped my risk size and I got lucky a few times. and I made a lot of money. But rather than saying I got lucky let's go and bank this I said no, and I rolled the dice again, and then it goes wrong, and I said well I'm still a genius, so I just keep on going… so I think hubris is definitely a big problem"* (IV3, bank trader).

Indeed, pride can have a detrimental effect if carried over into loss situations, motivating a tendency for traders to take the risk of staying in a losing trade because they do not want to admit they are wrong, or because they still believe they are right:

> *"Like I couldn't let it go, and the losses would get bigger and bigger until eventually I had no choice, so, and I noticed, or I realised… that I didn't like being wrong. And in trading, you just cannot be like that"* (IV12, retail trader)

> *"But I often didn't have the ability to pull the trigger, because I am too stubborn. So, I knew I can get out now and take my loss, but I was too stubborn…. It's pride"* (IV7, bank trader).

Findings suggest that pride is evoked when traders strongly attribute the achievement of goals or accumulating profits to their personal ability or effort. This can influence future decisions as traders perceive that continued positive outcomes are likely. Furthermore, it can impact risk behaviours as a proud trader is less likely to cut losses early as they don't want to admit they are wrong, and thus take risks.

In sum, emotions play a central role in traders' experiences and behaviours. Much of the variance of traders' risk behaviours can be understood when emotions are considered. The way in which traders perceive events trigger distinct emotions, which in turn influence risk behaviours via the appraisal dimensions each emotion carries. The following section further explores the interaction between need frame and distinct emotions in effecting within-person variance of risk behaviours.

9.4. The outcome for risk behaviours

Based on the findings presented in this chapter, it is evident that traders' risk behaviours are idiosyncratic and complex; they are an outcome of how individuals think and feel about the decision context. Moreover, the factors which make up an individual's cognitive perception of a situation are multidimensional; traders assess their immediate state based on whether they are making or losing money, perceived probability, current reserve levels and appraisal characteristics. Risk behaviours are thus affected by which contextual feature the individual is focusing on at the time (e.g. need frame/probability) and the emotions this evaluation triggers (e.g. anger). This effect is summarised in table 9.3, which presents the cognitive and emotional references which motivate risk-taking and risk-averse behaviours. The following paragraphs interpret this variance in further detail, exploring what contributes to an individual increasing their risk-taking or decreasing it and more importantly, how cognitive frames and emotions interact.

Table 9.3: Summary of factors related to variance of risk behaviours

RISK-TAKING		
High Need	**Positive Cognitive Evaluation**	**Specific Emotions**
Negative P&L Below performance target	Positive probability Accumulated Reserve Levels	Anger Excitement/euphoria Happiness Pride
RISK-AVERSION		
Low Need	**Negative Cognitive Evaluation**	**Specific Emotions**
Positive P&L Achieved/Achieving performance target	Negative Probability Low Reserve Levels	Fear

Risk-taking behaviour is evident, first and foremost, when traders perceive high need. In other words, when their current state is not meeting their desired state of positive P&L or required performance target. As RST would suggest, such evaluation often results in risk-taking behaviour when in high need and risk-aversion when in low need:

> *"I mean that is the irony of trading isn't it, when you have made a lot of money and you are going well you take your foot off the gas, and then you are losing a lot of money you put your foot on the gas…probably taking more risks"* (IV7, bank trader).

The influence of a high need situation on motivating risk-taking behaviour is further influenced by emotions. The following narrative aptly illustrates how innate behavioural factors (e.g. an evolutionary instinct to take risks in high need) interact with emotions in the effect of risk behaviours:

> *"I think if you talk to a lot of traders…. there is an element of a self-destructiveness sometimes when things are going badly, you kind of hope, you are subconsciously wishing to self-destruct so that maybe you can move on and do something else with your life. Coz it, if you are miserable you want a way out right, so if you can't see an easy way out, maybe you do, there is a bit of you that wants to do reckless things. I mean everyone tells you, you shouldn't add to losing trades, and you shouldn't trade beyond a certain size compared to the capital you have at risk, but sometimes I have to fight with myself to stay within those parameters. So far I have, but I think there is*

a kind of primeval instinct inside me, wanting to be reckless, I find I have to fight that sometimes" (IV4, bank trader).

The experience of negative emotion further compounds the desperation experienced when in a high need situation, and this can motivate traders to take risks as they seek to overcome the negative situation. Indeed, as the informant discusses below, the experience of a high need situation (i.e. a loss) is often very emotive, so decisions in this context are based on how uncomfortable they feel, the discomfort augments or signals the experience of loss which can cause traders to stay in a losing trade (i.e. risk-taking) rather than cut it (i.e. risk-reducing).

> *"But what many traders do, is that when things get uncomfortable, they're losing, the way you avoid loss-aversion is by not taking the loss. So, in the short term I stay in my position, it goes further against me, but I feel comfortable because I am not taking the loss, the loss doesn't materialise, but the problem is then in the long term I end up with a bigger loss. So, there is a play-off between what is happening in the short term, which is obviously very emotion driven, versus the long-term gain, which is being consistent with my values and my strategy. Which is a much more cognitive process"* (Informant).

However, when not in a negative situation (i.e. low need) the outcome for risk behaviours is different. As the below trader discusses, people tend to be upset and angered by losing money, but when they are making money they are somewhat ambivalent:

> *"The funny thing is, people are rather uncomfortable with gains, don't get me wrong, they love gains, but they don't put too much attention on their gains. The problem is, they just look at, it's like a digital thing, if it is green, so if you are making money, they don't care about how much money they are making, just that they are making money…. but if they are down 2% and everybody else is down 12%, they just get pissy, oh why are we down 2%, but come on, other people are down 12%, so we are making money on our side, but it is very binary in my experience. But the funny thing is, binary only on the down side"* (IV1, bank trader).

Nonetheless, in demonstrating how pertinent it is not to assume that decisions arise through an exclusively cognitive process, traders demonstrate behaviour which contradicts the cognitive framework of the RST. However, the emotional perspective of the ATF accounts for it. When traders experience a high need situation through fear they become risk-averse. This is a result of such emotions being characterised by uncertainty and situational control appraisals. When individuals perceive they cannot predict or control the situation they become risk-averse:

> *"It's this fear that is un-resourceful that stops you, that paralyses you, and you can't make good decisions anymore because your brain goes into brain freeze, and your limbic brain starts. That comes from uncertainty"* (IV13, retail trader)

> *"I mean I done one the other week… and I wasn't sure what to do, like as in I didn't know if he was going to go up or down, or whether to, you know the client bought from me, and then I had to buy some myself, so you know he's bought from me, so I'm short 30 million, so I'm sitting there dithering thinking, and I couldn't make my mind*

> *up. So I thought do you know what, just cover it, forget about it, wait, so I waited and in like three minutes it had rallied like 80 points. You know it was like 200,000 dollars against me, and you get a minutes, and I thought oh thank god. But that was a decision process that I made based on nothing more than the uncertainty of not being convinced about anything...and literally I just took the risk off the books"* (IV11, bank trader)

Conversely, a high need situation which is experienced through anger results in risk-taking behaviour. This is characteristic of anger, which is associated with appraisals of self-control and a theme of other-blame, resulting in a belief the individual can still do something to control and overcome the negative situation:

> *"Revenge trading is let's say, let's say you're down for the day…. so let's say you're down and you already made four, you've made your four trades, you're down. Then you put on a fifth trade, you put on a sixth trade, that is revenge trading, so you're going against your rule, you're still not seeing a positive outcome, you're digging yourself deeper, because now you're at a loss, the loss just continues to grow and grow and grow and grow the more you trade. Because your mind, your mental at this point is done for the day…It's probably more frustration, more frustration just trying to get even with the market… You're frustrated you're angry, and all the emotion of negativity comes into play"* (IV16, retail trader).

When traders experience a low need situation through excitement/euphoria, happiness or pride, they often demonstrate a tendency for taking more risks. This is consistent with such emotions being appraised through a sense of personal responsibility and certainty as to what happened. Therefore, individuals become risk-taking as they seek more of what has evoked the positive emotion and they feel confident in their abilities:

> *"And that effects, that is directly to kind of the risk-taking side of it. Because you think you know, if you're going well and you are highly confident, then you will do more and more because it feels great"* (IV9, bank trader).

In sum, findings suggest that what matters for risk-taking is what the individual is focusing on (e.g. need frame etc.) at the time of decision making and the emotion such a situation evokes. Primarily, the risk behaviours of traders are driven by their perception of need levels and specific emotions. Negative emotions may enhance the perception of high need, or the perception of high need may evoke negative emotions. While positive emotions may arise out of low need situations, or induce the perception of a low need situation. It is impossible to separate the two, demonstrating how emotions support cognitive decision making.

What is interesting to note, however, is the divergence in the relationship between need framing, and probability and reserve levels. Although low reserve levels and negative probability certainly enhance the perception of high need, they do not support the risk-taking evident when experiencing losses and difficulty achieving targets. This would suggest a

potential sequential effect. The perception of low reserve levels and negative probability occurs after a *series* of losses, while the perception of accumulated reserve levels and positive probability occurs after a *series* of gains. As such, traders cut losses and reduce risk-taking to limit the likelihood of further losses. Yet, if the perception of being below target or an immediate recent loss is salient, then the high need frame of such situations motivates risk-taking behaviours. What is unclear, however, is how probability and reserve levels interact with emotions. When traders discuss different emotions, it is centred around either losing or making money or their performance relative to targets. Potentially, low reserve levels and negative probability could enhance negative emotions, and vice versa, accumulated reserve levels and positive probability could enhance positive emotions, or indeed negative (positive) emotions could enhance the perception of low (accumulated) reserve levels and negative (positive) probability. Yet, this is not wholly clear within traders' narratives. However, when considering the temporal nature of emotion, this is perhaps unsurprising. Emotion occurs in response to a recent event and is short-lasting, hence it's co-occurrence alongside immediate perceptions of need. Whereas reserve levels and probability occur over a longer time-frame (i.e. after a period or series of gain and loss). As such, their impact on behaviour appears to be driven more by cognitive factors than the emotiveness of immediate gain or loss contexts. Still, as presented throughout this chapter, need frames and emotions exert a predominant role in the effect of traders' risk behaviours. The interrelated influence of contextual evaluation, need framing and emotions on risk behaviours are depicted in table 9.4.

Table 9.4: Summary of relationship between decision context, need frames and emotions in affecting risk behaviours

Context	Cognitive Evaluation		Specific Emotion	Appraisal tendency	Risk Behaviour
Recent loss Below target	High need Motive inconsistency	Certainty, other-responsibility, self-control	Anger	Negative event is caused by another. Strong desire to attend to situation by overcoming those hindering achievement of goal	Risk-taking
		Uncertainty, situational control/ responsibility	Fear	Negative event is unpredictable and controlled by the situation.	Risk-averse
Recent gain Achieved/Achieving target	Low need Motive consistency	Certainty, self-control, self-responsibility	Excitement/euphoria Happiness Pride	Positive event is predictable and brought about by self. Seek out future positive events.	Risk-taking
Series of losses	Depleted reserve levels Negative probability		*Relationship with emotions unclear — potentially due to emotions being a response to a recent event rather than the longer time frame within which reserve levels and probability occur.*		Risk-averse
Series of gains	Accumulated reserve levels Positive probability				Risk-taking

9.5. Insights findings provide to research question two: How do situational characteristics influence need framing and stimulate emotions?

As demonstrated in this chapter, need frames and distinct emotions are contextually embedded phenomena. Thus, the characteristics of a situation, or more precisely, an individual's perception of situational characteristics are central to the perception of need and the evoking of emotions. Findings of this study highlight that need frames are constructed by the individuals' perception of their current state in respect of their desired state. Indeed, despite differences in organisational context, both bank and retail traders evaluated their current performance in respect of a desired level of P&L, a desired performance target threshold, or a minimum survival threshold. Thus, fluctuations in P&L and performance in respect of targets can strongly influence traders' perceptions. In addition, the extent of reserve levels of performance a trader perceives, and their perception of probability, further contribute to the impact of situational characteristics on need framing. Such perceptions further influence which emotions are stimulated. However, here it is a case of how a situation is perceived in terms of who or what is responsible, the extent to which the individual is certain about what has happened, the extent of control they perceive they have, and whether the current situation is consistent with desired goals. Furthermore, the overall theme of the situation (e.g. surprise/self-doubt) further contributes to the impact of a situation in evoking an emotion. Hence, the emotions which arise are an interrelated outcome of the pattern of appraisal dimensions and themes. Thus, the influence of situational characteristics on need framing and emotion is the outcome of an individual's subjective view of the environment.

9.6. Insights findings provide to research question three: How do need levels and emotions influence risk behaviours?

Need levels and emotions appear to influence traders' risk behaviours by the signal they provide of the characteristics of the situation. When traders perceive a high need situation, the innate need satiation function of risk-taking appears to be triggered, as traders describe the chasing of losses in an effort to reach a favourable state. Conversely, when in a low need situation, the favourable need satiation such a state signals motivates satisficing behaviour, whereby traders reduce risk or behave in a risk-averse manner rather than maximise. However, such behaviour reverses following a series of gains or loss. Following a series of gains, traders often increase risk-taking due to the perception of positive probability and accumulated reserve

levels. Following a series of losses, traders reduce risk due to the perception of negative probability and the recognition of depleted reserve levels. Different emotions further interact with this and thus influence risk behaviours. The motive consistency appraisal dimension is somewhat analogous to need thresholds in need framing (i.e. desired goal state). Thus, when traders perceive motive inconsistency (i.e. high need), the negative emotions of fear or anger are triggered, while motive consistency (i.e. low need) triggers positive emotions of happiness, excitement/euphoria and pride. Indeed, it is difficult to understand how risk behaviours vary within-individuals without also accounting for emotions. Fear leads to risk-aversion in high need, while anger triggers risk-taking in high need. In addition, happiness, excitement/euphoria and pride all trigger risk-taking in low need frames. Such behaviour seems to arise because of the signal each emotion carries of the decision context via its appraisal tendencies (e.g. fear signals uncertainty, unpredictability and danger). In sum, need levels and emotions influence risk behaviours by activating traders to respond to the information they carry about the decision context.

9.7. Conclusion

Risk behaviours appear within traders' narratives as highly subjective phenomena; influenced by how individuals perceive the situation they are in. However, as findings of this chapter suggest, such perception is not an exclusively cognitive process. The distinct emotions which arise out of contextual evaluation can trigger risk behaviour outcomes which would not be predicted by an exclusively cognitive process. When traders become fearful in a high need situation, they become risk-averse. Yet, in the same need frame anger can lead to risk-taking behaviour. Moreover, the experience of happiness, excitement/euphoria and pride also appear to drive risk-taking when in the low need frame of making money. Based on the experiences and perceptions presented by traders it appears that the perception of need is not an exclusively cognitive process. Emotions are a central influence on risk behaviours. Nevertheless, there is evidence within traders' narratives that emotions are not the only factor which leads to deviations from need framing predictions. Cognitive perceptions of probability and reserve levels are also important and can motivate risk-taking behaviour in low need frames and risk-averse behaviour in high need frames. As the following chapter will explore, emotion regulation has an important overall effect, as traders utilise a number of strategies to regulate emotions and control their impact on risk behaviours.

CHAPTER TEN: FINDINGS AND INTERPRETATION PART THREE — EMOTION REGULATION

10.1.Introduction

This chapter presents findings related to the final research question: to what extent do emotion regulation (ER) strategies impact risk behaviours? The chapter aims to uncover the different ER strategies traders utilise, the context within which they arise and the impact this has on risk behaviours. To this end, interpretation of findings suggests that traders primarily employ cognitive reappraisal strategies, by changing how they perceive a situation. Expressive suppression strategies are also important. Interestingly a further strategy of situation avoidance, whereby traders remove themselves from the emotion-eliciting situations, emerged strongly from traders' experiences. This chapter is structured as follows. The first section discusses the negative perception traders' attach to emotions, thus providing a rationale for the importance they place on ER. Following this, the different ER strategies evident within traders' narratives are presented. Subsequently, the insights this chapter provides for research question four are highlighted. Finally, an overall summary of this thesis' findings relating to how risk behaviours are influenced and what affects them is presented.

10.2.A negative perception of emotions

Both bank and retail traders acknowledge they experience emotional swings, but all share the opinion that emotions hinder decision-making and can have a negative impact on behaviour:

> *"Emotion is the enemy of a trader"* (IV7, bank trader)

> *"The emotional side is what you want to battle as much as you can when you trade because that is the bit that tends to cloud your views and make you get greedy and scared and all that sort of thing"* (IV8, bank trader)

> *"It is brutal, and it is tragic, that is what makes trading so interesting because it really is a battle against yourself"* (IV2, bank trader).

However, despite asserting the need to be 'emotionless' or to exert 'emotional control', they recognise this is not realistic:

> *"They all say to remain emotionless when trading, but it is virtually impossible, because we're humans, and you know, we act"* (IV16, retail trader)

> *"Well it can definitely affect your mindset. Then I ended up, I was in another trade, it started to go against me, I didn't necessarily cut it, but I ended up $1200 on the day. So basically I made back, so I made $2700, but I had to stop, I had to try to take the*

> *emotion out of it, and really, in trading you need to be emotionless, you need to just look at a chart, you need to react to the price action, you need to be in the moment. And it can be very hard sometimes….to keep the emotions out of it"* (IV14, retail trader).

For this reason, traders place considerable emphasis on their ability to regulate their emotions and see it as vital to improving decision-making. Moreover, what is striking about the participating traders is how self-analytical they are. They spend a lot of time analysing what they have done and learning from it. In most cases, such self-analysis is focused on learning to regulate emotions and enhance decision-making:

> *"You get to that point of, you've got no choice. You either figure it out, or you've got to walk away from trading. And I imagine, well I've never really spoken to anyone in high-performance sports…. Well you've got no choice, he could be the best tennis player in the world, but he can't emotionally control himself, so it's the same thing in the markets, if you control your emotions, as in your response to, when something bad happens, you don't freeze, you do what you should do, life is going to be a hell of a lot easier, and that means your equity curve, you're going to be down a hell of a lot less, and less probably to the downside. Upside swings are fine; it's the downside ones that really hurt capital/mindset at the same time. So, you do have to be very self-reflective"* (IV17, retail trader)

> *"I must admit that; my analysis is quite deep…. You know about the way that you approach your job and everything. So, I look at that constantly…. I have found it something as a reference point to address my own positives and negatives. Mindfulness, is quite a good thing actually.... the more I get into it, the more I do it. I don't do it every single day, but I think, I like to acknowledge the positives that it does, in many ways, it's just the obvious things, but I like the fact that you're prepared to sit there and ask yourself the questions that you don't ask yourself. And I think that actually creates a lot of thoughts that can actually be...positive to the day that you're going to go through and get you over the hurdles throughout your day"* (IV11, bank trader).

In this regard, traders perceive emotion regulation as a necessity for high performance in the markets. As the following section presents, traders use several different strategies to do this.

10.3.Emotion regulation strategies

ER encompasses the different strategies traders use to prevent the impact of specific emotions on their risk behaviours. Most traders agree that ER is not something that comes naturally but is something that must be developed through learning and experience in order to survive in the markets.

