

# **An experimental study on the impact of social mood on business strategies**

Linda Alengoz\*, Marco Castellani<sup>°</sup> and Flaminio Squazzoni<sup>'</sup>

Department of Economics and Management

University of Brescia

Via San Faustino 74/B, 25122 Brescia, Italy

[\\*l.alengoz@unibs.it](mailto:*l.alengoz@unibs.it)

<sup>°</sup> [marco.castellani@unibs.it](mailto:marco.castellani@unibs.it)

<sup>'</sup> [flaminio.squazzoni@unibs.it](mailto:flaminio.squazzoni@unibs.it)

## **Abstract**

This paper aims to examine the impact of social mood on business strategies by analysing decision making in different organizational contexts. We built a role-game experiment where subjects were asked to take the role of managers and make investment decisions for their fictitious company. We tested the impact of social mood effects by exposing subjects to different socio-economic scenarios. A first group of subjects received a social mood report including positive information, while a second group received a report including a negative social mood. For social mood, we meant information on the social context that had no direct, business related content. The report on the social mood included information about population growth/decline; profile of immigrants attracted by the area; family income index; situation on the construction market; loans for the business; women employment; employment/unemployment among the young population; percentage of students graduated in universities in engineering and science; trust in personal relationships and in public institutions; number of the strikes in public and private sectors; results of the government's election. The only difference between the two reports was certain positive and negative nuances, i.e., the same information mirrored differently with a + (positive) or – (negative) sign. We assumed that the subjective response of subjects to the socio-economic environment was mediated by company-specific organizational culture. It is worth noting that a preliminary version of this paper, which included the first experimental findings, was presented at the SASE 27th Annual 2015 conference, on 2-4 July 2015, at The London School of Economics and Political Science, London, UK.

## **Introduction**

Rational choice theory assumes that people behave rationally and make investment decisions that maximize their utility. The influence of feelings, emotions and moods is not contemplated. However, behavioural research found not only that individuals are often irrational being victims of inconsistent judgments, or intentionally do not consider their economic utility in order to satisfy their subjective psychological comfort (Olson 2006) or again tend to follow satisficing rather than optimizing solutions (Simon 1957). Research also showed that individuals are influenced by social mood as they tend to reduce asymmetry of information and unpredictability of future scenarios by exploiting direct or indirect social information (Casti 2010). The fact that social mood has an important role in influencing individual decisions has been acknowledged not only in economics but also in the political sciences. Periods of positive social mood are often associated with rising stock prices, re-election of incumbents, peace and

even the popularity of brighter colours and shorter skirts with a complex, bi-directional causal links. The opposite is true the periods of negative social mood tend to be correlated with falling stock prices, rejection of incumbents, increasing of regulation and the popularity of darker colours and longer skirts (Casti 2010). A research report of the group of neuropsychologists of the University of Hong Kong (Yuen *et al.* 2003) showed that individuals in induced depressed mood had a lower willingness to take risk than when in neutral or in positive mood. When in a negative mood, individuals are more likely to perceive the world as threatening and dangerous and so more risk adverse.

Unfortunately, little research has been done to explore how social mood could influence the way companies cope with economic uncertainty. Although several studies have investigated how companies cope with uncertainty and complexity of the business landscape (e.g., Kitching *et al.* 2009) and the effect of the economic downturns on the behaviour of innovating firms (Archibugi *et al.* 2013), there are no studies that looked at the differences in decision making of different types of companies due to the social mood.

Our study aimed to fill this gap by building a lab experiment that combined macro (organisational culture and social mood) and micro (the decision making process) levels of analysis and considering individual features (i.e., subjects' risk propensity) and organizational factors (i.e., organizational business and culture). The findings will be extended by empirical research, with a series of case-studies on comparable organizations (innovative vs. traditional) in different countries (characterized by positive or negative mood).

## **The experimental study**

Our study aimed to estimate the possible causal impact of social mood on the decision making process of the organizations and their strategies in a well-controlled, artificial scenario, beyond a pure randomized control group/treatment approach. The experiment included a population of  $N$  students of the University of Brescia, Italy ( $N = 120$ ), who were recruited upon voluntary base via ORSEE ([www.orsee.eco.unibs.it](http://www.orsee.eco.unibs.it)). The experiment was programmed and conducted with the experiment software z-Tree (Fischbacher 2007). Subjects were pretested on risk propensity by means of a questionnaire to be filled before the experiment. After the experiment, they were asked to complete a second questionnaire on motivations and ex-post explanations.

