

# Anxiety, confidence and risky decisions

## *Effects of anxiety and confidence on decision-making in (non)competitive settings*

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# The study

**Overview** I discuss a current study on the effects of individual differences in anxiety and confidence on risk taking behavior, and how the context moderates this relationship

**Theme** This study illustrates my continuing interest in the effect of individual personalities and cognition on strategic decision making

**Caveat** The study is a new, ongoing work that is a first step in an ongoing research program.

# Why study individual differences?

- Risk is at the heart of strategic decisions.
- Much of the risk taking literature has focused on the role of the situation on risk-taking behavior (e.g. Fiegenbaum & Thomas 1988; Bromiley 1991; Jemison 1987; Cool & Schendel 1988).

# Where individuals have counted

1. Individual *differences* were not considered (e.g., McNamara & Bromiley 1977; Sanders 2001)
2. Indirect proxy measures, such as demographic attributes, were used (e.g., Wiersema & Bantel 1992, MacCrimmon & Wehrung 1986, Barker & Mueller 2002)
3. Focus was on comparing leaders with non-leaders and entrepreneurs with non-entrepreneurs in terms of risk propensity (Stewart and Roth 2004, Lim and Ployhart 2004, Judge et al. 2002)

# Fear and Hope

Risk propensity is motivated by fear and hope (Lopes, 1984, 1987) which in turn are closely related to anxiety and confidence.

# Definitions

**Confidence** is a relatively stable individual tendency to view himself or herself to be capable to meet challenging task demands in a wide variety of situations.

**Anxiety** is a personality characteristic that relates to the degree to which an individual is apprehensive, fearful, nervous, tense, and jittery (Costa and McCrae, 1992).

# Confidence

Confidence tends to focus the attention to the potential in the situation and also leads individuals to overweight the possible positive outcomes of a situation (McKenzie, 1997; Lopes, 1987).

# Anxiety

Anxiety tends to focus attention to the threat in the situation (Eysenck, 1992), leading to a heightened fear of failure (Elliot & McGregor, 1999), and further leading to a preference for security (Raghunathan & Pham 1999).



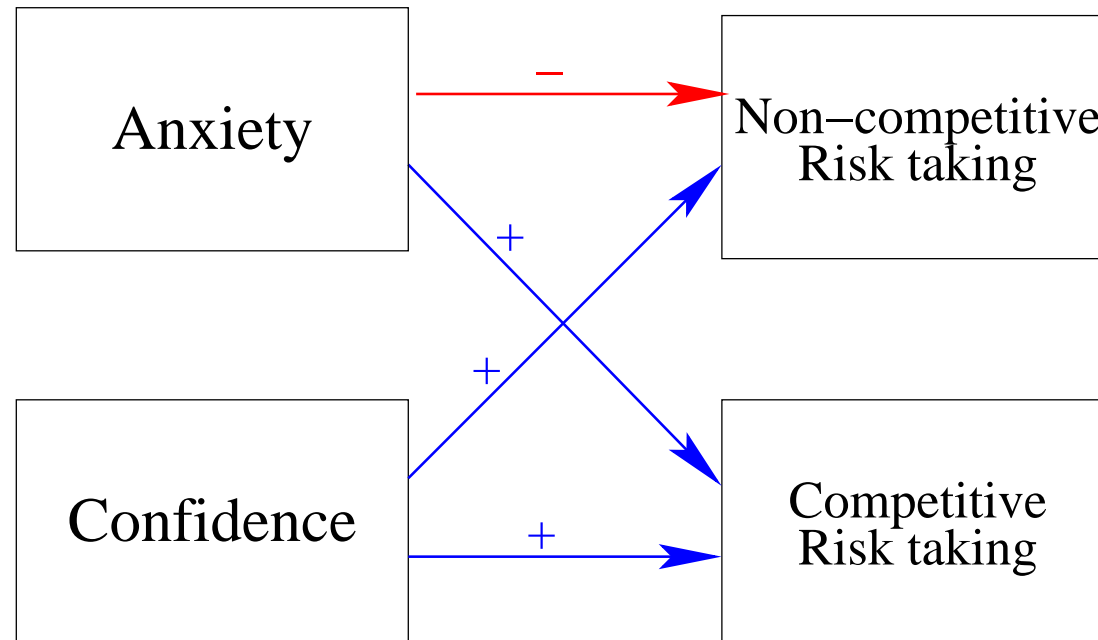
# Obvious expectations

- Confidence will be positively related to risk taking
- Anxiety will be negative related to risk taking.