> *"Yea, I've got a very good way, I've got quite a good way of putting it in compartments, I think only because I have learned to do it, only because I've learned to really do it"* (IV11, bank trader).

As the following sections will explore, three forms of ER are evident within traders' narratives. These include cognitive reappraisal, expressive suppression and situation avoidance. Figure 10.1 illustrates the point at which each strategy appears to come into effect and the contextual features salient during their use.

10.3.1. Cognitive reappraisal

Cognitive reappraisal strategies appear strongly within traders' discussion of emotions and decision making. Such a strategy is evident when traders actively engage in changing the meaning of a situation to them:

> *"So I thought I would try to do some scalping, and my god I just hadn't got a clue what I was doing, not a clue. Not a clue. So, that was a real like, I was so pissed off at myself, I was so angry, and then I was like, hang on a second, like stop. You have just learned something from this. You don't have a scalping strategy. So, therefore, you know not to scalp. So, everything negative or bad that happens, I try to dig deep into it and like I've got to learn something from it. Like you know, I know I can be really really, I know I can be an incredible trader, it is just like you know, I've got to get these emotional things sorted out"* (IV12, retail trader)

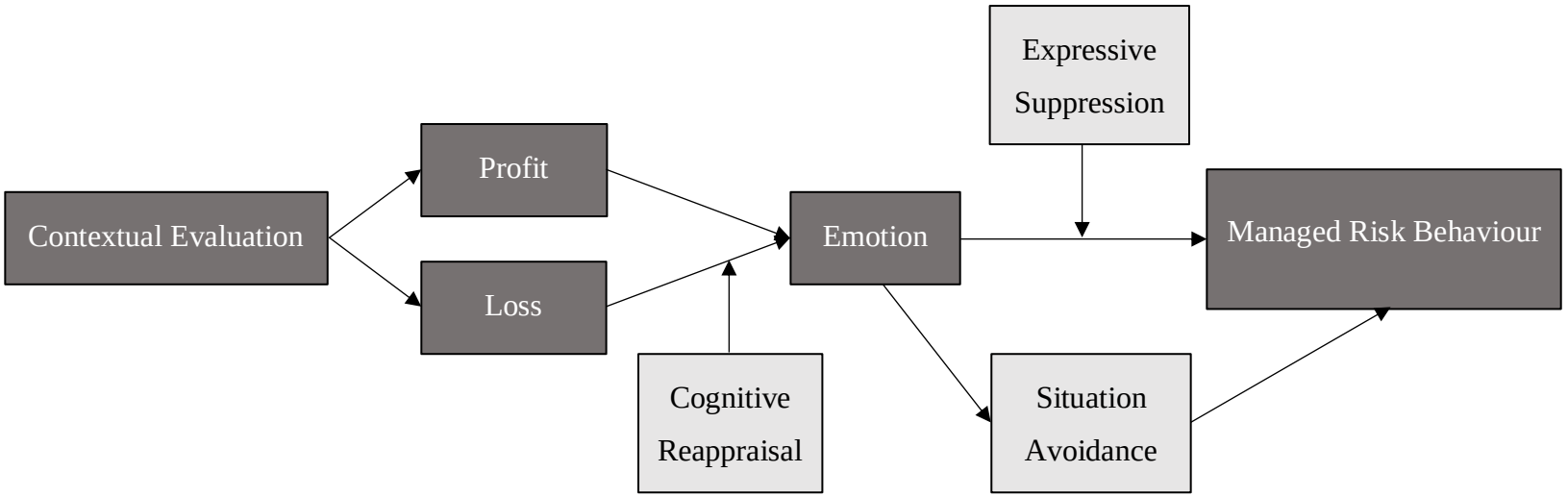
> *"I don't get mad at myself if I leave money on the table, coz number one, you're never going to be able to get 100%. Like you have to realise that, you are going to have some losers. So you have to be able to accept that as well, and any win is a good win to me. And if I traded a stock the right way, great, I'm not going to be upset if it continues to go, I still took a nice profit. But it has to do I think with people's mental ideas and stuff like that"* (IV14, retail trader).

It is about changing what they are focusing on and the meaning they attach to it. So rather than focusing on how much money they could lose or how things can go wrong or have gone wrong, they actively reappraise the situation to focus on performing well and trading to their strategy:

> *"It does get a bit hard as the sizes do get bigger, you do tend to look a bit more at the dollar value of it, as opposed to the actual trade and what you should be focusing on — you know is it hitting stops, is it a profit-taking event, and that is, this all goes back to part of working your craft, you take the dollar out of it and focus on what you should be doing. Well it's like a tennis player looking at the prize money as opposed to the next shot. It's not going to work if you're looking at the prize money that is over there as opposed to focusing on hitting the ball back, so same scenario"* (IV17, retail trader).

> *"Because markets are moving around, if you get that wrong and then you realise your mistake a minute later, 20 mins later, an hour later, a day later, a year later, it can mean huge losses if you get it wrong. I suppose in many ways you just got to lock the ramifications of getting it wrong out of your mind and just do the job. If you were continually saying oh my god am I going to get it wrong, you'd never do anything, you would spook yourself out of it…. I guess it would be like a brain surgeon, he knows that the next cut could kill someone, but if you focus too much on it you probably will kill him, you just got to assume that you are just doing a normal job and you don't focus too much on the actual enormity"* (IV10, bank trader).

Figure 10.1: Emotion regulation



What is interesting to note, is how much of the discussion of cognitive reappraisal arises in loss contexts. When traders are experiencing losses, or perceive they are focusing on the potential for loss, they appear to actively engage in reappraising this situation in a positive light. Rather than focusing on the negative of losing, they focus on how they are trading. Indeed, it almost appears that they change the appraisal of the situation from one of motive inconsistency to motive consistency (e.g. I am performing badly, to I am achieving my goals of learning). This appears to prevent the potential for negative emotions to arise. As such, cognitive reappraisal appears as an antecedent-focused strategy, whereby traders seek to prevent the triggering of emotional responses. Indeed, engaging in cognitive reappraisal over time appears to alter the meaning of losses to traders. They see them as just part of trading and therefore can regulate their emotional response to them:

> *"I guess if you have been trading for long and you know what you are doing, the losses are never anything out of the ordinary to what you have experienced. And clearly people get annoyed with it and stuff, but it's, I don't know I just see it as part of trading"* (IV20, retail trader)

> *"I mean I'm so used to losing money that, like losing money now is just whatever, it's just another day you know, so losing money, you know I could have a really bad day and come back. Whereas a lot of people get scared too early, like they're down a little bit, and then they're like scared. I kind of have to get down a lot before I get scared. So, it helps me to even out, because if I've had a bad day I'll come back and slide right back in tomorrow, or tonight"* (IV5, bank trader).

Thus, as depicted in figure 10.1, cognitive reappraisal occurs before an emotion is fully experienced. In other words, it is utilised to halt the full-blown experience of the emotion.

10.3.2. Expressive suppression

Expressive suppression is not as common within traders' narratives as cognitive reappraisal. Nevertheless, it is still a salient theme and an important ER strategy for traders. Expressive suppression is evident when traders discuss how they can repress emotions after they arise:

> *"Do you know I think in the beginning, when I first started trading you would be like, woohoo you know, I got it right, I read it right, everything is going great, I'm a legend. And I was very lucky to be mentored by a guy who taught me you know, this is what you're supposed to, this is how it is supposed to be, nobody celebrates, nobody goes whoop whoop, this is you know this is just another day at the coal face"* (IV15, retail trader)

> *"When you see the losses, you get worried, and you start thinking have I made the right decisions you start getting all of these negative thoughts. So if you just distance yourself from it, and think rationally, do I like this, I think the thing is to look at things fresh every day, do I still like this position? Do I still believe in the trade? Irrespective of the existing profit or loss you have got"* (IV4, bank trader)

> *"You can convince yourself that the worst-case scenario is going to happen. Then again it is about, I'm not going to tell you oh I don't care about any of that stuff, of course it comes into your mind, but you just have to move beyond it"* (IV10, bank trader).

Thus, expressive suppression appears as a response-focused ER strategy. Once traders perceive themselves becoming excited or experiencing negative emotions, they seek to suppress such emotions by distancing themselves from them and actively preventing their outward expression. Thus, as illustrated in figure 10.1, expressive suppression is utilised after the emotion has been experienced. Furthermore, what is interesting to note within these narratives is the situation within which this strategy is utilised. Unlike cognitive reappraisal, expressive suppression is used when experiencing both positive and negative situations, not just losses.

10.3.3. Situation avoidance

Situation avoidance is a particularly interesting ER strategy which emerged strongly within traders' narratives. Here, traders actively recognise the potential for current emotional experiences to negatively impact their decision-making and choose to remove themselves from the emotion-eliciting situation. As the subsequent narratives illustrate, once traders recognise emotions, they remove themselves from the situation to prevent potential impact on their behaviour:

> *"Immediately your thought process is in the negative spiral of thought process, now I've been there before. But it doesn't matter how many times you have done it, you can't just brush it off and go...ohhh.....so immediately you have a look at what you've done, and you think right, you've got to be positive, you have to give yourself a talking to. So invariably I get off the desk, go and get a water....do a bit of psychological chat to myself and then come back and make sure I am happy when I get to the desk, and put it behind me and start thinking constructively"* (IV11, bank trader)

> *"I think if I was down a lot, there would be a tendency to close everything down and take some time off. And clear the head"* (IV4, bank trader)

> *"So what I do is, I stop trading, I go out, I do maybe some yoga, eight sun salutations. So, I do like a pattern interrupt, to get me back focused. Like a reset button"* (IV13, retail trader)

> *"Well then I try to, if I recognise it immediately I will step away, because I don't want to have a bad reaction, I don't want to trade in a manner that is going to end up hurting the overall capital"* (IV14, retail trader)

> *"You've just got to go away. That is the thing you should do. I don't know, for myself anyway, you get wound up, and you just, I don't know, I think you've just got to go away, just take a holiday. It's the best thing to do, it's cheaper!"* (IV17, retail trader).

Thus, situation avoidance appears strongly within traders' narratives as an additional ER strategy. Once traders recognise the emotion and its potential effect, they step away to prevent

its potential impact on behaviour. Similar to cognitive reappraisal, situation avoidance is evident in situations of loss/high need frame. Thus, when traders' experience losses or perceive that they keep getting it wrong, they use situational avoidance to prevent the emotion having any further impact on behaviour.

10.4.Emotion regulation and risk behaviours

There is little suggestion within traders' narratives that ER strategies lead to an increase in risk-taking, or indeed, risk-taking behaviour at all. Findings are quite the opposite. Traders present ER strategies as a means to control and manage their risk, thus limiting their losses and controlling their risk-taking:

> *"So I have trained myself to be opposite…. I do have emotions about it, I do get angry about it, but it doesn't affect my behaviour anymore. So it is not that I don't have those emotions, it's just they don't paralyse me anymore, and they don't make me take actions that are, in the end, sabotaging my results"* (IV13, retail trader)

> *"You go into trading, always you are thinking about maximising. I think that maybe, you know, definitely more pro-risk and definitely less worried about the downside, because if you sat there being worried about losing, you just couldn't do it for long, you wouldn't be successful at it either if you walked in every day saying oooh, I can't lose money, I can't lose money"* (IV5, bank trader)

> *"So you always trade with a plan, so you become very robotic, it helps a lot, and it improves results dramatically, so if you want to get in here, your entry, your stop loss, and your target, that way it takes the emotions out of it because you've already analysed it, so, therefore, all you have to do, either is hit your stop, you're wrong, so you don't feel that way, because you control your risk, or it hits your profit, or your target, you still shouldn't feel anyway, because it just did what your analysis, it just confirmed your analysis. So taking the emotions away from it and just performing strictly robotic definitely improves your success rate. Now when you're all emotional, and you can't really think, then you end up revenge trading and doing things you shouldn't do because you can't think straight once again, and it just completely is not the way to trade. It's not the way to trade; you actually have more losses when you really can't control your emotions"* (IV16, retail trader).

Thus, none of the emotion regulation strategies appear to increase or motivate risk-taking. The only significant difference between strategies are the situations where they are used and the point at which they come into effect. Cognitive reappraisal strategies are most often used to manage the emotions which arise from a loss/high need situation (e.g. fear/anger). Here, traders actively reappraise situations in a positive light to change the negative meaning losses carry. This prevents the full-blown activation of an emotion, thus limiting its effect on risk-taking. Expressive suppression can occur in response to any emotion and situation, positive or negative. Here, traders seek to prevent an emotion's effect on behaviour by 'putting the

emotion down'. They see this as a way to refocus their mind, enabling them to make analytical decisions. Finally, situation avoidance is a particularly common ER strategy amongst traders. It is most often utilised to manage emotions arising from loss situations, particularly when they perceive decision-making has been poor and they 'keep getting it wrong'. Traders perceive that if emotions take hold in such a high need frame, further loss is likely as decision-making is compromised. Consequently, on becoming aware of the experience of negative emotions, they remove themselves from the emotion-eliciting event. They see this as a powerful mechanism to prevent unwanted risk-taking and poor decision-making.

10.5. Insights findings provide to research question four: To what extent do emotion regulation strategies impact risk behaviours?

Based on findings of this chapter, it appears that traders use three different strategies to manage the impact of emotion on behaviour: cognitive reappraisal, expressive suppression and situation avoidance. The purpose of each ER strategy, from a traders' perspective, is to prevent the excessive or unwanted risk behaviours different emotions trigger. There does not appear to be any difference in the efficacy of these different strategies but this is something which may not appear clearly within recounted narratives. However, different strategies appear to be used in different contexts. Specifically, cognitive reappraisal and situation avoidance are often used in the context of loss, while expressive suppression appears to be used in a variety of different decision contexts. It is interesting to note that both bank and retail traders utilise the same ER strategies. This indicates potential appropriateness of these ER strategies in different organisational settings. In sum, ER is a meaningful and significant theme within traders' experiences and appears to influence risk behaviours by reducing risk-taking.

10.6. Summary of thesis findings

This thesis began with the aim of understanding how risk behaviours are influenced in the context of PRP. The case study of bank and retail traders revealed several important insights on how risk behaviours are affected, when they arise, what influences them and why they vary within-individuals. The key elements of the complex nature of risk behaviours, and how they interact are illustrated in figure 10.2.

First and foremost, PRP, *per se,* is not found to have a direct influence on risk behaviours. For bank traders, this is because of how subjective the allocation of reward is; achievement of objective performance measures does not guarantee they receive the related bonus. However, despite retail traders experiencing a direct link between performance and reward, PRP does not appear to motivate risk-taking here either. This points to the potential role of more innate behavioural factors impacting the incentive effect of PRP. Indeed, findings suggest that although traders do seek to maximise, they would not do so at the expense of loss. Rather, they exhibit a survival focus whereby they sacrifice the potential for reward in order to ensure they do not experience detrimental losses. Figure 10.2 illustrates the lack of a direct relationship between PRP and risk behaviours, both because of traders' survival focus and as a consequence of how subjectively reward is allocated.

PRP does, however, appear to have an indirect effect on risk behaviours via performance targets and its connection with profit and loss (P&L). As figure 10.2 further depicts, performance targets and P&L are the most salient contextual reference points amongst traders. They evaluate their immediate situation in terms of whether they are making or losing money, and their long-term situation in terms of whether it is supportive of achieving performance targets. Bank traders, in particular, describe a tendency to increase risk-taking when down on target but satisfice and reduce risk once targets are met. The behaviour of both bank and retail traders are highly influenced by current P&L levels, as discussed below.

The framing of need levels is largely determined by the experience of profit and loss and performance targets. Following recent losses and poor performance, many traders describe the experience of high need and the detrimental impact this can have on their decision-making. There is strong suggestion that high need situations (i.e. loss/below target) motivate risk-taking behaviour, while low need situations (i.e. profit/achieved target) motivate risk-averse behaviour. What is particularly evident within traders' narratives is how hard they work to fight such tendencies. Many describe how experience and learning have helped them overcome such

reactions but the tendency to 'chase losses and take profits early' is always present. Such a finding suggests risk-taking in high need and risk-aversion in low need are a natural or innate reaction to stochastic environments. This aversion to such natural risk-reactions provides some understanding for the divergence of the effect of probability and reserve levels from need framing. Rather than increasing risk when perceiving negative probability and low reserve levels, as RST would posit, traders decrease risk-taking. This is usually following a series of losses and represents traders' learning in terms of 'cutting losers'. Conversely, they increase risk when positive probability is perceived and reserve levels have increased. This demonstrates their focus on 'running winners' and the profit maximisation purpose of their job. As they have already accumulated some profits, traders perceive they have a cushion to support risk-taking. Essentially, they can afford to risk more in the pursuit of increased gain.

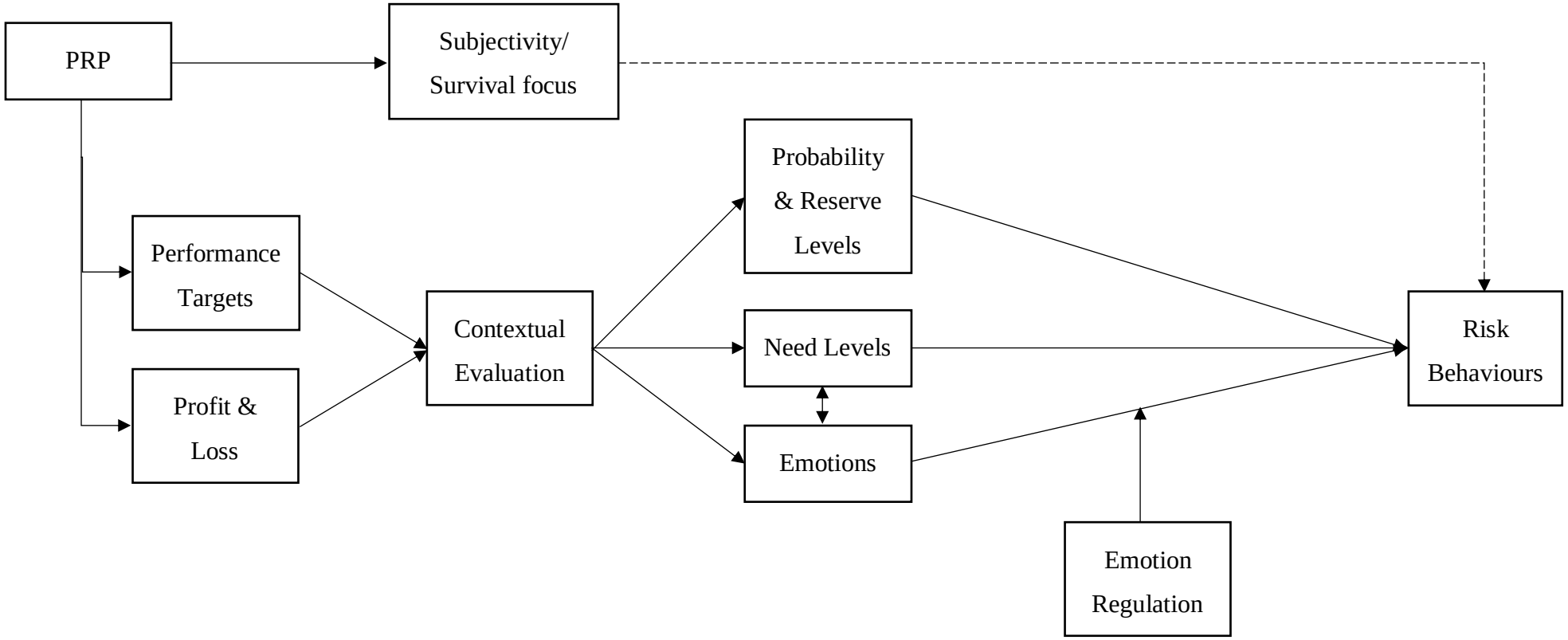
Emotions are an important theme throughout traders' narratives; one which they continuously return to. Different appraisal tendencies were evident when traders discussed the situations which surrounded their experience of distinct emotions. Motive consistency appraisals were particularly important and appeared interconnected with need framing; high need situations indicated motive inconsistency (i.e. loss/below target) while low need situations (i.e. profit/achieving target) indicated motive consistency. The specific emotion that arose within these two contexts was further influenced by control, certainty and responsibility appraisals. When motive inconsistency was accompanied by uncertainty and situational control, fear arose. Yet, when motive inconsistency was perceived with other-responsibility and certainty, anger arose. Specific emotions thus further explained deviations in behaviour across high need frames. Consistent with the appraisal tendency of fear, risk-averse behaviour was evident because traders felt uncertain about future outcomes and perceived they could not control the situation. Conversely, anger motivated risk-taking as they sought 'revenge' against those who had wronged them, and perceived they could exert control on the situation. In the motive consistency context of low need, positive emotions of excitement/euphoria, happiness and pride were strongly evident. All of these emotions motivated risk-taking behaviour, even in such low need frames. Following the experience of profits, many traders describe how they feel highly confident in their decisions (i.e. certain, self-responsibility) and thus believe they can make more money (i.e. control). The appraisal tendencies characterising these positive emotions encourage the seeking of further positive experiences, thus motivating risk-taking behaviour. In sum, traders experiencing a high need situation through fear reduce risk-taking,

while those who are angry increase risk-taking. When a low need situation evokes excitement/euphoria, happiness and pride, risk-taking behaviour is evident.