The experiment was based on a role-game that included information, decision, feedback and took two steps of decision with a 2x2 factorial design (see Table 1). Subjects were randomly assigned to one of two types of companies: traditional vs. innovative. They received a short report about their company's profile, which was aimed to help subjects to contextualize their decision by understanding certain salient characteristics of the company they were asked to manage. The traditional company was established in 1965 and was owned and controlled by a business family. It had a staff of over 250 employees, including mechanical, electrical, process and chemical engineers and technicians. Its core business was developing valves for different types of professional gas appliances, e.g., grills, fryers, cookers, ovens and barbecues, as well as electronically controlled gas systems. The innovative company was a biomedical company with a staff of 80 employees, mostly researchers and technicians, which included three business units, e.g., biochemical, R&D departments with its own patent office. Its core business was the development of new medical methods and substances for hospitals and patients. The company was recently quoted on the stock market, with a mix of properties including individual shareholders and big investment funds.

After that, subjects received a second report on the business environment, which included information on the market and business. This included information about the state of market, e.g., the expansion with 1% aggregate GDP growth in the last two years, quotation of the companies on the stock market and a bank sector report. This was aimed to trigger subjects'

perception on the prospects of their business environment. Furthermore, a first group of subjects received a social mood report including negative information, while a second group received a report including a positive social mood. For social mood, we meant information on the social context that had no direct, business related content. We followed Elliott's wave model of financial market index price movements (1938), which suggested that aggregate, unconscious levels of optimism and pessimism emerge spontaneously in a society and fluctuates according to an internally regulated growth process (Lupia *et al.* 2000).

The social mood report includes information about population growth/decline, type of immigrants attracted by the country, family income index, situation on the construction market, loans for the business, women employment, unemployment among the young population and percentage of students graduated in universities in engineering and science. This information was described in a positive and a negative way.

Subjects were provided with a fictitious budget of 500,000.00 Euros for one business year and were asked to decide how to use this budget. Following Kitching *et al.* (2009, 3), we defined three possible business strategies: retrenchment, investment and "ambidextrous" strategies. A retrenchment strategy means a prudential decision that aims to cut operating costs and disinvest on non-core assets, e.g., cutting business units or reducing employees. An investment strategy involves a risky decision that points to innovation and market diversification. An ambidextrous strategy is a mix of the two.

Then, the subjects were provided with a set of possible investment options, such as "improving existing products", "cutting costs", "divesting in unprofitable products and business sectors" and "launching new markets", "developing new products", "establishing a large-scale off-the-job, professional training program for the personnel" that coherently conform to retrenchment and innovative strategies. Subjects were asked to decide to allocate budget resources among all the possible options mentioned above. Each decision was assigned a level of expected profit as well as the probability of failure. Some of these strategies were more risky, but at the same time more potentially profitable, while others were more prudential with a low expected return. Expected payoffs were the same for all strategies and calculated as  $(1 - R) * P$ , where  $R$  indicated the risk and  $P$  the profit. We assumed that strategies with a higher risk potentially yield higher returns (see Table 1).

	Possible decision	Risk	Expected profit	Expected payoff
<b>Investment strategy</b>	<i>I1 Launching new markets</i>	70%	74%	0,22
	<i>I2 Off-job, professional training programs for the personnel</i>	60%	55%	0,22
	<i>I3 Development and introduction of the new products</i>	50%	44%	0,22
<b>Retrenchment strategy</b>	<i>R1 Improving existing products</i>	40%	36%	0,22
	<i>R2 Reduction of operating charges: costs, expenses, personnel</i>	30%	31%	0,22
	<i>R3 Divestment of the unprofitable product or business sector</i>	20%	27%	0,22

**Table 1.** Types of business strategies according to the risk and the possibility to make profit.

\* Expected payoff is the same for all strategies and calculated as  $(1 - R) * P$ , where  $R$  is a risk and  $P$  is a profit. Strategies with a higher risk potentially yield higher returns.

After the decision, subjects received a response by a fictitious simulated market, in terms of percentage of revenues lost or gained. The response was fully randomised and so independent of the subject's investment decision.

After this first step, subjects were asked to make a second decision. While the impact of social mood was verified at the first round of experiment, the aim of the second round was to look at the effect of social influence, which was represented by information on two competitors that were equally successful doing different strategies. Subjects were provided with a third report about the competitive scenario. In this case, all the subjects received the same message about the strategies of two fictitious competitors independently of their first round decision. This report showed that one of the competitors grew in terms of market share and revenues, capitalising on many clients of the subject's company by launching a new product with high-tech components and so taking risky investment decisions. Another competitor was successful by undergoing a severe restructuring, cutting some redundant business units and challenging market share and revenues of the subject's company.