# Not so obvious expectations

- Anxiety will be negatively related to risk taking in non-competitive situations
- Anxiety will be positively related to risk taking in competitive situations.

# Anxiety, confidence, context & risk



# Why (non)competitive contexts?

We selected both a competitive context and a non-competitive context because decision makers in organizations often face risky decisions reflective of both types of decision context.

# Non-competitive situations

A decision context is non-competitive when decision makers make their choices in quasi-isolation, choosing between a set of options where the ability to invest in those options are not directly affected by competitors in the market (e.g., deciding between two or more capital expenditure choices)

# Competitive situations

In a competitive context, on the other hand, the goals of two or more decision makers are interdependent and are in conflict in a sense that one decision maker can only succeed at implementing the decision to the detriment of others (Deutsch, 1949) (e.g., bidding with rival firms on a desirable asset or firm)

# In this study...

1. We demonstrate that individual personality attributes affect decision risk behavior.
2. We directly test the influence of individual attributes on decision behavior
3. We show that the competitiveness of a decision context affects the relationship between anxiety and risk taking.

# Confidence, noncompetitive settings

## Confident individuals:

- look for the opportunities in a situation (Lopes 1987)
- are high on achievement motivation (Chen, Gully & Eden 2004)
- believe that they have a potential control of their environment (Klein & Kunda 1994)
- invest a high level of effort on tasks that they are committed to (Hall & Foster 1977)
- heighten their effort in the face of setbacks (Miyake & Matsuda 2002)
- they tend to remain task focused (Klein & Kunda 1994)



# Hypothesis 1

Confident individuals are likely to prefer a high yield, but potentially also high loss option to the lower yield but lower loss option. Thus, we hypothesize

H1 Confidence will be positively related to risk taking in non-competitive situations.

# Anxiety, non-competitive situation

## Anxious individuals:

- have an attentional bias towards negative, threatening information (Eysenk, 1992)
- interpret ambiguous stimuli in a more threat-relevant manner (MacCleod & Cohen, 1993),
- believe negative events are more likely to happen to them (Butler & Mathews, 1987)
- respond faster to threat-relevant stimuli (Broadbent & Broadbent, 1988)
- see higher risk in decision situations (Stober, 1997)

# Anxiety, non-competitive situations

With their more narrow attention focus and bias toward threatening information, anxious individuals are likely to focus on the loss potential associated with a risky decision and are likely to exhibit loss averse behavior and choose the less risky option.

**H2** In a non-competitive context, anxiety will be negatively related to risk taking.

# Confidence, competitive situation

Confident individuals:

- looking for the opportunities lead to overvaluation of the asset to be acquired
- heightened effort in the face of set-back lead to counter-bidding

# Hypothesis 3

Confident individuals are likely to bid higher in the initial bid and also bid higher in subsequent bids. Higher bids, in turn, is greater risk since the value of asset remains constant.

**H3** Confidence will be positively related to risk taking in competitive situations.

# Anxiety, competitive situations

Anxious individuals attend to the most threatening aspects of the decision environment. In a competitive decision, like a bidding situation, the most threatening aspects of the decision is loosing the competition itself, leading anxious individuals to bid higher, resulting in higher risk actions.

# Competition as most relevant threat

Anxious individuals tend to:

- be publicly self-conscious (Beck & Clark, 1988). Thus they may be more sensitive to social pressures and cues.
- restrict information processing to the most threatening stimuli (Eysenk, 1992). So in a bidding setting they are likely to attend to cues from the bidding exercise itself instead of the larger decision environment.

# Most relevant threat II

... and

- Anxious individuals tend to exhibit a greater fear of failure (Elliot & McGregor, 1999).
- In a bidding situation, decision makers are likely to frame losing the competition as failure