Nevertheless, all traders place considerable meaning on their learned ability to manage and regulate their emotions. They consider this a vital skill for a trader and believe without it; a trading career would not be possible. Three ER strategies were evident; cognitive reappraisal, expressive suppression and situation avoidance. All appear to reduce risk-taking and lead to cautious risk management. Thus, as depicted in figure 10.2, emotion regulation can potentially moderate the impact of emotion on risk behaviours. However, the point at which each strategy impacts behaviour is different and this may influence effectiveness. Cognitive reappraisal occurs as soon as traders notice the potential effect of their current contextual perception. For instance, if they recognise they are focusing too much on P&L level or the negatives of a situation, they actively engage in reappraising the situation positively or refocusing their attention on how the market is moving. This prevents the full-blown experience of an emotion. Situation avoidance occurs after an emotion is experienced and once traders recognise its current or potential impact on their decisions. To prevent the impact of the emotion on behaviour, they remove themselves completely from the situation. Expressive suppression, however, was least salient within traders' discussions. It occurs when traders recognise they are feeling emotional and try to suppress or push the emotion out of their mind.

In sum, the risk behaviours of financial traders are certainly not as straightforward as a pay incentive directly motivating risk-taking. Risk behaviours are much more complex and there is a myriad of factors affecting their variance. Notably, an individual's subjective perception is central to this. How an individual perceives the decision context, both cognitively and emotionally, and how they individually regulate personal perceptions, ultimately determines risk behaviours. However, contextual perception is determined by what the individual is focusing on at the time (i.e. profit or loss, performance targets, probability etc), how they frame that evaluation and the specific emotions they evoke.

Figure 10.2: Summary of main findings



10.7.Conclusion

As this and the previous two chapters have demonstrated, there are numerous factors which influence risk behaviours. PRP is an important overarching feature of participating traders' decision context but does not exclusively influence risk behaviours. Ultimately, risk behaviours are an outcome of how an individual evaluates a situation and how they manage their perceptions and emotions. Throughout traders' discussion of the environment and what influences them, performance targets and fluctuations in profit and loss are presented as the predominant contextual features which affect risk behaviours. The perception traders' have of their immediate situation, in terms of need levels and appraisal dimensions, arise from their evaluation of these two features. Such findings have important implications for the understanding of PRP; rather than directly motivating risk behaviours due to its incentive effect, it appears to indirectly influence risk behaviours via its impact on how individuals think and feel about the decision context. The following chapter discusses this, and the other main findings, in light of existing literature and knowledge.

CHAPTER ELEVEN: DISCUSSION

11.1.Introduction

This thesis set out to advance understanding of the PRP–risk behaviours relationship. In doing so, it identified shortcomings within the PRP literature and the literature on risk behaviours. Firstly, research examining the impact of PRP on risk behaviours predominately assumes that risk-taking arises directly because of the incentive effect of PRP, as theorised by agency theory. Importantly, findings based on this assumption have been mixed and inconclusive (Efing et al., 2015; Hagendorff and Vallascas, 2011). Secondly, the risk behaviours literature divides in its theorisation of how risk behaviours are influenced. The predominant body of research considers risk behaviours as the outcome of cognitive processes, while a further body argues the centrality of emotions in influencing risk behaviours. Although there is increasing recognition that cognition and emotion are interrelated, a conceptual framework which integrates both cognitive and emotional effects on risk behaviours is largely absent in the study of risk (Kong-Hee, 2012). This has been the thrust of this study's design and analysis, as it seeks to move beyond existing research which characterises risk behaviours as an exclusively cognitive or emotional process, and assumes PRP is unilaterally responsible for risk-taking behaviours.

Thus, the overarching aim of this thesis has been to develop knowledge beyond the inconclusive findings of the PRP–risk behaviours relationship by accounting for the central role of contextual evaluation and emotional experience in effecting risk behaviours. Achievement of this aim guided this thesis to design a novel research approach; one which departs from the theoretical focus and methodological design of extant PRP–risk behaviours literature. Rather than focusing on the extent to which PRP motivates risk-taking, this study's primary concern is to understand the nature of risk behaviours (i.e. how, why and when they arise), with the purpose of transposing this knowledge to better understand how PRP affects risk behaviours. This chapter reviews the outcomes of this study in relation to the conceptual framework and extant literature.

This chapter is structured as follows. The first section reviews the key findings of this study in relation to the research questions and their consistency with the conceptual framework. The second section discusses this thesis' findings on the nature of the relationship between PRP and risk behaviours, discussing the impact of subjectivity in the allocation of reward in light of

existing PRP literature. Following this, the variable nature of risk behaviours and the factors which influence this are discussed in greater detail, and alternative explanations are provided, based on existing literature. Finally, the implications of the findings of this study for the understanding of the PRP–risk behaviours relationship and the risk behaviours literature are discussed.

11.2. Key findings in relation to research questions and consistency with conceptual framework

The four research questions of this thesis capture the key components of the conceptual framework and guided exploration of these factors in the field. This section reviews the key findings of this study in relation to each research question and discusses their consistency with the conceptual framework. Table 11.1 illustrates the main components of the conceptual framework (i.e. contextual evaluation, activating mechanisms, emotion regulation strategies and risk behaviours outcomes), the primary findings in relation to each research question and their consistency with the conceptual framework.

The first research question — how does PRP influence an individual's evaluation of the decision context? — sought to uncover the nature of PRP's influence on individual contextual evaluation. In support of the conceptual framework, PRP targets appeared as the pervasive feature of PRP which created a decision context within which traders could evaluate their performance. However, the further emergent role played by P&L levels and survival focus as a reference point from which to evaluate the decision context were not captured by the framework. Nonetheless, P&L impacted traders' evaluation of the decision context in much the same manner as PRP targets. Thus, both PRP targets and desired P&L levels were found to influence how an individual viewed the decision context (i.e. below target, or down on desired P&L level). The emergent survival focus also acted as a target point for both bank and retail traders, however, this was not in the manner of an aspiration level, as is the case with P&L and PRP targets, but as a minimal threshold traders needed to meet to keep their job (i.e. with bank traders) or cover living expenses (i.e. retail traders discussed having enough each month to pay bills).

The second research question —how do situational characteristics influence need framing and stimulate emotions? — was focused on uncovering how situational factors (e.g. PRP targets and P&L) impact the need frame a trader perceived and the emotions they experienced. As depicted in table 11.1, findings suggest that positive versus negative P&L, PRP targets, reserve

levels, probability and appraisal dimensions and themes all impact need framing and stimulate emotions. Indeed, this study found that the need frame a trader experienced was influenced by their perception of (in)congruency between their current performance level and their desired performance level, how much reserve levels they had accumulated and their perceived probability of any positive or negative change. Moreover, traders' discussion of the decision context revealed that emotions arose because of perceptions of the decision context in terms of appraisal dimensions (i.e. motive consistency, certainty, responsibility and control) and appraisal themes (e.g. other-blame, surprise). Such findings support the conceptual framework's theorisation that when evaluating the immediate situation, traders look to how they have both framed and appraised the decision context.

The third research question — how do need levels and emotions influence risk behaviours? — guided exploration of the impact of need levels and emotions on risk behaviours. It encompasses the 'activating mechanisms' and 'risk behaviours outcomes' component of the conceptual framework (see table 11.1), whereby different need frames and emotions are theorised to drive risk behaviours. In support of the conceptual framework, high need frames motivated risk-taking behaviour, while low need frames motivated risk-averse behaviour. Furthermore, happiness, pride and anger were found to motivate risk-taking behaviour while fear motivated risk-averse behaviour. However, probability and reserve levels did not influence risk behaviours in the manner theorised by the conceptual framework. Specifically, low reserve levels and negative probability led to risk-averse behaviour, whereas the conceptual framework theorises that such a situation would lead to risk-taking behaviour. Furthermore, accumulated reserve levels and positive probability led to risk-taking behaviour amongst traders, whereas the conceptual framework theorises the opposite. A potential understanding for this inconsistency with the conceptual framework is offered later in this chapter, in section 11.4.1.3.

The final research question — to what extent do emotion regulation strategies impact risk behaviours? — sought to uncover what emotion regulation strategies traders utilised and the extent to which they impacted risk behaviours. Consistent with the conceptual framework, both cognitive reappraisal and expressive suppression strategies were evident within traders' narratives. However, inconsistent with the conceptual framework a further strategy of situation avoidance emerged. Findings revealed that traders used emotion regulation with the purpose of managing their risk behaviours. Thus, emotion regulation strategies have the capacity to reduce risk-taking behaviours. Further discussion of these findings is presented in section 11.4.3.

Table 11.1: Summary of findings in relation to research questions and conceptual framework

RESEARCH QUESTIONS	CONCEPTUAL FRAMEWORK COMPONENTS	CONSISTENCY WITH CONCEPTUAL FRAMEWORK
	Context Evaluation	
RQ 1: How does PRP influence an individual's evaluation of the decision context	Performance targets Profit and loss Survival focus	Consistent: PRP targets do act as tool from which to evaluate the decision context Inconsistent: P&L levels and a survival focus also influence how individuals evaluate the decision context
RQ 2: How do situational characteristics influence need framing and stimulate emotions?	Positive vs Negative P&L Performance targets Reserve levels Probability Appraisal dimensions and themes	Consistent: Evaluation of performance relative to desired state constructed need levels and evaluation of the decision context along appraisal dimensions and themes triggered specific emotions.

Research Questions	Conceptual Framework Components		Consistency with Conceptual Framework
	Activating Mechanisms	**Risk behaviour outcome**	
RQ 3: How do need levels and emotions influence risk behaviours?	High Need Frame + Anger	Risk-taking	<u>Consistent</u>: High need frames motivated risk-taking, and low need frame motivated risk-aversion. Anger, happiness and pride motivated risk-taking and fear motivated risk-aversion. <u>Inconsistent:</u> Hope was not a salient emotion. Excitement/euphoria emergent. Negative probability and reserve levels motivated risk-aversion Positive probability and reserve levels motivated risk-taking.
	High Need Frame + Fear	Risk-aversion	
	Low Need Frame + Excitement/euphoria, Happiness, Pride	Risk-taking	
	Positive probability + Accumulated reserve levels	Risk-taking	
	Negative Probability + Depleted reserve levels	Risk-averse	
	Emotion regulation strategy	**Risk behaviour outcome**	
RQ 4: To what extent do emotion regulation strategies impact risk behaviours?	Cognitive Reappraisal Expressive Suppression Situational Avoidance	Managed risk behaviour	<u>Consistent</u> Cognitive reappraisal and expressive suppression important to regulate emotions. <u>Inconsistent</u> Situation avoidance emergent. No clear difference in effectiveness of strategies. All reduced risk-taking behaviours.

11.3. The PRP–risk behaviours relationship: the variable nature of risk behaviours and the impact of subjective performance measures

This study has shown that risk behaviours within individuals are markedly variable. Findings suggest that traders' risk behaviours varied because of contextual factors, or more specifically, because of individual subjective perception of the decision context. Such a finding conflicts with predominant theorisation of the nature of the PRP–risk behaviours relationship. Most extant PRP research is underpinned by agency theory and thus holds the view that individuals are risk-averse unless appropriately incentivised (Martin et al., 2016; Wiseman and Catanach, 1997). Furthermore, it maintains the rationality concept of human behaviour, whereby individuals are considered self-interested and posited to make decisions based on which outcomes offer optimal personal benefit (Cuevas-Rodríguez et al., 2012). Consequently, extant research posits a mismatch between the desires of the employee and the wants of the employer; employees pursue self-interested goals, which do not match the often risky, but profit maximising, desires of employers (Jensen and Meckling, 1976; Martin et al., 2016). As Tosi et al. (2000, p. 304) explains;

> "The challenge from an agency perspective is how to induce self-centred, utility-maximising, risk-averse agents (managers who want to pursue their own interests while minimising the possibility of personal losses) to act on behalf of the principal-owners who want to increase the value/performance of the firm".

It is these factors which justify the use of PRP systems. PRP is argued to incentivise employees to take risks by rewarding them for measurable results that are in the interest of the firm (Gomez-Mejia et al., 2010). As a result, the literature on PRP and risk behaviours considers that any variance in risk behaviours, (i.e. switching from risk-aversion to risk-taking) is a direct outcome of PRP (Wiseman and Catanach, 1997). Yet, as this study finds, risk behaviours are not stable but vary within-individuals in response to the decision context.

Indeed, findings of this study suggest that PRP, *per se*, does little to directly incentivise risk-taking. Within the context of bank trading, this is due to considerable subjectivity in how reward is allocated. Within the literature on bonus systems, subjective performance evaluation is considered important, particularly when objective measures are not easily available or reliable (Gerhart et al., 2009; Gibbs et al., 2004). They allow managers to recognise and reward subordinates for 'softer' contributions to firm performance that are difficult to capture via 'hard' objective measures (Voußem et al., 2016). However, this is not the case in this study, where objective measures for bank traders' performance are readily available (e.g.

P&L/budget), yet final reward decisions are still made subjectively. Indeed, subjectivity is also recognised to cause problems; such as reneging, where managers may untruthfully report performance, or make inaccurate assessments due to their personal biases (Bol, 2008). This reduces the overall strength of PRP's incentive effect and motivational value, as employees perceive their effort is not adequately measured or rewarded, causing distrust in the PRP process (Bol, 2008).

Empirical findings regarding whether subjectivity has positive or negative effects are somewhat mixed (Gibbs et al., 2004; Hartmann et al., 2010; Ittner et al., 2003). However, Voußem et al. (2016) argue that the impact of subjectivity depends on the extent to which subjective measures are emphasised. They find that subjectivity is perceived as fair when the emphasis on subjective measures is low. However, when subjectivity is strongly emphasised, individuals focus more on the negative impact of managerial discretion and the lack of clarity in the performance evaluation criteria, causing subjectivity to be considered unfair (Voußem et al., 2016). This is certainly the outcome for participants of this study, where subjectivity is perceived as unfair, primarily because traders perceive it gives managers the opportunity to be biased in their allocation of reward (e.g. giving a smaller bonus because the individual works on a product where there is a large flow of money). However, contrary to the findings of Voußem et al. (2016), this perception of unfairness is occurring in a context where subjectivity is not emphasised. Rather, the importance of objective measures (i.e. P&L and performance targets) is continuously stressed by managers, yet subjective measures are applied to determine reward. Consequently, traders do not perceive a clear link between how well they perform and what they are rewarded, hindering a direct link between PRP and risk-taking. As Bol, 2008 (p. 11) explains, "inaccuracies cloud the link between pay and performance and therefore affect the incentive provision of the compensation plan". Moreover, subjectivity, by allowing managerial bias to impact the allocation of reward, appears to have resulted in a loss of faith in the PRP system. Bank traders do not perceive it is credible as they believe they are not paid accordingly for their effort and this hinders the incentive strength of the pay system. As Kvaløy and Olsen (2015) explain, the incentive strength of PRP is determined not only by the size of the incentive but also by the probability that the incentive contract will be enforced. In other words, the effectiveness of PRP as an incentive tool is impacted by whether the promised reward is given. Amongst the participants of this study, there is a clear misalignment between the reward they expect and what they receive.

As such, this thesis finds that subjectivity, which allows managerial bias to impact reward decision, has a negative effect on PRP functioning optimally. The findings indicate that the negative perception of subjectivity arises because of the uncertainty it causes. Bank traders are uncertain of the extent to which their performance matters for reward, therefore subjectivity hinders the incentive strength of the PRP system. Moreover, subjectivity, as presented in this study, leads to a misalignment in the incentive contracts of bank traders. Rather than providing an incentive to engage in profit-enhancing risk-taking, PRP appears to induce traders to manage their risk-taking strategically. They aim to do enough to meet their targets, and in doing so retain their job, but do not see the point in maximising beyond this as they perceive they will not be rewarded for it. This is a somewhat surprising outcome, as subjectivity is considered to play an important role in increasing performance alignment between employer and employee (Chan and Zheng, 2011; MacLeod, 2003; Nisar, 2007). In sum, this study finds that the bias inherent to subjectivity causes uncertainty, which in turn leads to a misalignment in incentive contracts. Such findings support the growing body of literature investigating the cause and effects of subjectivity in PRP, where the outcome of uncertainty is largely overlooked (Hartmann et al., 2010; Lillis et al., 2017; Nisar, 2007; Voußem et al., 2016).