Subjects were fully informed on the game payoff. They were told that they would have a show-up fee of 5 euro plus individual earnings depending on the game. The length of the experiment was 30 minutes. The average subject's earning was 15 euro.

## Results

Firstly, we performed a Shapiro–Wilk test to check the normality of the distribution for subjects' risk propensity. Results gave evidence to accept  $H_0$  (the null hypothesis for this test is that the data are normally distributed), i.e.,  $W = 0.99$ ,  $p\text{-value} = 0.91$ . Individual risk propensity was not significantly associated with *Sum Average Investment Index* for all treatments (traditional company and pessimistic mood  $r = -0.0737$ ,  $p = \text{n.s.}$ , traditional company and optimistic mood  $r = 0.1766$ ,  $p = \text{n.s.}$ , innovative company and pessimistic mood  $r = 0.3046$ ,  $p = \text{n.s.}$ , innovative company and optimistic mood  $r = 0.0945$ ,  $p = \text{n.s.}$ ). This means that subject's risk propensity did not determine risk-taking decisions in the experiment. In addition, this would indirectly confirm that the experimental design and the treatments were capable of neutralising outside-the-lab subjective features.

In order to have a full understanding of subjects' decisions, we grouped the available options as it follows:

- "*launching new markets*" (X) and "*off-job, professional training programs for the personnel*" (Y) were classified as an innovative strategies with the highest risk in terms of profit and loss;

- "*improving existing products*" (Z) and "*developing new products*" (A) indicated an ambidextrous strategy with the moderate risk ratio;

- "*cutting costs*" (B) and "*disinvesting in unprofitable products and business sectors*" (C) were classified as a retrenchment strategy with the lowest risk.

**Table 2.1** The percentage of investments in each type of strategy (investment, retrenchment and ambidextrous) as the allocated proportion of the total available amount of resources.

	<u>Treatment 1</u>	<u>Treatment 2</u>	<u>Treatment 3</u>	<u>Treatment 4</u>
	Traditional company / pessimistic social mood (n=30)	Traditional company / optimistic social mood (n=30)	Innovative company / pessimistic social mood (n=30)	Innovative company / optimistic social mood (n=30)
Investment strategy (X+Y)	39.9%	44.3%	48.7%	40.3%
Ambidextrous strategy (Z+A)	26.9%	34.1%	30.6%	39.2%
Retrenchment strategy (B+C)	33.2%	21.6%	20.7%	20.4%

Table 2.1 shows that investment strategy with the more risky options was adopted more frequently than ambidextrous in three treatments out of four, especially when subjects were asked to manage high-tech companies and were exposed to an optimistic social mood. We found no difference between investment and ambidextrous strategies.

In order to test the influence of the two factors (i.e., the social mood and the company-specific features), we performed a Two-sample T test, estimating the impact of each variable independently from each other. We used the *Sum Average Investment Index* to verify the hypothesis that, in case of pessimistic mood, subjects leading high-tech company were expected to make more risky decisions compared to those leading traditional company. Considering the means values of these indexes between the experimental groups ( $M = 243066.7$ ,  $SD = 32081.53$  for the pessimistic social mood and  $M = 236628.6$ ,  $SD = 26647.42$  for optimistic social mood,  $t(118) = -1.1946$ ,  $p = n.s.$ ), neither social mood variable nor organisational culture ( $M = 240715$ ,  $SD = 32554.76$  for traditional companies and  $M = 251850$ ,  $SD = 25248.48$ ,  $t(118) = -2.0936$ ,  $p = n.s.$ ) *per se* had a significant impact on the *Sum Average Investment Index*. Indeed, the p-value was higher than the significance level, confirming that there was no significant difference between risk assumption in two types of the company and two types of the mood, tested separately.

After verifying the impact of two factors one by one on the dependent variable, we tested the effect of the whole treatment on the subjects' investments. Regarding to the first possible scenario, we expected that there was no difference in the risky decision making between high-tech and traditional companies in the situation of pessimistic social mood. Data showed that the opposite was true, confirming the alternative hypothesis.