# Anxiety and social cues

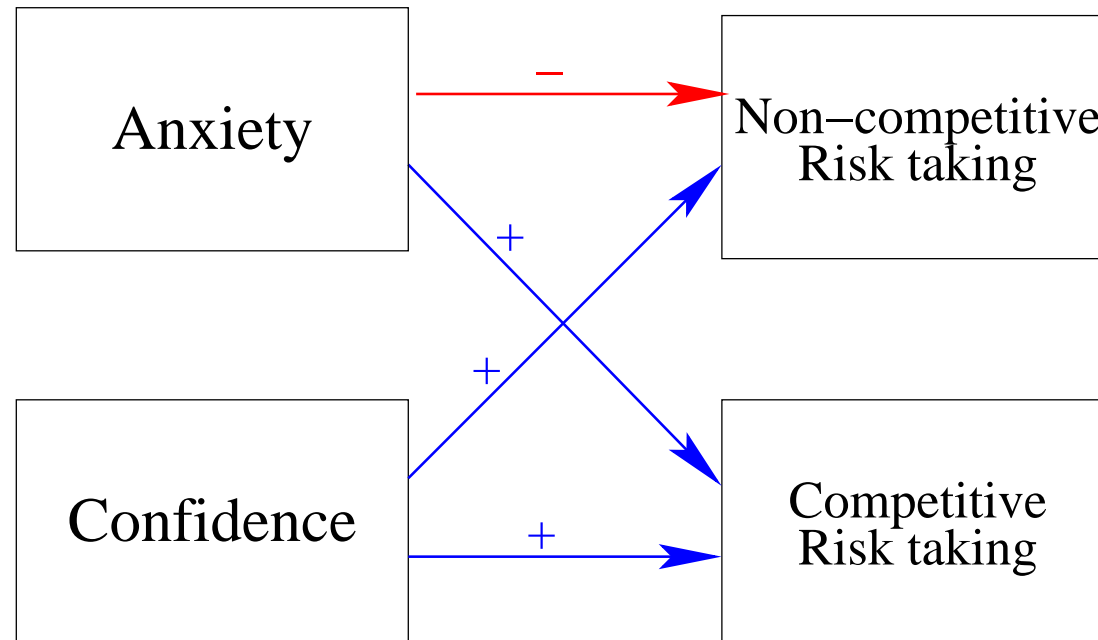
Anxious individuals are also more receptive to social cues and may increase their valuation of the asset they bid for after seeing that others bid highly for this asset. This in exchange also could explain higher bidding.

# The interesting hypothesis

From the above, anxiety is likely to drive higher bidding in an effort to avoiding this failure.

H4 In a competitive context, anxiety will be positively related to risk taking.

# Anxiety, confidence, context & risk



# Stage 1: Non-competitive context

- Sample 168 upper level undergraduates taking core Strategic Management course.
- Anxiety measured by the anxiety scale of the Revised NEO five-factor inventory (NEO-FFI) (Costa & McCrae, 1992)
- Confidence measured by five items of the competence scale of the NEO-FFI.
- Control variables: Age & gender

# Asset allocation

Participants in stage 1 were asked to act in the role of a CEO of a fictitious firm and were asked to choose their preference between building a new carburetor to go along with their existing engines, a low risk/low reward decision. Alternatively, subjects could choose to build a high-end motorcycle, a high risk/high reward decision.

# Non-competitive results

Variable	Model 1	Model 2
Age	.017	.007
Gender	.438	.040
Confidence		.088 <sup>†</sup>
Anxiety		-.091 <sup>*</sup>
Log likelihood	-117.50	-110.35
Log likelihood test++		14.30 <sup>**</sup>
D.F.	2	4

$N = 168$

Tests are one-tailed; <sup>†</sup> $p < .10$ ; <sup>\*</sup> $p < .05$ ; <sup>\*\*</sup> $p < .01$

# Stage 2: Competitive context

- 131 of the 168 participated in stage 2 that was done in a computer lab.
- A pairwise bidding for an acquisition target. Subjects bid in acquisition premium. Participants were lead to believe that they are bidding against another subject.

# Opening bid results

Variable	Model 1	Model 2
Age	-.004	.002
Gender	-.069	.017
Confidence		.033**
Anxiety		.024**
Log likelihood	-339.08	-333.47
Log likelihood test++		11.22**
D.F.	2	4

$N = 135$

Tests are one-tailed; † $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$



# Final bid results

Variable	Model 1	Model 2
Age	-.015	-.010
Gender	-.128*	-.060
Confidence		.019*
Anxiety		.018**
Log likelihood	-460.19	-455.10
Log likelihood test++		10.18**
D.F.	2	4

$N = 135$

Tests are one-tailed; † $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$

# Contributions

- Demonstrated the effect of individual differences for risk taking with respect of confidence and anxiety
- Demonstrated that context moderates the relationship between anxiety and risk-taking
- Argues for the importance of looking at personality sub-constructs, like anxiety and confidence on risk taking

# Next steps in the research program

- Investigating the potential mediating roles of risk perception, threat perception and risk propensity between confidence, anxiety and risk taking behavior in both non-competitive and competitive contexts.
- Repeating this study with executives
- Investigate threat perception versus responsiveness to social cues as possible mechanisms through which anxiety affects risk taking behavior in competitive situations

# Resources

More information about this project as well as these slides (PDF) may be found at

[www.goldmark.org/livia/papers/anxiety/](http://www.goldmark.org/livia/papers/anxiety/)