Nevertheless, the limited impact of PRP's incentive effect on risk behaviours may not just be an outcome of subjectivity. It may be due to reasons at a much more innate, behavioural level. The case study of retail traders exemplifies this. Retail traders do perceive a clear, objective link between personal performance and reward. How well they perform determines how much money they earn. Therefore, based on agency theory literature, the potential to earn more should incentivise greater risk-taking via the individual's self-interested utility maximising mechanisms (Gomez-Mejia et al., 2010). Yet findings suggest the opposite effect; retail traders seek to balance the potential for maximising reward with the potential for loss, causing them to be more cautious in their approach, and indeed, less prone to increasing risk-taking. This finding is inherently connected with the innate, variable nature of risk behaviours, which much of the agency theory entrenched PRP literature overlooks (Devers et al., 2008). Consistent with empirical studies of the framing effect (predominantly applying prospect theory) (e.g. Abdel-khalik, 2014; Abdellaoui et al., 2013; Alam and Boon Tang, 2012), traders are found to place greater emphasis on loss than equivalent gain. Moreover, both retail and bank traders demonstrate a survival focus. Specifically, they are not willing to take large risks in the pursuit of gain if they believe doing so may risk their job security if it does not work out. Such insights substantiate recent findings of Fang et al. (2017) of the risk behaviours of mutual fund

managers in 'winner-takes-all' tournaments and 'elimination contests'. In elimination contests, those who perform the worst lose their job. Consequently, individuals in such a tournament take fewer risks than those in the 'winner-takes-all' tournament, as they have a stronger desire not to lose than to win. Consequently, the ability of PRP to incentivise risk-taking by emphasising the potential for gain is limited when traders are more sensitive to loss and thus appear more focused on surviving and keeping their job.

What these findings point to is that the risk-taking incentive effect, prescribed by agency theorists and much of the PRP literature, is potentially flawed. The incentive effect proposed by agency theorists is based on the concept of rational, utility maximising self-interested individuals (Cuevas-Rodríguez et al., 2012; Hoskisson et al., 2017). Yet, as findings of this study demonstrate, traders' risk behaviours are variable and driven by idiosyncratic factors of subjective perception of the decision context and emotion. The following section discusses this further, exploring what impacts and motivates risk-taking behaviours. As will be discussed, it is not the PRP system and its incentive effect, *per se*, that motivates risk-taking, but how the individual perceives the decision context created by PRP.

11.4. Understanding within-person variance of risk behaviours

The risk behaviours of participants of this study varied because of how they perceived the decision context. This is supportive of a vast behavioural literature on risk behaviours which asserts that the assumption of general risk-aversion, evident in much of the PRP literature, inaccurately describes individual behaviour and attitudes (Chng and Wang, 2015; Kuhn and Yockey, 2003; MacCrimmon and Wehrung, 1986; Mallpress et al., 2015; Wiseman and Gomez-Mejia, 1998). Rather, risk behaviours are the outcome of subjective perceptions of the decision context. However, as argued throughout this thesis, the predominant approach is to conceptualise that risk behaviours vary because of *cognitive* perceptions of the decision context. Problematically, this overlooks the significant role *emotions* play in eliciting risk behaviour variance and hinders understanding of the full spectrum of risk behaviours. Thus, this section aims to reconcile these two views by discussing findings of this study in relation to extant literature and seeks to enhance understanding of the variable nature of risk behaviours. First, the role of cognitive processes captured by risk-sensitivity theory (RST) will be discussed. This section explores how findings of this study both substantiate and challenge existing knowledge on RST and cognitive processes of risk behaviours. The subsequent section then focuses on the role of emotional perception captured by the appraisal-tendency framework

(ATF). This section aims to uncover which aspects of this study support existing ATF literature, whilst also discussing surprising findings and their potential for further development of the ATF. Finally, the importance of emotion regulation in the effect of risk behaviours will be discussed.

11.4.1. The role of cognitive perception

This study finds that individuals use their current performance, predominantly in respect of both P&L and performance targets and to a lesser extent, personal goals (e.g. survival focus), to evaluate the decision context. This demonstrates the influence of PRP's objective measures on cognitive perception and decision making. The use of such cognitive reference points to assess the immediate decision context, and thus make risk-related decisions, is supportive of the vast literature on framing effects (e.g. Cornelissen and Werner, 2014; Kahneman and Tversky, 1979; Levin et al., 1998; Tversky and Kahneman, 1981). However, traders' experiences of such cognitive framing appear to move beyond the simple perception of gain or loss domains perpetuated within much of the framing literature (e.g. Kahneman and Tversky, 1979; Tversky and Kahneman, 1981). Rather, they describe negative performance (i.e. loss and below target) as a significantly undesirable situation; one which can lead to the loss of their job/livelihood and have a lasting negative impact on their decision-making. Similarly, rather than a narrow perception of gain, the positive experience of achieving targets and making money is accompanied by discussion of how desirable such a situation is. Thus, the framing of loss and gain for participants in this study supports the conceptualisation of need in RST; as the extent of disparity between current and desired state. Significantly, "little is known about how need requirements are perceived or constructed in real-world situations, or how the perceptions of need motivates real-world decision making" (Mishra et al., 2012a, p.95). Therefore, this study's naturalistic finding that traders experience high need when in negative P&L or below target, and low need when experiencing positive P&L or an ability to meet targets, is significant for the development of RST. It provides a real-world account of how individuals consider their immediate situation of need when making risk-related decisions.

11.4.1.1. Findings substantiating risk-sensitivity theory

This study selected RST over the dominant cognitive framing theory (i.e. prospect theory) because it provides an evolutionary-based rationale for *why* risk behaviours vary on account of cognitive perception of gain and loss (Mishra, 2014; Mishra et al., 2012a). RST theorises that risk-taking is a function of need satiation (McDermott et al., 2008; Mishra, 2014).

Consequently, risk-related decisions should centre around minimising the possibility of experiencing outcomes that fail to meet individual needs, rather than maximising outcomes (as asserted by agency theory) (Mishra and Lalumière, 2010). Hence, risk-taking behaviour is expected in high need situations, but only when low risk options do not enable fulfilment of the minimally acceptable need threshold (Mishra et al., 2012b). This is what differentiates RST from other cognitive framing theories such as prospect theory. It considers that risk-taking does not vary because of 'irrational' biases such as loss-aversion, but that "framing effects may represent adaptive decision-making patterns that take advantage of cognitive biases designed to be sensitive to situations of need" (Mishra et al., 2012a, p. 96). Thus, risk-taking is an outcome of deeply rooted, innate mechanisms, evolved to enhance survival by emphasising loss over gain. Findings of this study largely support this, with traders demonstrating a tendency for risk-taking when in high need situations (i.e. negative P&L/unachieved target) and risk-aversion when in low need situations (i.e. positive P&L/achieved target). Moreover, this tendency to 'chase losses and take profits too early' is described as a 'beginner's mistake' by study participants. The fact that such need-sensitive risk behaviour is seen as a natural tendency, which one must learn to overcome, suggests an innateness to within-person variance of risk behaviours. Certainly, the way in which individuals framed situations, in terms of high and low need, impacted their risk behaviours. Many traders described an ongoing battle to avert the tendency to increase risk when experiencing losses and reduce risk when experiencing profits. The aim and purpose of a trader's role is to maximise gains (by increasing risk) and minimise losses (by reducing risk). The fact that this behaviour had to be learned and continuously worked on, suggests the presence of deeply rooted behavioural tendencies affecting decision making. This is a significant finding in respect of developing arguments that "if psychologists want to truly understand human decision making, we should also be interested in the evolutionary origins of these decision-making biases" (Santos and Rosati, 2015, p. 323).

The impact of cognitive perception on risk behaviours, as demonstrated by this study's findings, is determined by the particular cognitive reference point on which the trader is focusing at the time. In other words, the contextual factor most salient to the individual. This supports findings from empirical RST literature that risk-related decisions are influenced by "perception of immediate environmental cues of need" (Mishra et al., 2012b, p. 14). For instance, if traders are focusing on P&L levels, recent losses trigger risk-taking as they seek to recoup what they have lost and get back to a desired position. Subsequently, when they experience some gains, they take them early in order to support needs and maintain a favourable

position, thus exhibiting risk-averse behaviour. Such findings substantiate empirical studies of framing effects from the perspective of RST, where individuals are found to exhibit a greater acceptance of risk in high need situations, but a lower acceptance of risk in low need situations (Mishra et al., 2015, 2014, 2012b, 2012a; Mishra and Lalumière, 2010). Moreover, such risk behaviours of traders support a further tenet of RST; that high need frames (i.e. below target) will only motivate risk-taking when a low need option will not suffice. Specifically, bank traders describe how focusing on their objective performance targets (i.e. budget) results in increased risk-taking towards the end of the year if they are down on target, but risk-reducing behaviour once targets are met. For the traders who are down on target towards the end of the year, increasing risk offers the only means to make up the shortfall; a low risk option would not provide the level of return needed. This, coupled with suggestion that such behaviour arises from an underlying natural tendency for need-sensitive risky decision making, supports the argument of many RST scholars that the cognitive framing effect, famously captured by prospect theory, originates in evolutionary psychology (Gonzales et al., 2016; Houston et al., 2014; Mallpress et al., 2015; McDermott et al., 2008; Rode et al., 1999).

11.4.1.2.Findings which deviate from risk-sensitivity theory

Not all findings of this study are supportive of RST. Surprisingly, traders demonstrated risk-taking behaviour on perceiving accumulated reserve levels and positive probability, but risk-averse behaviour on perceiving diminished reserve levels and negative probability. This differs to the development of RST predictions by Mallpress et al. (2015):

> "Our model predicts that risk preferences should depend not just on the environmental conditions but also on the decision makers current reserve levels. In effect, the forager's current reserve level represents a reference point, modulated by current environmental conditions from which to assess potential gains or losses. This implies that if our explanation is relevant to human decisions involving money, an individual's risk preference should depend on their current level of wealth (and not just the range of options presented). Therefore, we make the prediction that people's risk-based choice patterns should covary with their current socioeconomic status" (Mallpress et al., 2015, p.370).

Essentially, Mallpress et al. (2015) explain that current options provide information on likely future conditions. When environmental conditions are very good, RST predicts risk-averse behaviour as the individual is likely to meet their required need state without having to take risks (Mallpress et al., 2015). However, when environmental conditions are very bad, it is likely that reserve levels will be depleted significantly and the probability of any improvement is unlikely, hence, the individual should be risk-seeking in order to maximise chances of survival

(Mallpress et al., 2015). Central to the development of RST by Mallpress et al. (2015, p.370), is the view that "attitudes towards risk should be dependent not only on current energy reserves, but also on how energy reserves have changed to get to their current level". What this means is that risk behaviours are not just influenced by the individual's immediate state (i.e. gain vs. loss) but also by what has been happening to put them in that state (i.e. gaining vs. losing). Consequently, individuals experiencing accumulated reserve levels and positive probability are expected to be risk-averse, while low reserve levels and negative probability signal that further loss is likely, so individuals are expected to be risk-taking (Mallpress et al., 2015). Traders' perception of reserve levels and probability do arise as predicted by Mallpress et al. (2015); accumulated reserve levels and positive probability arise after a series of gains, while depleted reserve levels and negative probability arise after a series of losses. However, traders appear to perceive these scenarios in a completely different way. Traders consider accumulated reserve levels and positive probability as an opportunity to make more money, so they increase their risk-taking in pursuit of increased returns. Whereas depleted reserve levels and negative probability are perceived as unconducive to risk-taking, so traders' cut their losses and demonstrate risk-aversion.

11.4.1.3. Understanding deviating findings: alternative explanations

To some extent, when one considers the nature of a traders' role, such behaviour, deviating from RST predictions, is understandable. Traders are expected to increase profits whilst minimising losses (Willman et al., 2002). Therefore, accumulated profits enable increased risk-taking as there is more money to risk (i.e. leverage), hence, traders perceive they can capitalise on a greater level of risk-return. Nonetheless, a further explanation for such behaviour is the potential 'cushion effect' goal attainment can provide. Jeffrey et al. (2010) argue that while goals may increase risk-seeking when falling short of the performance standard, choice options which bring the individual above a goal are also likely to increase risk-taking behaviour. Specifically "goal attainment creates a psychological cushion that allows decision makers to assume additional risk when above a goal" (Jeffrey et al., 2010, p. 192). Such behaviour is evident amongst the traders of this study, as they describe how, when they are above their performance targets, they often increase their risk-taking as they have the available resources to risk. Moreover, they perceive that even if they lose some money, they will still be meeting their performance targets and thus, taking the risk to achieve further return is worth it.

Conversely, following a series of losses traders no longer have the available capital to leverage in the pursuit of gains, hence they perceive it best to cut the loss and reduce their risk. Thus, a

further explanation for risk-averse behaviour in high need frames may be the 'threat-rigidity thesis' (Staw et al., 1981). As Hoskisson et al. (2017, p. 9) explain; "extreme levels of poor performance, which induce threat rigidity, have been shown to induce managers to take a survival frame that reduces their overall risk-taking, despite being below their reference point". Threat-rigidity argues that the threat imposed by relatively large losses, or a series of losses, causes risk-aversion as individuals seek to conserve what resources they have (Shimizu, 2007). Thus, what is important for behaviour is the way in which individuals interpret changes to their environment (Chattopadhyay et al., 2001). Further support for this effect is found in the variable risk preferences model developed by March and Shapira (1992). The model proposes that an individual's decision to take a risk or not is determined by whether they are focusing on an aspiration level or a survival level, and their perception of accumulated resources in respect of these two reference points (Lant and Shapira, 2008; Shapira, 2002). Individuals focusing on a survival level are found to be less willing to take risks than those focused on an aspiration level (Boyle and Shapira, 2012; March and Shapira, 1992). Indeed, following a series of losses and the depleted reserve levels and perception of negative probability this induces, traders do demonstrate a shifting of focus from an aspiration level to a survival level. Essentially, their interest is no longer in meeting performance targets or desired P&L level as is the case following a recent loss but instead, focus on the need to preserve capital to prevent the 'blowing up' of their accounts (i.e. losing all money). For bank traders, this can lead to them being fired and for retail traders, this can lead to the destruction of their assets and livelihood. Thus, the survival-threat imposed by depleted reserve levels and negative probability can negate the impact of high need perceptions on risk-taking behaviours. Indeed, one could argue that when focus is shifted to a survival point, traders may perceive themselves to be above the survival threshold and therefore in low need, despite being in high need in respect to the aspiration focus of desired P&L level or performance target.

A further alternative explanation for the behaviour deviant from RST predictions, and perhaps the most probable is that traders' learning may influence how they react to cognitive perceptions and the nature of decisions frames. As Hoskisson et al. (2017, p. 9) note, "the degree of experience that managers have with a type of action has been argued to shape the way in which they frame its outcomes". Traders assert the need to 'cut losses and run winners' and place considerable emphasis on developing this ability through learning and experience. Thus, they may have learned to override the innate mechanisms, proposed by RST, guiding their risk-related choice. Several studies in the decision-making literature find that risk-reward

values learned from experience can reverse the tendencies expected by cognitive framing literature (e.g. risk-aversion in gain/low need, risk-seeking in loss/high need) (Hertwig and Erev, 2009; Ludvig et al., 2014; Ludvig and Spetch, 2011). Much of the empirical research on cognitive framing and risk behaviours, RST included, involves describing a risky and non-risky option and asking individuals to choose between them. However, traders, like most of us in everyday life, develop knowledge of risky options through experience (i.e. repeating decisions) (Ludvig and Spetch, 2011). It is this experience which can influence how individuals respond to a series of losses or gains (i.e. accumulated/depleting reserves and positive/negative probability).

Hertwig and Erev (2009) find that in decisions from experience, individuals tend to be risk-taking for outcomes with high probability, and risk-averse for outcomes with low probability. Moreover, Ludvig et al. (2014) argue that through experience, individuals focus on the most extreme outcomes of a context (i.e. the greatest loss they have experienced versus the greatest gain they have experienced). Consequently, individuals in a low need frame (i.e. gain/positive P&L) will be risk-seeking if it is probable to lead to the extreme gain outcome. Conversely, individuals in a high need frame (i.e. loss/negative P&L) will be risk-averse if they perceive it is probable the outcome will lead to the extreme loss (Ludvig et al., 2014). Ludvig and Spetch (2011) argue that what is important for risky behaviour is the decision context and the individuals own interpretation of it. Following the experience of a series of losses, traders, through experience, infer that further losses can lead to extreme loss. Hence, they cut losses and exhibit risk-averse behaviour in negative probability and depleted reserve levels. However, following the experience of a series of gains, traders may, again through experience, interpret that they can achieve their extreme gain. Hence, they increase their risk-taking when they have accumulated reserve levels and perceive positive probability. Thus, deviations from RST predictions may be understood by taking account of traders' experience of loss and gain in the past. Indeed, RST literature has recognised that "outside of the laboratory, people usually make risk-sensitive decisions based on experience with different behavioural options and acquire a sense of the likelihood and magnitude of various outcomes associated with different behavioural options" (Mishra & Lalumiere, 2010, p.606). Yet, RST studies have not examined how decision from experience impacts behaviour under extreme conditions (i.e. a series of loss/gains).

11.4.1.4.The insights provided by risk-sensitivity theory

Applying RST in the field has enabled this study to produce several important insights into how cognitive perception of the decision context influences risk behaviours. Significantly, findings demonstrate that risk behaviours are not the outcome of a simplistic comparison of gain vs. loss, as much of the cognitive framing literature assumes (Ludvig et al., 2014). Rather, traders cognitively evaluate their decision context in terms of current and desired need states, and the changes in state which have placed them in that position. Furthermore, the particular reference point which is salient to the individual (i.e. performance target/aspiration/survival threshold) can impact their risk behaviours. Thus, to understand how individuals' cognitive perception influences risk behaviours, it is necessary to account for more than just immediate options, but also preceding decisions and performance. It is important to note, however, that much of traders' behaviour in respect of recent P&L and target performance adheres to RST predictions; traders are risk-seeking in high need frames and risk-averse in low need frames. Furthermore, such behaviour is described by traders as a natural reaction to loss and gain. As such, this substantiates the argument that RST can provide an evolutionary-based rationale for why risk behaviours vary within individuals (e.g. Houston et al., 2014; McDermott et al., 2008). Nevertheless, there is potential to develop the predictive strength of RST further by expanding conceptualisation of the decision context from the decision makers' 'current state' to also include decision makers' 'previously experienced state'. Overall, exploration of how cognitive perceptions influence risk behaviours demonstrates how vital it is to understand what constitutes the decision context for individuals, in order to understand why their risk behaviours vary.

11.4.2. The role of emotional perception

Emotions played a central role in effecting the within-person variance of traders in this study. In support of the central tenets of the appraisal-tendency framework (ATF) and associated empirical literature (e.g. Beisswingert et al., 2015; Kugler et al., 2012; Lerner and Keltner, 2001; Lerner and Tiedens, 2006), the way in which traders perceived situations along the appraisal dimensions of certainty, control, responsibility and motive consistency, and accompanying appraisal themes, triggered specific emotions. Different emotions then influenced how traders perceived future situations, via appraisal tendencies, thus influencing risk behaviours. Such findings substantiate the emerging argument that emotions influence within-person variance of risk behaviours (George and Dane, 2016; Kusev et al., 2017;

Podoynitsyna et al., 2012). Indeed, within the risk literature, there is emerging recognition of an interaction effect between cognition and emotion in influencing risk behaviours (George and Dane, 2016; Kusev et al., 2017; McDermott et al., 2008). However, there is considerable debate as to how such an interaction occurs. Indeed, Kusev et al. (2017, p.1) highlight further need for research to "investigate how variation in [emotions] produces variation in decision making under risk". Thus, the relationship between cognition, emotion and risk behaviours is not well understood.