Unpaired t-test between the values of the *Sum Average Investment Index* showed a significant difference,  $t(1,58) = -2.9232$ ,  $p = .0025$ , between the investments in the Treatment 1 ( $M = 231666.7$ ,  $SD = 33412.09$  in traditional company with pessimistic mood) and Treatment 3 ( $M = 254466.7$ ,  $SD = 26621.2$ ) in high-tech company with pessimistic mood. In case of optimistic social mood, the analysis of variance did not show any significant difference in the means of the risky investments between the two types of companies  $t(1,58) = 0.0764$ ,  $p = n.s.$  This indicates that organisational culture mediated the impact of the pessimistic mood on subjects' risky decisions, whereas has no influence in positive social mood settings, as

originally expected.

Moreover, in the traditional companies, subjects' risky investments in case of pessimistic social mood ( $M = 231666.7$ ,  $SD = 33412.09$ ) were significantly lower than in case of optimistic social mood ( $M = 249763.3$ ,  $SD = 181000$ ), with  $t(1,58) = -2.2237$ ,  $p = .0150$ . On the other hand, in the high-tech companies, no significance difference was found between investments in pessimistic social mood ( $M = 254466.7$ ,  $SD = 26621.2$ ) and in the optimistic social mood ( $M = 249233.3$ ,  $SD = 23960.36$ ), since  $t(1,58) = 0.8003$ ,  $p = \text{n.s.}$ ). As expected, subjects having managerial responsibility in a traditional organisational culture perceived a clear difference between optimistic and pessimistic social mood unlike innovative high-tech managers, whose perceptions were more resilient to social mood effects.

We used a linear regression analysis to test if the socio-demographic characteristic significantly predicted subjects' investment behaviour. The treatments were recoded into dummy variables. Gender, study seniority, age and risk propensity were added in the model as control variables. A logarithmic transformation was applied on risk propensity to better approximate the assumption of normality. The second column of Table 2.2 shows the coefficients of the regression for each of the variables included in the model. The reference category is the Treatment 1 (traditional company/pessimistic mood) as this was the treatment that differed the most at level of subject's investments across all experimental groups. The results of the regression indicated the socio-demographic variables as the predictors added in the model did not have a significant effect on the explanation of the indexes. With the exception of subject's gender, which reached only the limit of statistical significance, none of the control variables were significantly associated with subjects' risk investments.

Results of the OLS analysis suggest that subjects who were leading a high-tech company invested on average 20081.03 Euros from the total budget (i.e., 500000.00 Euros) in the most risky options, in case of optimistic mood. The regression analysis confirmed that there was a significant difference between the investments made in three treatments and the investments of the subjects in a traditional company and pessimistic social mood ( $p = .010$ ). For example, the coefficient for the high-tech company and the pessimistic mood, which was 22973.81, was significantly different from the reference treatment ( $p = .002$ ). The *Sum Average Investment Index* in the traditional company and optimistic mood was slightly lower than in other groups and significantly varied from Treatment 1 ( $p = .002$ ).

**Table 2.2** Linear regression model *Sum Average Investment Index* including experimental treatments and socio-demographic characteristics of the subjects as the control variables

<i>Variable</i>	<i>Coef.</i>	<i>Std. Err.</i>	<i>t</i>	<i>P&gt; t </i>
Traditional organisation optimistic social mood	16969.74	7662.477	2.21	0.029*
High-tech organisation pessimistic social mood	22973.81	7413.271	3.10	0.002**
High-tech organisation optimistic social mood	20081.03	7691.541	2.61	0.010**

Years of studying	-1019.506	2293.299	-0.44	0.658
Sex	-9451.349	5566.378	-1.70	0.092
Age	7089.692	6510.462	1.09	0.279
Log Risk propensity	34685.75	21327.16	1.63	0.107
cons	134870.9	62384.03	2.16	0.033

Note: Reference category is the Treatment 1(traditional/pessimistic settings), number of observations = 117,  $F(7, 109) = 2.49$ , R-squared = 0.1378, Adjusted R-squared = 0.0824, \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$  levels of significance.

We checked the model on contrasts of marginal linear predictions. Results of the Helmert subsequent contrast effects test confirmed that the *Sum Average Investment Index* was significantly different in the treatment where subjects were asked to lead a traditional company and were exposed to a pessimistic social mood compared to other treatments, which results are not significantly different from each other (see Table 2.3.)

**Table 2.3** Helmert subsequent contrast effects

	<i>Contrast</i>	<i>Std. Err</i>	<i>t</i>	<i>P&gt; t </i>
<b>Treatment (1 vs &gt;1)</b>	-20008.19	6186.599	-3.23	0.002**
<b>Treatment (2 vs &gt;2)</b>	-4557.675	6665.089	-0.68	0.496
<b>Treatment (3 vs &gt;4)</b>	2892.786	7535.555	0.38	0.702

Note: Treatment 1 - traditional company/pessimistic mood, Treatment 2 - traditional company/optimistic mood, Treatment 3 - high-tech company/pessimistic mood, Treatment 4 - high-tech company/optimistic mood.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$  levels of significance.