One way in which emotions are thought to interact with cognition and influence risk behaviours, and one which findings of this study support, is via their influence on framing effects. An emerging body of literature argues that emotions can both compete with an individual's framing of a situation on the one hand, and may also augment the influence of the frame on risk-related decisions on the other (e.g. Cassotti et al., 2012; Druckman and McDermott, 2008; Seo et al., 2010). As Lerner and Keltner (2001, p. 148) noted in one of their first empirical applications of the ATF: "we posit that individual differences in emotion will influence outcomes and that these outcomes will hold across framing conditions". Indeed, findings in neuroscience have reported that the framing effect is driven by a part of the brain responsible for emotional processing (De Martino et al., 2006). However, only a few studies have examined the impact of distinct emotions on risk behaviours across decision frames and findings have been mixed (e.g. Campos-Vazquez and Cuilty, 2014; Habib et al., 2015). Notably, these studies have only sought to examine whether distinct emotions impact decision frames, rather than *how* or *why* they do. Through a more complete application of the ATF, this thesis offers such insights; the appraisal dimensions of control, certainty, responsibility and associated appraisal themes, provide understanding as to why different emotions override, augment or exacerbate the influence of decision frames and consequently, why risk behaviours vary. This supports existing theorisation of the centrality of control and certainty appraisals to risk behaviours (e.g. Beisswingert et al., 2015; Kusev et al., 2017; Lerner and Keltner, 2001) and provides additional support for Lu et al.'s (2013) argument that responsibility appraisals are important for risk perception.

11.4.2.1. Understanding the effect of emotions on risk behaviours in high need frames

In a high need decision frame (i.e. negative P&L/below target) this study finds that fear or anger arise, depending on how the individual appraised the situation of loss. The only similarity between both emotions is the appraisal of motive inconsistency (i.e. desired state is not supported). Finding only negative emotions in high need decision frames supports studies of

emotional valence which posit that loss frames are more likely to increase unpleasant feeling and decrease pleasant feeling (Cheung and Mikels, 2011; Seo et al., 2010). Moreover, in support of extant ATF studies (e.g. Beisswingert et al., 2015; Foo, 2011; Kugler et al., 2012; Lu et al., 2013), fear and anger appeared to influence traders' risk behaviours more than any other emotion. Fear arose from perceiving a loss as uncertain and out of their control (i.e. situational control/responsibility), while anger arose when individuals perceived certainty, other-responsibility and self-control. Furthermore, fear is found to carry a theme of potential danger and self-doubt in decisions, while anger implicated a theme of needing to overcome what blocked or hindered progression. Such findings strongly substantiate the appraisal theory characterisation of both emotions within the literature (e.g. Beisswingert et al., 2015; Lu et al., 2013; Lee and Andrade, 2015; Lerner and Keltner, 2001). Moreover, in support of ATF predictions, fear led to risk-averse behaviour as traders demonstrated a tendency to appraise future situations as uncertain and uncontrollable, and demonstrated freezing behaviours (see Smith and Ellsworth, 1985; So et al., 2015). Conversely, anger led to risk-taking behaviour as it activated traders to overcome those they perceive hindered them (i.e. other-responsibility) while perceiving the situation was predictable and in their control (i.e. certainty and self-control).

Thus, different emotions can lead to different risk behaviours within the same decision frame. Such results support extant findings that "risk-taking is modulated by emotional context" (Habib et al., 2015, p. 1). However, the real interest of this study is to try and unpick why each emotion had a differential effect on behaviour. In other words, why these emotions may override or augment the impact of the cognitive decision frame. Extant studies offer little insight. Indeed, in contrast to this study, Habib et al. (2015) find that fear increases *risk-aversion* in the *gain* frame and anger increases *risk-taking* in the *gain* frame, but neither emotion influences risk behaviour in the *loss* frame. Yet, Campos-Vazquez and Cuilty (2014) find fear has no significant impact on risk-taking across decision frames and that anger increases risk-taking only in loss frames. A significant limitation of these studies is they only focus on determining whether specific emotions impact risk-taking across decision frames, rather than how or why they do. Although Campos-Vazquez and Cuilty (2014) argue their findings *imply* that anger makes individuals less sensitive to loss, neither study directly examines what characteristics of fear and anger cause their differential effects across decision frames. Indeed, Habib et al. (2015, p. 6) conclude by noting that, "further investigations are required to determine whether these contexts influence participants' emotional reactivity to

gains and losses and their ability to overcome the framing effect". The descriptive words used by traders in the qualitative findings of this study provide potential insights as to how emotions interact with and can condition the impact of cognitive decision frames.

When experiencing fear, traders described the environment in terms of uncertainty, having a lack of confidence and being unsure of decisions. Whereas when experiencing anger, traders discuss the environment in terms of wanting to seek revenge and trying to overcome what they perceive has hindered them. This highlights how the appraisal characteristics of an emotion may exacerbate the meaning of a loss decision frame or increase the salience of a particular aspect of the decision context. For instance, fear appears to exacerbate and highlight the perception of loss in the high need frame, as one trader described; *"The fear of losing is real"* (IV15, retail trader). Hence, fearful individuals become more sensitive to the loss element of a high need frame and thus become risk-averse. Such findings further substantiate suggestion that "emotions may exacerbate the assessment of losses more than they might influence the assessment of prospective gains" (Druckman and McDermott, 2008, p. 317). Conversely, angry traders hardly mention loss despite being in a high need frame. Rather, they appear so focused on seeking revenge and getting even; they appear to largely ignore the loss element of a high need frame. As one trader captured it; *"You get married to a position"* (IV7, bank trader). This focus on what has caused them to be in a loss position, rather than the loss itself, may explain Campos-Vazquez and Cuilty (2014) finding that anger reduced loss-aversion by half. Essentially, the impact of specific emotions on decision frames is determined by the information about the decision context each emotion makes salient. Fear, being characterised by uncertainty, situational control and a theme of potential danger, causes individuals to focus on the potential for further loss and lack in confidence, hence risk-aversion. Conversely, anger, being characterised by certainty, self-control, other-responsibility and a theme of other-blame, causes individuals to focus less on the potential for loss, and more on their need to recoup current loss and overcome those hindering them, hence risk-seeking. Thus, unpicking the appraisal characteristics of different emotions can ameliorate findings of within-person variance in risk behaviours in the same decision frame. Moreover, such findings reinforce Druckman and McDermott (2008, p.313) argument of the "importance of distinguishing negative emotions from one another, according to variations in control and uncertainty" in order to understand why they exert differential effects on risk behaviours within high need frames.

11.4.2.2.Understanding the effect of emotions on risk behaviours in low need frames

In a low need decision frame (i.e. positive P&L/achieving performance targets), this study finds that traders experienced excitement/euphoria, happiness and pride. Such findings of distinct positive emotions in relation to risk behaviours represent a significant development of this thesis over extant ATF literature. There is a dearth of empirical ATF studies which look at the influence of positive emotions on risk behaviours, and those which have, only examined happiness and hope (Drace and Ric, 2012; Foo, 2011). However, what is particularly interesting about the positive emotions which emerge in this study's findings, is they are all characterised by the same appraisal dimensions: motive consistency, certainty, self-responsibility and self-control. This broadly supports the view of ATF literature that "pleasant experience appears to be less emotionally differentiated than unpleasant experience" (Ellsworth and Smith, 1988b, p. 301). Nevertheless, in support of extant theorisation, such pleasant emotions arose from appraisals of high motive consistency (i.e. I am meeting required performance standards) (Demir et al., 2009).

Happiness is known to be highly characterised by certainty and self-control (Campos et al., 2013; Smith and Ellsworth, 1985). Hence, happy traders often described a tendency to perceive future events as being controllable and predictable. Findings certainly emulated Tong's (2015, p.489) assertion that happy "people tend to feel in control, take credit for positive events, and think that things require little effort to handle". However, what is interesting about 'happy' traders is they perceive self-responsibility also (i.e. I am responsible for the positive event of making money). Within the ATF literature, happiness is thought to arise from either self or other-responsibility (i.e. someone else can make you happy). However, such a finding of exclusive self-responsibility is likely a consequence of the nature of trading; traders work individually and are responsible for their own day to day management (Oberlechner and Nimgade, 2005).

In further support of the ATF, pride is highly characterised by appraisals of certainty, self-control and self-responsibility in this study. Pride, in particular, is predominantly characterised by self-responsibility, which substantiates theorisation that strong attributions of self-responsibility lead to pride (Smith and Ellsworth, 1985). This further supports Tong's (2015, p.499) characterisation of "proud people as quick to assume personal credit for achievements, deny external influences and feel in control".

Excitement/euphoria was also characterised by self-responsibility, certainty and self-control. There is some contradiction on what triggers excitement within the literature. Lee and Andrade (2015) argue that it arises from uncertainty appraisals. Conversely, Ellsworth and Smith (1988b) consider it exists within a general dimension of happiness or joy, and thus is characterised by certainty and self-control. The latter account may explain why there is little research on excitement within ATF literature; scholars consider it to be encompassed by happiness. However, participants in this study differentiated excitement from happiness based on how they perceived the overall theme of the decision context. Indeed, pride is also differentiated from the other positive emotions in a similar manner. This substantiates a further central tenet of the ATF, that appraisal themes, in addition to appraisal dimensions, characterise distinct emotions (Han et al., 2007; Lerner and Keltner, 2000).

Within the appraisal literature, *appraisal dimensions* are conceptualised as being the different components of an individual's 'in-the-moment' analysis and *appraisal themes* as occurring at a more overarching level of analysis, capturing the general experience of the situation (Smith and Lazarus, 1993). This is certainly evident in the findings of this study, as appraisal dimensions emerged within traders' narratives as how they perceived an event, while appraisal themes emerged as the overarching implications of this perception for the individual (e.g. certain they made money but surprised by how much money they are making, leads to excitement). Characterising distinct emotions in such a way is particularly important to delineate why different positive emotions emerged within a low need frame. Happiness arose from an overall theme of self-progression. Traders did not experience happiness just because they were in a positive decision frame and were making money. Rather, happiness arose when such positive appraisals further implicated that they were doing an effective job and making effective decisions and thus fulfilling personal goals of being a successful trader. This supports extant accounts of happiness having a core appraisal theme of "making acceptable progress towards achieving a goal" (Ferrer et al., 2016, p. 25). Pride arose from an overall theme of self-attribution. Again, traders did not experience pride exclusively because of certainty about positive performance and perception of self-control. Rather, pride arose when traders very strongly attributed the event to their ability and skill. This supports extant theorisation that pride has a core appraisal theme of enhancing perception of self-worth by taking credit for achievement of a valued object (Ferrer et al., 2016; Lazarus, 1991). Excitement/euphoria arose from an overall theme of surprise. Traders appraised certainty, control and self-responsibility in terms of recognising they were performing well and were making money, but excitement

arose because they were surprised by just how positive the performance was (i.e. they were exceeding expected performance). Few studies have examined excitement/euphoria, consequently there is little literature examining its core appraisal theme. However, some insights are provided by consumer decision literature, where Desmet et al. (2007) describes how consumer excitement about a product can arise from pleasant surprise.

Furthermore, each positive emotion is associated with an increase in risk-taking behaviours. This contradicts literature on cognitive decision framing and RST, where gain/low need frames are expected to cause risk-aversion as individuals seek to prevent losses which can threaten their current desirable state (e.g. Abdel-khalik, 2014; Kahneman and Tversky, 1979; Mishra et al., 2012a; Mishra and Lalumière, 2010). Such deviating findings from cognitive accounts of risk behaviours demonstrate the importance of incorporating emotion to understand risk-related choice. As Druckman and McDermott (2008, p. 300) argue, "emotion may provide an important key in explaining variance in framing effects". Extant literature on the valence of emotion generally assumes that positive emotions increase risk-taking by triggering more optimistic assessments of risk (Cheung and Mikels, 2011; Slovic et al., 2004). However, the findings of this study offer a more detailed insight on how different positive emotions override the impact of a cognitive frame. For instance, this study's findings suggest that happiness produces risk-taking because of its appraisal tendencies. Happy traders described how they feel confident and want to do more because it feels good, thus becoming more risk-seeking. This supports extant findings that happiness motivates risk-taking by triggering a tendency to perceive future situations as certain, predictable and to seek out similar positive events in the future (Drace and Ric, 2012; Foo, 2011; Tong, 2015).

There have been no studies, to this author's knowledge, within the ATF literature exploring the impact of pride and excitement/euphoria on risk-taking. However, based on this study's findings, pride appears to motivate risk-taking via a tendency to perceive risk as low, due to elevated confidence in decisions and a belief the environment is controllable. This corresponds with extant conceptualisations of the appraisal tendencies carried by pride (Ferrer et al., 2016; Lazarus, 1991). Additionally, findings further suggest that excitement/euphoria motivated risk-taking by producing a tendency to focus on positive outcomes and believe that more are possible in the future. Again, this substantiates the limited extant conceptualisation of excitement's appraisal tendencies (Brooks, 2014). Essentially, findings of this study suggest that the appraisal characteristics of each emotion influence traders' perceptions and focus of attention, whereby they focus more on the emotional meaning of the decision context rather

than the cognitive meaning. This substantiates the ATF's argument that emotions act as a lens through which individuals interpret situations (Lerner et al., 2003). In sum, positive emotions are found to lead to an increase in risk-taking behaviour. This substantiates existing arguments that positive emotions should lead to risk-taking behaviour and override decision frames (Druckman and McDermott, 2008), by making salient the subjective probability of experiencing further gains (Seo et al., 2010).

11.4.2.3. Understanding the influence of emotions on risk behaviours: alternative explanations

An alternative explanation for why different emotions cause a variance in behaviour within decision frames must be considered. The model of affective intelligence developed by Marcus et al. (2000), offers such an alternative explanation for why different emotions impact risk behaviours across decision frames. The model posits that individuals have two emotional systems: the disposition system and the surveillance system (Marcus et al., 2005). The disposition system encompasses people's habitual feelings about things and relies on their 'learned repertoires' to accomplish goals (Marcus et al., 2011, 2005). The surveillance system seeks out environmental changes, which signal that something is out of the 'norm' and thus requires conscious attention (Marcus et al., 2011). In this manner, specific emotions influence what individuals attune to in their environment and which emotional system influences behaviour (Marcus et al., 2011).

The surveillance system relies on emotions which generate anxiety (i.e. fear). Thus, fear will trigger individuals to be more focused on external stimuli such as the characteristics of the decision frame (Marcus et al., 2005). Hence, individuals experiencing fear are more likely to attune to the information the high need decision frame provides them (i.e. potential for loss), and this shapes their decisions and behaviours. Indeed, this is evident in the findings, where fear is found to have a signalling effect which catches the attention of traders (see pg. 146, IV2). Conversely, anger is considered an aversive emotion, which causes individuals to avoid learning or new information (Druckman and McDermott, 2008). Hence, anger triggers the *disposition* system, which causes individuals to ignore how situations are framed or the information provided by the decision frame and instead rely on their habitual knowledge (Druckman and McDermott, 2008). Furthermore, emotions characteristic of satisfaction and enthusiasm are encompassed by the disposition system (Marcus et al., 2005). Thus, the positive emotions of excitement/euphoria, happiness and pride can trigger the disposition system in a similar manner as anger. Namely, the experience of such enthusiasm and satisfaction eliciting emotions causes individuals to be less attuned to external stimuli and information provided by

the decision frame and more attuned to the characteristics of the emotion (i.e. its appraisal tendencies). Such features of emotional systems offer further explanation as to how distinct emotions interact with cognitive decision frames. However, the model of affective intelligence has not received much attention or validation in studies of emotion and framing. Hence, it represents an interesting area for future research on emotions and decision framing. Nevertheless, the differentiation of distinct emotions via appraisal characteristics, as explored in this study, remains a useful and applicable way to understand why different emotions produce deviations in risk behaviours within decision frames. Specifically, recognising whether an emotion is characterised by certainty or uncertainty, situational responsibility/control or self-responsibility/control can provide a rationale for why, for instance, fear causes risk-aversion but anger risk-taking behaviour. Moreover, this substantiates the argument in the emotions literature that, rather than the analytic process described in the cognitive framing literature, "more intuitive or emotional responses can play a key role" (De Martino et al., 2006, p.684) in influencing the within-person variance of risk behaviours.

11.4.2.4.Surprising findings: Is self-anger a separate emotion?

Some findings of this study in relation to the ATF are surprising. Specifically, traders also described anger arising from self-responsibility appraisals. In other words, they blamed themselves for the negative event. Interestingly, this form of self-anger, unlike other-responsibility anger, did not influence risk behaviours. From the perspective of the ATF literature, experiencing anger from self-blame is somewhat puzzling, as the ATF proposes that appraisals of self-responsibility and self-blame are associated with shame and guilt (Smith and Ellsworth, 1985). Moreover, there is extensive empirical support that anger arises from perception of another person blocking achievement of one's goals (e.g. Beisswingert et al., 2015; Lerner et al., 2003; Lerner and Keltner, 2001; Lerner and Tiedens, 2006). Indeed, as Ellsworth and Tong (2006, p. 572) note, "the perception that another person is to blame for the bad situation is central to appraisal accounts of anger, in that it is unique to anger". However, in colloquial terms, it is quite common to become angry or frustrated with oneself. Consequently, appraisal theories' conceptualisation that anger requires an other-responsibility appraisal has its critics (Berkowitz and Harmon-Jones, 2004; Frijda, 1988). Indeed, Kuppens et al. (2003) examined the appraisal components of anger and found that other-responsibility is not necessary for its arousal, and thus argued that it should be conceptualised as usually co-occurring rather than a prerequisite to anger. However, Kuppens and Van Mechelen (2007)

note that threat to one's self-esteem is also an important precursor to anger. This provides some understanding as to how self-blame in traders led to the experience of anger. When discussing the situation preceding self-anger, traders described how personal actions, which they considered foolish or incompetent, led them to lose money which in turn arose anger at themselves and their actions. Describing oneself as 'foolish' or 'stupid' may thus trigger anger through a reduction in one's self-esteem.

Nonetheless, in what is possibly the only study to examine the appraisal components of self-anger, Ellsworth and Tong (2006) argue that self-anger is a completely different emotion to anger. It can be distinguished by a different set of appraisals and thus produces different action tendencies. Indeed, they find more similarity between self-anger, shame, guilt, regret and embarrassment than they do between self-anger and anger. Specifically, Ellsworth and Tong (2006) find that angry people perceive they have been treated unfairly, while individuals experiencing self-anger do not consider the situation unfair. Furthermore, the activating effect of anger, whereby individuals are often motivated to aggressive action is not characteristic of self-anger, which instead has a deactivating effect as individuals regret the event and seek to avoid it (Ellsworth and Tong, 2006). Based on these findings it is likely that the self-anger described by traders in this study, is a completely different emotion to anger, as Ellsworth and Tong (2006) argue. This thus provides an explanation for the lack of any relationship between self-anger and risk behaviours amongst traders. Rather than activating aggressive action (i.e. risk-taking) as anger does, self-anger has a deactivating effect, more akin to shame and regret[16]. This causes the individual to avoid the situation, hence no influence on risk behaviours. Essentially, anger and self-anger are posited to be two different emotions with very different effects; anger induces retaliation and self-anger induces avoidance behaviour. Although literature on such differentiation is scarce, findings of this study support this conceptualisation and thus enhance recognition of anger and self-anger as distinctive emotions.

11.4.2.5. The importance of context to the effect of emotion

Throughout, the nature of the decision context appeared central to the triggering and differentiation of distinct emotions. Not only in terms of how traders perceived the decision context along appraisal dimensions (e.g. control, uncertainty etc.) but also how they perceived

[16] The primary difference between shame, regret and self-anger, is that people experiencing self-anger tend to 'boil inwardly', whereas those experiencing shame or regret do not. Furthermore, shame and regret motivate individuals to apologise to others, while self-anger influences individuals to seek sympathy from others or avoid a situation entirely (Ellsworth and Tong, 2006).

the context overall, as exemplified in appraisal themes. Indeed, the nature of the decision context appeared central to differentiating positive emotions and accounting for their impact on risk behaviours. This ties in well with a growing recognition within the appraisal theory literature that "far from being a constant set of appraisals that define all emotions in all contexts, the set of appraisals activated in driving emotional responses in a given context are highly malleable and contingent on a situation" (So et al., 2015, p. 363). In this regard, emotions are argued not to have a fixed motivational effect, but that the motivational impact of an emotion can vary depending on what appraisal tendencies are relevant or salient to the decision context (So et al., 2015). This further explains the differential impact of emotions on behaviours. For instance, traders described how fear had a deactivating effect (i.e. freezing) when first experiencing loss, but if they began to make some gains, it had an activating effect (i.e. taking profits quickly in case they lose again) (see pg.146, IV4). As such a more flexible approach to the association between appraisal characteristics and emotions is necessary. As Kuppens (2013, p. 177) elaborates, "the same (set of) appraisal outcomes do not lead to the same reported emotional experience in all contexts or individuals". Indeed, the impact of individual differences was touched on by one trader in this study who noted how he would have to experience a large loss before he felt fear, whereas a small loss may frighten another individual (see pg.164, IV5). As such, the centrality of the decision context to the effect of emotions, and individual perceptions of it, further points to the importance of conceptualising risk behaviours as the outcome of idiosyncratic and subjective factors.

In sum, findings of this study identified five different emotions which impacted the risk behaviours of financial traders. This represents a noteworthy advancement of the application of the ATF in the study of risk behaviours. Previous studies have largely focused on fear and anger, and very few studies have examined how specific emotions interact with cognitive decision frames and much less posited the manner in which they do. Furthermore, no previous study, to the author's knowledge, has explored the interaction between excitement/euphoria or pride, decision frames and risk behaviours. As this section has demonstrated, emotions are important for understanding the within-person variance of risk behaviours, or more importantly why behaviours vary. Specifically, emotions appear to provide, and make salient, sub-sets of information on the decision context, which in turn influence risk behaviour variance. However, as the following section further discusses, emotion regulation plays an important role in managing the effect of emotions on variance.

11.4.3. The role of emotion regulation

This study identifies three different emotion regulation (ER) strategies used by participants: cognitive reappraisal, expressive suppression and situation avoidance. In support of extant studies, cognitive reappraisal was found to be an antecedent-focused ER approach whereby traders actively reappraised the meaning of a situation (Gross, 2001, 1998). Furthermore, traders demonstrated expressive suppression strategies where they actively sought to suppress the outward expression of an emotion, thus supporting theorisation of it as a response-focused form of ER (Gross, 2001, 1998). In this regard, both findings support the process model of emotion regulation, which proposes that different ER strategies can be differentiated by when they impact emotional processes (Gross, 2001, 1998). Moreover, there is evidence within the findings that regularly engaging in cognitive reappraisal strategies over time altered the meaning of loss to traders; they just see losses as part of trading. This further substantiates Panno et al. (2013) finding that habitual reappraisal made individuals less susceptible to loss.

However, a third ER strategy — situation avoidance — emerged within traders' accounts. This strategy did not halt the generation of an emotion, as cognitive reappraisal strategies did, nor did it suppress the outward expression of an emotion as expressive suppression strategies did. Rather, traders appear to use situation avoidance to halt the impact of an emotion on their behaviour. In other words, they recognise they feel a particular way, which they perceive may impede their decision-making and thus chose to remove themselves from the situation before the emotion could negatively affect their behaviour. Gross, 2001 (p. 215) defines antecedent-focused strategies as "things we do before response tendencies have become fully activated and have changed our behaviour and physiological responses", and defines response-focused strategies as the "things we do once an emotion is already under way, after response tendencies have been generated" (Gross, 2001 p. 215). Based on such definitions, situation avoidance, as presented by this study's participants, appears to be an antecedent-focused strategy.

However, it is difficult to completely assert that the situation avoidance described by traders is wholly an antecedent-focused strategy. Traders describe that when they recognise the experience of an emotion, they remove themselves from the situation. However, it is not clear whether they recognise the emotion, *per se*, or recognise that the emotion has just affected their behaviour (i.e. their response tendency). Most likely, it is both. This points to situation avoidance serving as both an antecedent and response-focused strategy, depending on the context. Such supposition is not currently considered within the ER literature and potentially

warrants further investigation. Nonetheless, situation avoidance is presented by traders as a highly effective prevention strategy; one which prevents emotions from impeding decision-making.

11.4.3.1.The impact of emotion regulation on risk behaviours

With regards to the impact of ER strategies on risk behaviours, findings of this study suggest that ER strategies lead to a decrease in risk-taking, or more specifically, a more controlled and managed form of risk behaviours. Indeed, traders assert that the primary purpose of 'managing their emotions' is to prevent them having a negative effect on their risk-taking (i.e. excessive risk-taking). This is quite a surprising outcome in light of many extant studies finding ER strategies lead to an increase in risk-taking (e.g. Heilman et al., 2010; Panno et al., 2013; Szasz et al., 2016). There are some exceptions to this, however, as Cheung and Mikels (2011) find that participants demonstrate less risk-taking, as compared to the control group, when told not to allow their emotions to influence their decisions. Interestingly, Sokol-Hessner et al. (2009) investigated a different form of ER strategy, whereby participants were told to think like a trader (i.e. treat every decision as one of many decisions). They found that such a strategy reduced loss-aversion and hence made individuals less likely to take risks in the face of losses. Indeed, the lack of relationship between ER strategies and increased risk-taking in this study is likely due to the nature of traders and the purpose for which they use ER. As presented in the findings chapter, traders have a very negative opinion of emotions; they consider emotions sabotage effective decision-making and optimal risk management. As a result, they employ ER strategies for the specific reason of managing their risk behaviours. This further points to the importance of recognising the nature of the decision context and the individuals operating in it when seeking to understand the variance of risk behaviours. Thus, the traders in this study demonstrate significantly different risk behaviours to the students used in the experiments of extant ER studies (e.g. Heilman et al., 2010; Miu and Crişan, 2011; Panno et al., 2013).

In one of the few published qualitative studies of traders' and emotions, Fenton-O'Creevy et al. (2011, p.1056) noted that:

> "To ask whether emotion disturbs or aids traders' decision making is to ask the wrong question. Traders' emotions and cognition are inextricably linked. Therefore, a more productive question to ask in this context is whether there are more or less effective strategies for managing and using emotion in financial decision-making."

In this regard, they find that traders' utilising antecedent-focused ER strategies performed better than those using response-focused ER strategies (Fenton-O'Creevy et al., 2011). This

supports the dominant view in the ER literature that "regulatory strategies that act early in the emotion-generative process should have quite different outcomes than strategies that act later" (Gross, 2001, p. 214). This study would broadly support this, as traders gave less credence to expressive suppression strategies, exemplified by it being the least salient of all the ER strategies discussed by participants. However, this study is limited in commenting further in this regard as examining performance outputs was not within its scope. Nonetheless, this study has demonstrated that traders' employ several different ER strategies, all with the expressed purpose of preventing the influence of emotions on risk behaviours.

As this section has demonstrated, risk behaviours most certainly vary within-individuals for a variety of reasons. However, what is clear is that the way in which individuals subjectively think and feel about the decision context, and whether they choose to regulate such perceptions, is central to understanding risk behaviours.

The implications of such findings for research and practice are discussed in the following sections, highlighting areas where a change or shift in thinking is required to more comprehensively understand PRP and risk behaviours. This articulation of the need for change is an important element of middle-range thinking, which argues that the status quo may need to be challenged to more fully understand a phenomenon (Laughlin, 2004, 1995).

11.5.Implications for understanding the PRP–risk behaviours relationship

The basic premise of PRP, and the justification for its use, is that employee risk-taking can be controlled through the use of incentive pay systems (Chng and Wang, 2015; Cuevas-Rodríguez et al., 2012; Yang, 2017). Indeed, even the International Monetary Fund recognises that "modern compensation systems grew partly out of concern about insufficient risk-taking by managers" (IMF, 2014, p. 106). However, a key finding of this study is that PRP's incentive effect does not motivate risk-taking. As a result, PRP does not have a direct impact on the risk-taking of financial traders. This has significant implications for research on the PRP–risk behaviours relationship. Rather than directly motivating risk-taking through its incentive effect, this study finds PRP indirectly influences risk behaviours via its performance standards (i.e. targets/budget) impacting contextual perceptions. As this study demonstrates, risk behaviours are the outcome of individual perceptions, both cognitive and emotional, of the decision context. By providing information on the decision context, performance targets indirectly enact PRP's influence on behaviour. Hence, this study argues that the relationship between PRP and risk behaviours is better understood as how PRP influences an individual's perception of the

decision context, rather than the extent to which it directly motivates risk-taking. Moreover, findings of this study overwhelmingly substantiate that risk behaviours are variable, not stable, with variance influenced by contextual perception, not incentive and monitoring arrangements (Cuevas-Rodríguez et al., 2012; Wiseman and Catanach, 1997).

Thus, to understand the nature of the relationship between PRP and risk behaviours, it is clear that PRP literature should no longer overlook the behavioural factors on which risk behaviours are contingent. Many before this study have argued same (e.g. Chng and Wang, 2015; Cuevas-Rodríguez et al., 2012; Devers et al., 2008; Martin et al., 2016; Sawers et al., 2011). Indeed, if one is to take the behavioural view of what motivates risk-taking proposed throughout this study, then the direct incentive effect of PRP is inherently flawed. Offering a performance-contingent reward highlights the potential for gain. However, individuals' risk-related decisions are more sensitive to changes in their environment in terms of loss than they are in terms of gain (i.e. high need vs. low need). Hence, the primary effect PRP has on traders is to motivate them to meet required performance targets (i.e. avoid loss by being below targets) but not maximise once targets are met. Indeed, Nisar (2007, p. 2) captures this issue noting that "simply adding a bonus component into a total compensation plan does not produce a more motivated employee, but one more likely to make decisions that produce results to ensure their end-of-year pay-out".

PRP targets influenced risk behaviours because of how they altered traders' perceptions of the decision context. By giving traders a reference point from which to evaluate the decision context and providing information on performance, targets can influence the configuration of high and low need frames and the experience of emotions, and consequently, impact within-person variance of risk behaviours. Indeed, this study's findings support the theorisation of Chow et al. (2007, p. 68) that because "people are more averse to loss than they value a gain of the same magnitude, they should be more inclined toward risk-taking to avoid failing to meet a high-performance standard than to exceed a low-performance standard". However, this study offers a more in-depth rationale for why risk behaviours vary in respect of targets than the extant goal literature (e.g. Chow et al., 2007; Heath et al., 1999a; Larrick et al., 2009). Extant studies theorise the effect of performance targets on risk behaviours using prospect theory. Yet, as reviewed in chapter three, prospect theory does not provide a rationale for why such variance occurs. By drawing from RST, this study presents a strong argument that risk-taking when below target occurs because risk-taking evolved as a means to ensure individuals avoid need deprivation (see Mishra, 2014; Witt, 2016). In addition, by drawing from the ATF,

this study further demonstrates that the information performance targets provide of a change in goal status (i.e. motive consistency vs. motive inconsistency appraisals), can influence risk behaviours via the emotional reactions triggered (see Cron et al., 2005). Moreover, by integrating both RST and the ATF, this study demonstrates that what is important for PRP's relationship with risk-taking is the interaction between an individual's cognitive and emotional perception of their target-related performance.

11.6. Implications for understanding risk behaviours: the interrelated nature of cognition and emotion

Findings of this study demonstrate that within-person variance of risk behaviours cannot be adequately understood without accounting for both cognition and emotion. Traders' cognitive evaluation and emotional experience of the decision context were so interrelated that it is impossible to separate the two. This substantiates the developing argument that risk behaviours are the outcome of an interaction effect between cognition and emotion (Druckman and McDermott, 2008; George and Dane, 2016; Kusev et al., 2017), and thus carries implications for how future studies should model risk-taking. Indeed, it is unclear within traders' narratives which comes first: cognition or emotion. This may be because the evaluative factors important to the construction of a cognitive perspective of the decision context (i.e. need frame) are analogous to the factors important to generating distinct emotions (i.e. appraisals). Indeed, it could be argued that the need level threshold of RST is analogous to the motive consistency dimension in appraisal theories.

Essentially, appraisal is thought to encompass how an individual perceives one's environment in relation to personal well-being (Ellsworth, 2013; Smith and Lazarus, 1993). As Smith and Lazarus (1993, p. 234) explain:

> "Whether a particular set of circumstances is appraised as harmful or beneficial depends, in part, on the person's specific configuration of goals and beliefs. Appraisal thus serves the important mediational role of linking emotional responses to environmental circumstances on the one hand, and personal goals and beliefs on the other".

Thus, appraisal theory appears analogous to RST in many respects. Namely, it posits that individuals evaluate their immediate and current state in respect of personal desires and goals, and the outcome of this evaluation configures how they view, and consequently approach, future judgements. Thus, integrating RST and the ATF proves apposite to understanding how perceptions of the decision context, cognitively and emotionally, determine within-person

variance of risk behaviours. Moreover, both theories take a functionalist approach to understanding behaviour. The ATF is broadly based on the "functionalist assumption that emotions are adaptive responses to environmental demands" (Ellsworth and Smith, 1988b, p.304). Concomitantly, RST is based on the assumption that risk-taking is an evolutionary-derived adaptive response to changes in the environment which signal need (Mallpress et al., 2015; Mishra, 2014; Rode et al., 1999). Such conceptualisation provides understanding for how individuals go about evaluating the decision context and why this evaluation impacts their risk-related choices.

Exploring risk behaviours from both a cognitive and an emotional perspective has enabled this study to posit how need frames and distinct emotions interact in the effect of risk behaviours. This further substantiates Seo et al., (2010, p.412) argument that "framing effects and affective influences on risk-taking are highly interrelated; perhaps one effect cannot be precisely understood without the other". Moreover, findings of this study demonstrate the importance of differentiating emotions via their appraisal characteristics, rather than just their valence, and incorporating this into the study of cognitive framing. Nonetheless, much of the emotions literature retains an exclusive focus on cognitive processes and those who do explore emotions continue to model emotional difference according to valence (Kusev et al., 2017). Furthermore, as highlighted in the previous section, there is a paucity of research on PRP and risk behaviours which incorporates the cognitive framing perspective on risk behaviours, never mind an emotional perspective. Yet, it is evident from the findings of this study that any understanding of risk behaviours in this context would be limited if stemming from only one theoretical perspective.

11.7.Implications for practice

Since the 2008 financial crisis, the risk behaviours of financial professionals and the bonus systems accused of exacerbating excessive risk-taking have come under extensive scrutiny (Bebchuk and Spamann, 2009; Cheng et al., 2015; Financial Services Authority, 2009). As a result, many financial regulatory bodies have sought to curb excessive risk-taking through the capping of bonuses and the introduction of clawback provisions (see PRA, 2013). The focus for controlling risk-taking of financial professionals has been on limiting the incentive effect of PRP. Once again, this is based on the premise that PRP motivates risk-taking by rewarding such behaviour, and when misaligned can lead to excessive risk-taking (Cai et al., 2010; Yang, 2017). As the International Monetary Fund stressed in their report on this issue, "to be effective

and avoid unintended consequences, such negative reforms must be based on a thorough understanding of what drives risk-taking in banks" (IMF, 2014, p. 105). Yet, as has been demonstrated in this study, neither the incentive effect of PRP nor the potential to earn large rewards, appears to influence the risk-taking of financial traders. Indeed, a particularly compelling finding of this study is how retail traders respond to their PRP. In some ways, PRP systems in organisations are trying to recreate the personal relationship between pay and reward retail traders enjoy. Yet, despite this clear relationship, retail traders are not motivated to take excessive risks in pursuit of large gains. They recognise that doing so puts them at risk of experiencing large losses, and thus are more focused on balancing the pursuit of gain with the potential for loss. The implications of this are that regulators may be focusing on the wrong aspect of PRP when trying to curb excessive risk-taking.

The calibration of performance targets, within PRP design, does not receive much attention. Indeed, Schiebener et al. (2014), in their review of the literature, find that the relationship between goals and risk-taking is not well understood. However, as findings of this study suggest, PRP targets are the element of PRP which have the most salient impact on risk behaviours. Bank traders describe behaviour which is more focused on meeting required targets rather than maximising reward. Some even discuss strategically managing their behaviour so that they meet required targets, but do not over-achieve, as this may encourage their managers to increase the target the following year (see pg.117, IV6). Moreover, bank traders describe how the pressure and demanding nature of the role comes from having to meet targets (see pg.122, IV7 and IV11). Thus, PRP targets have a significant influence on traders' perceptions, emotions and behaviours, and all this coalesces to influence their risk-taking. What is particularly interesting though, is how strongly retail traders are against the use of performance targets. Based on their experience, the setting of strict monetary goals encumbers their decision-making, whereby they describe trading to the goal rather than making decisions based on the conditions of the market. As such, retail traders prove to be a good 'sounding-board' from which to explore the efficacy of PRP design in the context of financial trading, and from their perspective, targets negatively affect risk-related decision-making.

In sum, the focus of regulatory bodies on the potential for PRP's incentive effect to drive risk-taking may be somewhat misconstrued. As Ludvig and Spetch (2011, p. 2011) note, "how people evaluate risk and decide between risky alternatives is a fundamental problem in decision-making — one that should perhaps take on renewed importance in light of the recent financial crisis". Since the financial crisis, the focus has been more on determining whether

PRP systems cause excessive risk-taking (see Bannier et al., 2013; Bebchuk and Spamann, 2009; Efing et al., 2015; Gregg et al., 2012) rather than how and why individuals, in this context, actually take risks. Indeed, as Bruce and Skovoroda (2013, p. 141) note, the direct focus of regulators on reducing bonuses following the financial crisis was a reflection of "both the need to articulate a robust and immediate political response to crisis and a lack of analysis of the underlying causal factors". This study has sought to ameliorate this gap by exploring the lived experiences of bank traders of PRP and compare this to the views of retail traders. In this regard, the findings of this study suggest that practitioners and regulatory bodies need to pay closer attention to the design and calibration of PRP targets, rather than the size of reward offered, when seeking to moderate risk behaviours of financial professionals.

11.8.Conclusion

The primary purpose of this research study was to develop knowledge beyond the inconclusive findings of the PRP–risk behaviours relationship, by accounting for the role of cognitive and emotional perceptions in the effect of risk behaviours. This study is one of the first, to the author's knowledge, to bring together and apply such diverse knowledge on risk behaviours to the study of the PRP–risk behaviours relationship. Doing so has enhanced understanding of the PRP–risk behaviours relationship beyond much of the extant literature on this topic. Findings of this study have provided insights on how PRP influences cognitive perceptions and emotions, via PRP targets and the information it signals, and thus demonstrated why PRP can impact within-person variance of risk behaviours. Moreover, such findings have also supported development of the risk behaviours literature by providing further evidence for an interaction effect between cognitive frames and specific emotions, from the lived experiences of individuals. It demonstrated the importance of differentiating distinct emotions, rather than categorising by valence, and how such emotions can override and exacerbate decision frames by making sub-sets of information more or less salient. All in all, this study has demonstrated the necessity of recognising the idiosyncratic nature of risk behaviours and accounting for subjective perceptions in order to understand how and why risk behaviours vary. The following chapter sets out the contributions of this study to the literature, discusses some of its limitations and highlights areas for future research.

CHAPTER TWELVE: CONTRIBUTIONS, LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

12.1. Introduction

This chapter concludes this thesis. It first discusses the contributions of this study to the body of knowledge on this topic, to theory and the methodological contribution it makes. Following this, it presents the limitations of this study and highlights how future research can build on and further enhance knowledge based on the approach of this study. Finally, the researcher provides a personal reflection on doing this study and what has been learned, before making some concluding comments.

12.2. Contributions

This study began with a recognition that the nature of the relationship between PRP and risk behaviours is poorly understood. Extant findings have given more focus to structure and design of PRP than to how risk behaviours are influenced and affected (e.g. Bhagat and Bolton, 2014; Dong et al., 2010; Gregg et al., 2012). The scarcity of appropriate conceptualisations of risk behaviours within this literature produced inconsistent and mixed findings. As Rynes et al. (2005, p. 592) argue, "to tease out causal process as well as provide guidance about how best to implement various PRP programs, researchers need to begin measuring mediating psychological variables such as attitudes, beliefs and behaviours". This study has contributed to such development, by qualitatively exploring how individuals operating in an environment strongly characterised by PRP, experience and perceive PRP and how their attitudes and perceptions of PRP influences their behaviour. As such, this section reviews and presents the contribution of this study to knowledge. First by discussing how the study contributes to literature on the PRP–risk behaviours relationship, then how it contributes to theory, before finally discussing the methodological contribution of this thesis.

12.2.1. Contribution to body of knowledge on the PRP–risk behaviours relationship

This study has contributed to the body of knowledge on the PRP–risk behaviours relationship by enhancing understanding — theoretically and empirically — of how, when and why PRP influences risk behaviours. Such knowledge has been notably absent from extant research. Many PRP scholars argue that PRP research needs to account for how the decision context (Chng and Wang, 2015; Cuevas-Rodríguez et al., 2012; Sawers et al., 2011) and individual

perceptions and differences (Brink and Rankin, 2013; Chng and Wang, 2015; Wowak and Hambrick, 2010) influence PRP's effect on risk behaviours. More importantly, PRP scholars increasingly argue for research to explore how, why and when PRP impacts risk-taking, rather than whether it does (Chng and Wang, 2015; Devers et al., 2008; Gomez-Mejia et al., 2010; Shaw and Gupta, 2015). This study has contributed knowledge to enrich these areas where much of the extant PRP literature has been lacking.

Specifically, it has demonstrated *how* PRP influences risk behaviours, conceptually and empirically, by providing insights that PRP targets motivate the within-person variance of risk behaviours by triggering innate evolutionary needs and emotional states. Namely, how PRP targets influence an individual's perception of need frames influences their willingness to take risks. Moreover, the emotional state induced by the PRP target context further determines the variance of risk behaviours. While fear leads to risk-aversion, anger, happiness, pride and excitement/euphoria lead to risk-taking.

In addition to demonstrating how PRP influences risk behaviours via these need and emotional mechanisms, this study further contributes to positing *when* PRP influences risk behaviours. Specifically, when traders perceive a high need frame because of being below PRP targets, they often increase their risk-taking. Whereas when they perceive a low need frame because of having achieved or being able to achieve PRP targets, they decrease their risk-taking. Furthermore, the appraisal dimensions and themes through which individuals evaluate situations further demonstrate when risk behaviours are likely to vary. As findings of this thesis suggest, appraisals of certainty and self-control have a particularly strong link with an increase in risk-taking. This contributes to calls within the literature to identify when (i.e. under what conditions) PRP impacts behaviour (Chng and Wang, 2015; Shaw and Gupta, 2015).

A particularly important contribution of this study to knowledge is the conceptualisation of *why* PRP influences risk behaviours. This is the area of exploration most often overlooked within the PRP literature (Shaw and Gupta, 2015). Possibly, when much of the research pre-supposes that risk behaviours are influenced by incentive systems, then the question of why is not important to that literature. However, having a rationale for why risk behaviours vary within individuals is vital to extrapolate the impact of PRP on risk-taking. Here, this study's novel inclusion of RST provided an ultimate-level evolutionary based rationale for why risk behaviours vary because of innate need mechanisms (Gonzales et al., 2016; Mishra et al., 2014). Indeed as Witt (2016) notes, the inclusion of an ultimate-level perspective (i.e. describing the function of a behaviour to depict why a phenomenon occurs) of behaviour is

particularly advantageous, as evolution represents the generic preferences shared by all humans and thus provides a good starting point for predicting variances in behaviour. Moreover, Walters et al. (2016) recently argued that "ecological principles can play a role in enhancing our understanding of financial markets", calling for future research to apply ecological theory to improve understanding of the behaviour of those operating in financial markets. By conceptualising that risk-taking functions to ensure an individual's needs are met, it becomes easier to recognise situations within which risk-taking is likely (Mishra, 2014). This can help extrapolate when and why PRP influences risk behaviours and further contributes to the application of evolutionary concepts in financial markets (Walters et al., 2016).

As such, the knowledge developed within this thesis represents a noteworthy advancement over extant PRP research which narrowly assumes that risk-taking arises because of PRP, in and of itself (Wiseman and Catanach, 1997). Indeed, the case study of retail traders demonstrated how limiting this assumption is, as having a clear link between performance and reward does not appear to motivate their risk-taking. If anything, it makes them more cautious. Moreover, this study highlights the importance of an individuals' perception and emotional experience of the decision context in influencing their risk-related decisions. This contributes to a growing body of literature asserting PRP–risk behaviours research can be advanced by drawing from the extensive behavioural science literature on risk behaviours (Cuevas-Rodríguez et al., 2012; Devers et al., 2008; Gomez-Mejia et al., 2010; Martin et al., 2016; Wiseman and Catanach, 1997).

As such, the use of theory in this study has been key to the development of its contribution to knowledge on the PRP–risk behaviours relationship. As the following section demonstrates, the theoretical approach of this study further contributes to theory, both in terms of integrating cognitive and emotional theory and in contributing to their separate development.

12.2.2. Contribution to theory

The major contribution of this thesis to theory is the manner in which it combines cognitive and emotional perspectives on risk behaviours to explore risk-taking in this context. This contribution has also supported separate contributions to the development of RST and the ATF. Following the logic of middle-range thinking enabled this study's contribution to theory. Essentially, this thesis held that theory should be framed skeletally — providing a language to elucidate a phenomenon without binding exploration only to the tenets of theory — and that subsequent empirical exploration should enrich theory and provide meaning. As such, the

insights uncovered by this study can both enhance understanding of the PRP-risk behaviours relationship and augment theory by highlighting factors which further enhance and develop the conceptual framework. This section discusses the contribution this thesis makes to the development of RST, the ATF and the integration of cognitive and emotional perspectives on risk behaviours.

12.2.2.1. Contribution to the development of Risk-Sensitivity Theory

This thesis contributes to the development of RST by providing insights into the contextual factors which construct need frames in a 'real-world' field setting. This is something extant RST literature has called for, noting that future research is required to examine how need is constructed in real-world situations and how need motivates risk-taking (Mishra et al., 2012a). Specifically, this study contributes to the development of RST by providing insights which suggest that goals and targets, both external and internal to the individual, construct need levels. Although this does support the general conceptualisation of 'need' as a desired goal state within RST literature, what is particularly pertinent is that the insights of this study emerged naturally from the field and traders' narratives. Thus, the findings of this study, by demonstrating that the variance of traders' risk behaviours substantiates the central tenets of RST, further enhances the generalisability and external validity of this theory outside of experimental settings (Gonzales et al., 2016). This is significant as prior applications of RST have relied on laboratory settings (one exception is Gonzales et al. (2016) which uses secondary data). As such, the exploration of individual risk behaviours in an environment where risk-taking and goal-states are highly salient contributes to the development of a more generalisable application of RST. Moreover, this study provides a clear demonstration to future studies, of how to adapt the central tenets of RST to explore risk behaviours in a context where targets or goals are salient.

A further contribution of this study to the development of RST has been the exploration of the interaction between need frames and emotions. Specifically, extant applications of RST present need as a cognitive construct, emerging from individual perception of the decision context. However, this study expands this conceptualisation, suggesting that need frames and emotions may interact so closely that the emotional experience of the decision context may further augment the perception of need. This will be discussed further in the following sections.

12.2.2.2. Contribution to the development of the Appraisal-Tendency framework

This thesis contributes to the development of the ATF by exploring the influence of a broader range of emotions, both positive and negative, on risk behaviours. As So et al. (2015, p. 361),

explains, most research in the ATF literature "remains focused on a subset of emotions, a few appraisals and few types of decisions. We hope to encourage research that explores a broader set of emotions and studies a broader range of decisions". Although the impact of a sub-set of emotions (e.g. fear and anger) on risk behaviours is theorised in this study's conceptual framework, the exploratory field-study nature of this thesis meant it was not limited to those. Rather, emotions salient to the effect of risk behaviours emerged naturally from traders' narratives within the field. This exploratory approach allowed this study to develop insights on how fear, anger, happiness, excitement/euphoria and pride influence risk behaviours. Extant applications of the ATF to the study of risk behaviours are dominated by a focus on fear and anger (e.g. Beisswingert et al., 2015; Lerner and Keltner, 2001; Lerner and Tiedens, 2006), and to a lesser extent, happiness (Drace and Ric, 2012). This study is the first in the ATF literature, to the author's knowledge, to demonstrate a connection between excitement/euphoria, pride and risk-taking, and more importantly, provide insights on how they influence risk behaviours via their appraisal tendencies.

A further, more noteworthy contribution of this thesis to the ATF literature, is uncovering the underlying processes which trigger and differentiate emotions in the field. The ATF is quite a young theory, and thus is still developing (Kugler et al., 2012; Podoynitsyna et al., 2012). Consequently, the specific appraisal dimensions and themes characterising different emotions are not yet unequivocal, and many argue that the nature of the context and the idiosyncrasies of the individual can further influence which emotions arise from cognitive appraisals (Kuppens, 2013; Kuppens and Tong, 2010; So et al., 2015). In this regard, this study substantiates extant appraisal characterisation of fear, anger, happiness and pride between and within individuals. Furthermore, it contributes insights which suggest that excitement/euphoria differs from happiness because of differences in appraisal themes. In other words, how the individual perceives the overall nature of the decision context can influence which specific emotions are triggered. Moreover, it has contributed to the awareness of self-anger as an emotion distinct from anger, as previously proposed by Ellsworth and Tong (2006).

In addition, the ATF is predominantly applied in consumer decision making studies (e.g. Cavanaugh et al., 2007; Demir et al., 2009; Han et al., 2007; So et al., 2015). As such, the successful application of this study in the field, in an organisational and financial markets setting, further contributes to the generalisability of the ATF. In sum, this study has contributed to the expansion of the ATF, by providing insights on how a broader range of emotions influence risk behaviours, particularly those of positive emotions which are not often

differentiated when studying the impact of emotions on risk behaviours (Druckman and McDermott, 2008).

12.2.2.3. Contribution to the development of integrating cognition and emotion theory on risk behaviours

The most conspicuous contribution of this study is the integration of cognition, emotion and emotion regulation processes to demonstrate how, when and why within-person variance of risk behaviour is influenced. Many have noted the lack of integration between cognitive and emotional perspectives to understand risk behaviours when the two factors are arguably interrelated (Druckman and McDermott, 2008; George and Dane, 2016; Kusev et al., 2017). Indeed, the lack of a conceptual framework to bring the two perspectives together is also notable (Kong-Hee, 2012). Moreover, although cognitive perception, from the perspective of prospect theory, has been explored in some PRP studies (e.g. Abdel-khalik, 2014; Abdellaoui et al., 2013; Alam and Boon Tang, 2012), there is a notable absence of emotion in PRP–risk behaviours literature.

The predominant approach of the risk literature is to propose that risk behaviours vary because of cognitive framing effects captured by prospect theory (Kahneman and Tversky, 1979; Tversky and Kahneman, 1981). However, as reviewed in this study (see chapter three), prospect theory has limitations which hinder its ability to provide a rationale for why risk behaviours vary because of framing effects. As such, this study selected RST to conceptualise how cognitive framing of need levels influence risk behaviours. However, it became clear during this study's empirical exploration, that the variance of traders' risk behaviours could not be understood from this solely cognitive perspective. Indeed, it is difficult to extrapolate whether the perception of need contributed to emotional state, or whether specific emotions augmented the perception of need.

By demonstrating that need framing and specific emotions are somewhat inextricable in the context of risk behaviours, this study further contributes to a growing recognition that risk behaviours cannot be understood without consideration of both cognition and emotion (Druckman and McDermott, 2008; So et al., 2015). However, this study provides a further novel contribution in this manner because of its use of RST, which is argued to provide the evolutionary origin for framing effects, and the ATF, which theorises how specific emotions, rather than emotional valance, influences risk-taking. There are very few studies which examine the impact of distinct emotions on the framing of risky choice, and those who do (e.g.

Campos-Vazquez and Cuilty, 2014; Habib et al., 2015) utilise the prospect theory conceptualisation of framing. As such, this study's exploration of the interaction between specific emotions and need frames further contributes and advances understanding of how decision frames and specific emotions interact to effect risk behaviours. Specifically, this study suggests that specific emotions (e.g. fear) can make sub-sets of information on the decision frame more salient (e.g. high need), or override the framing effect (e.g. as is the case with anger). In addition, the inclusion of emotion regulation in this study is also noteworthy. Few studies of the ATF explore the effect of emotion regulation strategies and thus overlook the potential modulating affect such strategies can have on the effect of distinct emotions on risk behaviours. However, as this study demonstrates, when individuals utilise emotion regulation strategies they can overcome the potential for emotions to increase risk-taking. Thus, a further contribution of this study to the development of integrating cognition and emotion perspectives on risk behaviours, is the recognition that emotion regulation can counteract increased risk-taking, rather than motivate risk-taking as much of the emotion regulation literature proposes (Heilman et al., 2010; Miu and Crişan, 2011; Panno et al., 2013; Szasz et al., 2016).

In sum, a key and potentially significant contribution to future research is this study's development and application of a conceptual framework which unites these perspectives in a feasible manner. Namely, this study integrates cognitive and emotional perspectives to explore the PRP–risk behaviours relationship by identifying a common denominator to unify them. Specifically, an individuals' goal state which appears analogous to need thresholds in RST, motive consistency appraisals in appraisal theory and PRP targets in PRP literature. As demonstrated in this section, the manner in which this study brought these perspectives together is particularly novel. It contributes real-world insights from the lived experiences of individuals operating in a risky environment, of the interrelated nature of cognitive perceptions and emotional experience, and how emotion regulation can modulate risk behaviour outcomes.

12.2.3. Methodological contribution

This study contributes to the development and wider application of the narrative interviewing method by presenting a process for its adaptation to more focused topics. Within extant research, there are few guidelines or clear structures for narrative interviewing (Henwood et al., 2010; Schwartz-Shea and Yanow, 2012). It is predominantly used in life history research, where the recommended process for narrative interviewing is to ask an initial broad prompting question, i.e., "Tell me about your life/childhood", and provide the space and time for the

participant to tell their story without interruption from the interviewer (Suárez-Ortega, 2013). This is a well-proven method for exploring lived experiences, yet as Henwood et al. (2010) note, it does not enable the exploration of more focused topics. Consequently, the strength of the narrative method for uncovering subjective insights and perceptions, as demonstrated in this study, may be in danger of being overlooked or underutilised because of a lack of structure or clear process for its application.

However, this study has endeavoured to contribute to the development of a more structured and clearer process, whilst still retaining the openness and indirectness in questioning which makes the narrative method effective for exploring subjective concepts. By taking the recommendations of Henwood et al. (2010), regarding the use of more focused prompting questions, and the somewhat overlooked structure described by Schutze (1977) and translated by Jovchelovitch and Bauer (2000), this study developed a template for a focused narrative method. The interview design, presented in table 7.1 (pg.91), can easily be adapted to look at other topics, by altering the themes and points of focus. The most important thing is that the main narration questions remain broad and prompt discussion of experiences and the wider context, rather than the topic of direct interest (e.g. risk and PRP). As such, this study has contributed to the development and potential wider application of the narrative interviewing method to other research contexts seeking to access individuals' subjective perceptions and experiences.

A further methodological contribution of this study is the application of an interpretive, qualitative approach to explore a topic dominated by quantitative, positivist approaches. As discussed throughout this study, risk is a subjective concept (Brehmer, 1987; Nosić and Weber, 2010). Hence, this study has argued that accessing the subjective factors which drive risk behaviours requires a methodological approach which values and finds knowledge in the subjective meaning of participants. This approach has enabled this study to uncover insights which extant research on this topic has not. Namely, that an individual's subjective perceptions of the decision context drive their risk behaviours. Thus, the use of an interpretivist paradigm, by accepting subjective perceptions, enabled this study to uncover how individuals experience and perceive PRP and risk. This further enabled the uncovering of insights relevant to RST and the ATF in a naturalistic setting. As such, the methodology of this study is at the core of enabling the previously discussed contributions to knowledge and theory.

In sum, this thesis has contributed to knowledge on this topic by providing insights on the more nuanced, behavioural, individual and contextual factors which influence the nature of the

relationship between PRP and risk behaviours. It is these factors which have been largely overlooked in much of the extant PRP–risk behaviours literature. In addition, it has contributed to the further development and recognition of risk behaviours as an interrelated outcome of emotion and cognitive processes. Nevertheless, this study does have some limitations which must be recognised. The following section describes these in further detail.

12.3. Limitations and suggestions for future research

Although this study has produced several important insights and findings, it is of course not without its limitations. This section sets out these limitations and makes suggestions for future research.

The qualitative, interpretive approach of this study is what enabled it to reveal rich insights into how traders perceive risk and what influences their behaviour. In this regard, this is one of the great strengths of this study but may also be considered one of its primary limitations. Essentially, the insights of this study are the researcher's interpretation of each individual's interpretation of their behaviour. This archetype of subjectivity is inherent to interpretive research, which posits that reality is relative to the individual constructing it; there is no singular explanation of phenomena to be found (Lukka and Modell, 2010). In this manner, insights are a co-creation of participants' perceptions and the researcher's interpretation. It is for this reason that many have questioned the credibility of interpretive research, due to its subjective nature and the potential for bias on the part of the researcher (Schwartz-Shea and Yanow, 2012).

However, it is important to note that such criticisms form part of a wider methodological debate which differentiates the strengths and weaknesses of a study on a subjective–objective distinction (Ahrens, 2008; Luft and Shields, 2014). Yet, as Lukka (2014, p. 561) notes, "knowledge on people's meanings (i.e. their understanding of 'something as something') plays a central role when we aim to explain human action". Thus, although many may consider the 'subjectivity' of this study a limitation, it is arguably necessary when seeking to understand how individual perception of the decision context influences risk behaviours. If the aim of this study was, for example, to determine whether or to what extent a high need frame causes risk-taking, then subjectivity may pose more of an issue. As set out in chapter seven (section 7.8), this study has taken steps to enhance credibility and confirmability, by taking steps to limit the potential of researcher bias influencing findings. Namely, transcribed interviews and the researcher's explicit interpretations of findings were sent to participants for review. Asking the

participants to cross-check the researcher's interpretations against their own meanings ensured the presented findings where a qualified reflection of traders' experiences. Furthermore, to enhance the dependability (i.e. consistency and reliability) of the study's approach and findings, the conceptual framework and main findings where cross-checked during an informant interview.

A further limitation which must be noted, is that participants of this study were overall quite experienced. They are successful individuals who have survived the financial crisis and are still in the industry. As such, it is possible that they are not the type of individual who may have a natural predisposition towards excessive risk-taking in pursuit of large personal reward. Moreover, there is a potential for a life stage effect influencing findings. Extant research has found that individual risk propensity changes, often reducing, with age and experience (Josef et al., 2016; Thaler and Johnson, 1990). Thus, there is the potential that as the traders in this sample have achieved a certain level of experience, they are no longer focused on making money and instead focus on being a better trader. However, some of the traders in this sample were less experienced (i.e. IV12, IV14, IV6), and they demonstrated similar tendencies and attitudes to risk as the more experienced individuals. Nonetheless, it is important to note that the sample of this study, although revealing, may not represent the extremes of the financial trading industry (i.e. extreme risk-takers vs. low risk-takers). Therefore, it would be beneficial for future research in this context to explore any potential differences in risk behaviours between more and less experienced traders.

With regards to emotions, a further limitation is that this study could not really chart the precise level of risk-taking different emotions evoked. For instance, anger is often described by traders as an emotion which increases risk-taking, but then so are positive emotions such as excitement and pride. The qualitative and exploratory nature of this study meant differentiating the precise level of risk-taking different emotions evoke is beyond its scope. Nevertheless, this is an area which receives little attention in the wider literature on distinct emotions and risk-taking. Extant research has sought to determine which emotions are more likely to lead to optimistic risk perceptions (e.g. Beisswingert et al., 2015; Drace and Ric, 2012; Podoynitsyna et al., 2012), but there is a complete lack of research exploring whether one specific emotion causes a greater level of risk-taking than another. Thus, this is an open question for future research to explore. For instance, would a proud person take more risks in pursuit of a desired goal than someone who is excited by the prospect of achieving a goal? Thus, an interesting avenue for

future study would be to explore whether different emotions produce different levels of risk-taking (i.e. excessive vs. controlled).

A further limitation of this study, and closely related to the previous, is that it could not uncover which distinct emotion, or set of emotions, traders were most likely to regulate. Specifically, it is not clear from traders' discussion of emotion regulation strategies whether a specific set of distinctive emotions are more likely to be regulated than others (e.g. anger more than fear). When discussing emotion regulation strategies, participants of this study often just referred to feeling bad, or being in a negative thought process, they did not assign a distinct emotion. Hence, an interesting area for future research would be to explore whether traders seek to more closely regulate certain emotions. Moreover, it would be beneficial to further explore which strategies may be more effective for different types of emotion. The finding of this study that self-anger did not motivate risk behaviours provides an interesting area in this regard. Perhaps, if angry traders were to reappraise the negative situation as, for example, their fault with the timing of the trade rather than the fault of market volatility, then perhaps the impact of anger on risk-taking would be halted or reduced.

An additional limitation of this study is that it does not account for the influence of personality on risk-taking. A number of scholars consider that an individual's personality traits can govern their risk behaviours (e.g. Egan et al., 2011; Lejuez et al., 2002; Skeel et al., 2007). For instance, personality traits such as impulsivity, sensation-seeking and low self-control have been associated with greater risk behaviour (Demaree et al., 2008; Lejuez et al., 2002; Nicholson et al., 2005; Skeel et al., 2007). As such, an individual exhibiting such an attitude or personality variable may be more likely to engage in risk-taking behaviour regardless of the impact of environmental variables. Indeed, Zuckerman, (1994) proposed that the personality trait of sensation seeking could predict financial risk-taking behaviour. Additionally, Wong and Carducci (1991) discovered that those with high sensation-seeking personalities exhibited greater tendencies for risk-taking in everyday financial decisions. Furthermore, risk-seeking behaviour in the investment domain has been related to personalities with a disposition to tolerate anxiety or seek excitement (Corter and Chen, 2006). As such, from this perspective, personality traits are considered to have a significant impact on risk behaviours. However, many scholars of risk have criticised the view of risk behaviours as driven by stable personality traits because risk behaviours are known to vary with different decision contexts (Hanoch et al., 2006; Vlaev et al., 2010; Weber et al., 2002; Weber and Johnson, 2008). Furthermore, as this study was seeking to understand the within-person variance of risk behaviours (rather than

between-person variance), the influence of contextual factors (e.g. perceptions of the situation) is arguably more relevant.

Nonetheless, studying the influence of personality factors in conjunction with contextual factors would be a highly beneficial approach for future research. Indeed, personality differences are something the participating traders of this study sometimes spoke of, explaining differences in their behaviour to a colleagues' behaviour as an outcome of different personalities. Thus, studying the combined impact of personality and contextual factors on risk behaviours would be an interesting avenue for future research. Doing so would likely shed greater light on how, why and when individuals take risks. Moreover, it can account for any influence on risk behaviours that may arise from a sorting effect, whereby individuals with a greater tolerance for risk are more likely to choose a profession where risk is present or are more likely to remain than those with a lower tolerance for risk (Cable and Judge, 1994; Cornelissen et al., 2011; Grund and Sliwka, 2010).

Notably, this study's insight that PRP targets influence risk behaviours by impacting how individuals perceive situations, cognitively and emotionally, is significant for future research. It suggests that key to understanding the PRP–risk behaviours relationship, is understanding the impact of targets on individual perception. Doing so is of course not straightforward, as idiosyncratic behavioural factors influence the effect of performance standards on risk behaviours. As such, effective progression in this area requires further research which recognises that the relationship between PRP and risk behaviours does not arise because of the incentive strength of PRP, but because of the contextual information PRP makes salient to innate behavioural mechanisms. In this regard, this study argues that further research on the PRP–risk behaviours relationship can be advanced firstly; by greater recognition that risk behaviours are not stable but vary because of cognitive and emotional perceptions of the decision context, and secondly; by examining the impact of PRP targets on these perceptions. Hence, further development of conceptual frameworks which integrate both cognitive and emotional effects to study risk behaviours are required. The conceptual framework set out in this study offers a viable starting point for future theoretical development. Specifically, the similarities between RST and the ATF, in terms of mechanisms which evaluate the decision context for goal congruency (i.e. need level and motive consistency appraisals) and a functionalist design, offer an effective theoretical basis from which to integrate cognitive and emotional perspectives. Indeed, this offers future PRP research, wishing to take account of the behavioural mechanisms driving risk behaviours, a theoretical and conceptual starting point.

Furthermore, the theoretical perspectives of this study are arguably transferable to other organisational contexts where an individual's decisions under risk and uncertainty effect performance outcomes. For example, pilots and surgeons often make individual decisions under conditions of uncertainty and/or risk (Cristancho et al., 2013; You et al., 2013). The conceptual framework set out in this study may help illuminate further how emotions (e.g. fear, anger) or situations of need (e.g. loss in plane fuel/severe patient bleeding during surgery) influence risk-taking behaviour in such situations. In addition, it is particularly transferable to the context of professional sports (e.g. tennis/poker players) where high performance is required under uncertain conditions. How well a sportsperson is performing in respect of their desired need state (i.e. required points to win match) may influence their risk-taking. Indeed, Gonzales et al. (2016) found that American Football players took greater risks when in situations of high need (e.g. losing game). The addition of the insights this study provides regarding how specific emotions affect risk-taking may be of further benefit to such research. In particular, exploring how emotions such as anger or fear influence risk-taking may shed further light on sportsperson performance following the experience of undesired performance levels (Hanin, 2000). Moreover, as demonstrated in this study, the positive emotions of happiness, pride and excitement/euphoria can lead to an increase in risk-taking due to an increase in confidence and an increased expectation for positive outcomes. Thus, understanding the behaviour of sportspeople following the experience of positive performance (e.g. winning) may be further augmented by the theoretical insights provided in this thesis. In sum, the broad applicability of this study's conceptual framework supports its transferability to a variety of research contexts where risk behaviours, emotions and need framing are of interest.

The following section provides the researcher's personal reflection on the study and its findings.

12.4.Personal reflection

Doing this study has completely changed my view, and I would hope the reader's view, of what a relationship between PRP and risk behaviours entails. As many of the other scholars I have cited throughout this work have argued, the representation of this relationship in much of the literature is overly narrow and does not truly reflect the real complexity of individual thinking and organisational life. For traders, the decision to take a risk or not, or how much risk to take, may be made in a matter of seconds but the factors which go into influencing that decision are multifaceted and complex.

I went into this study trying to hold lightly the widespread view that PRP systems would encourage people to take risks because of greed or pressure or peer competition. Yet, even with trying to separate myself from this assumption, I was still surprised to discover how little PRP appears to directly influence behaviour. Having engaged with individuals in this context, I now recognise that the relationship between PRP and risk behaviours is not straightforward. Indeed, understanding risk behaviours overall is not straightforward. As such, throughout this study, I have tried to uncover and reveal what does influence risk-taking in this context, while retaining how idiosyncratic it is.

In this regard, the narrative interviewing method, from my perspective, is the real cornerstone of this study. I do not believe participants would have revealed the same insights to me as they have if I had used more pre-defined, direct questions. Traders are quite cautious and guarded in some respects, and do not like to portray themselves making decisions they consider 'irrational', such as allowing emotions to impact them or taking risks because of targets. However, by de-centring all of the core concepts I wished to uncover, I was allowed an insight into their world, their insecurities and their opinions. Moreover, I do not think many traders, when asked how pay or reward influences their behaviour, would respond with the most honest answer.

Interviewing the individuals in this study was both one of its greatest challenges and also one of the greatest revelations. It revealed to me what it is like to be a trader — the uncertainty, the stress, the emotional highs and lows, the demands and most of all the need to be so self-aware. One thing that struck me with every single individual I interviewed and met with, was how self-reflective and committed they were to improving themselves. Nearly all traders likened the job to elite and professional sports, for the necessity of continuously reviewing and analysing their decisions and behaviours. Just as a tennis player may replay a recording of a match to analyse the strengths and weaknesses of their game, so too do traders, often daily, review what good and bad decisions they have made and how they impact performance. From engaging with these individuals, I certainly feel that the view much of the PRP literature takes of risk behaviours is overly simplistic, and unnecessarily removes the 'human' from the design of PRP.

For me, this study has been all about balance or at least restoring some balance to the discourse on this topic. As I have argued throughout, the literature on PRP does not adequately account for, or represent what is known to drive risk-taking: people's thoughts, evaluations and feelings. This narrow assumption that risk-taking is motivated because of incentive systems

has then spilt over to influence the popular discourse on this topic. Hence, so many feel that large bonuses motivate risk-taking. I do not doubt they have played a role, but I would argue there is more to it than that. Thus, I would hope that in doing this study I have balanced this argument by providing greater insight on the multiple factors which go into influencing risk behaviours, not just pay. Moreover, I would hope I have given a voice to the participants in this study and allowed their experiences and opinions to come through.

12.5.Concluding comments

This thesis set out with the intention of ameliorating inconclusive findings on the relationship between PRP and risk behaviours by providing a more representative account of how risk behaviours are influenced in this setting. Underlying this goal was an implicit question of why do we know so little about this relationship and how better can we understand it? This led the researcher to take an interdisciplinary approach — reviewing literature from evolutionary ecology, behavioural economics, finance, accounting, psychology, organisational behaviour and decision-making — in pursuit of how best to understand what drives the variance of risk behaviours. On recognising that risk behaviours vary because of how individuals perceive a situation and their emotional state, integrating these two perspectives to explore the PRP–risk behaviours relationship became a further goal of this study.

The novel conceptual framework has been at the core of this study's ability to fulfil its aims and provide insights on its research questions. The framework drew from diverse literature (i.e. evolutionary ecology and emotion literature) to theorise how PRP can influence risk behaviours by impacting an individual's perception of the decision context. Specifically, this study conceptualised that PRP influences risk behaviours by triggering innate need satiation mechanisms and affecting emotional states. Moreover, it also accounted for the modulating influence of emotion regulation on the impact of specific emotions on risk behaviours. This represents a novel integration of what influences risk behaviours, not previously seen in PRP literature. Importantly, this conceptual framework addresses issues in both the risk literature and the PRP literature. The risk literature predominantly examines how framing effects, from the limited perspective of prospect theory (i.e. only describes how rather than why), influence risk behaviours, and overlooks the role of emotion. Then, studies which do explore emotion do so from the limiting perspective of contrasting the valence of emotion. Furthermore, the effect of emotion regulation is rarely integrated into theories of risk behaviours. Thus, by integrating the evolutionary rationale for why cognitive framing influences risk behaviours with

understanding of how specific emotions influence risk behaviours and the role of emotion regulation, this study has overcome theoretical limitations in the risk literature. Moreover, this framework enables the insights which are lacking in extant PRP literature; specifically, how variances in individual perception and the decision context influence risk behaviours. Thus, the conceptual framework provided the first key step in fulfilling this thesis' aim of providing a more representative account of risk behaviours to the study of PRP.

The methodological design of this study further buttressed this study's exploration of how risk behaviours arise and are influenced in the context of PRP. The interpretive paradigm ensured the subjective nature of risk behaviours was explored, and the meaning individuals attached to experiences and contextual factors were considered central to the understanding of behaviour. Moreover, the narrative interviewing method provided the depth of insight this study required to uncover, how, why and when risk behaviours were influenced in this context. The depth of contextually embedded insights and findings this method produced are not seen in other studies of the PRP–risk behaviours relationship. Indeed, such naturalistic and holistic viewpoints of risk behaviours are also not seen in extant risk literature, which is dominated by laboratory experiments. It is rare for a study of PRP and risk behaviours to include the views and experiences of individuals working under such conditions.

The findings of this study have supported its aims and moved beyond the inconclusive findings on the PRP–risk behaviours relationship. Namely, by providing insights which help understand why extant literature has been unable to adequately explore how, when or why PRP influences risk behaviours. By focusing on determining whether PRP increases risk-taking, the extant literature has circumvented what are arguably the real causes of risk-taking; cognitive and emotional perceptions arising from evaluation of the decision context. Due to the idiosyncratic and contextually-embedded nature of such factors, they are difficult to uncover and extrapolate. Nonetheless, this study has uncovered several findings with implications for understanding the PRP–risk behaviours relationship and wider knowledge of risk behaviours. First and foremost, PRP influences risk-taking by influencing the conditions of the decision context. By providing information on performance and giving performance targets, PRP systems change the decision landscape for traders. Those who are trading to a target or to achieve a particular P&L level, make risk-related decisions based on how far they are from their target rather than on what the market is doing. Such behaviour is further explained and justified by this study's conceptual framework. By giving individuals a target, PRP systems can activate the evolutionary need satiation function of risk-taking. Furthermore, by finding that emotions are inherently

connected to risk behaviours in this context, this study provides further substantiation for the risk literature; that risk behaviours are an interrelated outcome of cognition and emotion.

To conclude, this thesis has revealed the behavioural and human factors relevant to PRP's impact on risk behaviours, developed knowledge beyond the inconclusive findings of this literature and provided a cognition–emotion conceptual framework of risk behaviours.

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APPENDICES

Appendix A: Ethics committee approval

Belinda Vigors
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Department of Human Resource Management and Organisational Behaviour
University of Greenwich
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SE10 9LS

Direct Line 020 8331 8842
Direct Fax 020 8331 8824
Email researchethics@gre.ac.uk
Our Ref UREC/15.1.5.7
Date: 23 October 2015

Dear Belinda,

University Research Ethics Committee – Minute 15.1.5.7

TITLE OF RESEARCH: Exploring the influence of performance-related pay on risk behaviours

I am writing to confirm that the above application has been **approved** by Chair's Action on behalf of the Committee and that you have permission to proceed.

I am advised by the Committee to remind you of the following points:

- You must notify the Committee immediately of any information received by you, or of which you become aware, which would cast doubt upon, or alter, any information contained in the original application, or a later amendment, submitted to the Committee and/or which would raise questions about the safety and/or continued conduct of the research;
- You must comply with the Data Protection Act 1998;
- You must refer proposed amendments to the protocol to the Committee for further review and obtain the Committee's approval thereto prior to implementation (except only in cases of emergency when the welfare of the subject is paramount).
- You are authorised to present this University of Greenwich Research Ethics Committee letter of approval to outside bodies in support of any application for further research clearance.

On behalf of the Committee may I wish you success in your project.

Yours sincerely

[redacted]

John Wallace
Secretary, University Research Ethics Committee

Dr Julia Mundy
Dr Rebecca Hewitt

The Queen's Anniversary Prizes
2008

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Appendix B: Participant information sheet for informed consent

I am a PhD researcher at the University of Greenwich undertaking research on risk behaviours and performance-related pay.

The purpose of my PhD study is to better understand how risk behaviours are influenced and the role of performance-related pay in this context. I am seeking to explore why risk-taking varies from one situation to another and what underlying factors affect risk-taking. I'm particularly interested in the role of emotions and natural instinct and how people respond to them.

To develop this understanding, I am interviewing traders. Such an environment is a fascinating setting for this research because risk is so inherent and each individual is responsible for their own individual decision-making.

Interviews are very broad, focusing on the experiences and opinions of each individual. The aim of the research is to understand how risk behaviours and decision making is affected by individual perceptions and emotions and to hear the story of each participant.

All information gathered during interviews is treated with full confidentiality, and no names, personal information or organisation affiliation will ever be mentioned. Participants will only be categorised by code numbers to ensure anonymity, and I will be the only person to analyse the interviews.

By conducting this research, I hope to develop a better understanding of how people make decisions in such an environment and to provide insights on the underlying factors which influence risk behaviours.

Your participation is really appreciated, and you are free to withdraw from the study at any time. Once the interview is completed, I will send a transcribed copy to you for your review. On reading this, you can highlight any points you wish not to have included in the final study. You can contact me at any time via the email or telephone number below.

With kindest regards,

Belinda Vigors

E: [redacted]

T: [redacted]