A two sample T-test analysis suggested that subjects' gender had a significant impact on the risky investments. Females ( $n = 25$ ;  $M = 252080$ ,  $SD = 31112.93$ ) reported significantly higher values of the *Sum Average Investment Index* than males ( $n = 35$ ;  $M = 236628.6$ ,  $SD = 31627.51$ ),  $t(58) = 1.8782$ ,  $p < .033$  in the treatments with pessimistic social mood. On the other hand, there was no difference in the means of index between males ( $n = 24$ ;  $M = 249816.7$ ,  $SD = 25742.49$ ) and females ( $n = 36$ ;  $M = 249020.8$ ,  $SD = 28508$ , when the mood was optimistic,  $t(58) = 0.1124$ ,  $p = n.s.$

This difference in the gender risk choices increased when the company-specific features were included. Indeed, females invested more in high risky strategies when they were asked to manage a traditional company, whereas there was no statistical gender difference when subjects were asked to manage a high-tech company. Table 2.5 shows the gender differences in two types of companies. Unlike males, females who faced the managerial task in the traditional organisational environment made riskier decisions and chose investment strategies over ambidextrous and retrenchment options ( $n = 31$ ;  $M = 247367.7$ ;  $SD = 30672.77$  vs.  $M = 233603.4$ ;  $SD = 33522.75$ ,  $t(58) = 1.6608$ ,  $p = .0511$ ; with  $n = 29$ ). Two-sample t test

confirmed that there was no significant difference between the values of *Sum Investment Index* of males and females in the high-tech company ( $M = 254233.3$ ,  $SD = 24606.12$  for females and  $M = 249466.7$ ,  $SD = 26071.83$  for males,  $t(58) = 0.7283$ ,  $p = n.s.$ )

It is interesting to note that these findings would contradict the widely accepted findings that females are more risk averse than males (e.g., Powell and Ansic, 1997; Harris *et al.*, 2006; Jacobsen *et al.*, 2008). For instance, to explain gender differences in competition, Niederle and Vesterlund (2007) argued that females focus on the potential costs while males emphasize more on potential benefits. Our findings could be explained by an indirect sign of gender discrimination in that females may rarely have a management role in high-tech companies. We hypothesised that females could feel more protected from the traditional organisation and perceived the pessimistic social mood as an opportunity to improve their positions in a “conservative” company by investing on riskier options. However, this difference was found only in one treatment and due to the small number of the sample (30 subjects) could not be easily generalised from the statistical point of view. In order to investigate this issue by means of qualitative analysis, we have applied a cognitive mapping approach that was essential to understand gender differences in risky decision making strategies under optimistic and pessimistic scenarios better (see below).

The different amount of time that was spent by subjects for planning their strategies is a remarkable issue. On the one hand, the interplay of social mood and organisational culture could have generated specific patterns. On the other hand, it is difficult to predict the impact of the mood on subjects' reasoning as well as on their expected response time. Cognitive theories of depression (Beck, 1967 and 1987) claimed that people in depressive mood have negative, unrealistic and distorted perception of the reality, focusing on themselves, the world and future, whereas people in positive mood are more rational and follow realistic thinking. However, previous findings also showed that thinking and perception of depressed subjects may be more accurate compared to non-depressed counterparts (Hussain, 2012). Such a behavioural paradox can be explained by the distortion of the cognitive perception towards overestimation of the control of situation and positive illusions (Alloy and Abramson, 1988; Taylor and Brown, 1988). This self-enhancing bias has been called “depressive realism”. According to the depressive realism hypothesis (Alloy and Abramson, 1979), individuals in the situation of pessimistic or depression mood tend to be more accurate and realistic in their perceptions, thus preventing themselves from the biases in judgements as their non-depressed counterparts do. For example, depressed people and individuals with low self-esteem do not show self-serving biases in attributions for success and failure (Kuiper, 1978; Sweeney *et al.*, 1982; Campbell and Fairey, 1985). They are more prone to recognize the situation of little or no control over the occurrence of events (Alloy and Abramson, 1979; Alloy, Abramson and Viscusi, 1981). Moreover, they had better estimations of statistical information when making self-judgments (Alloy and Ahrens, 1987).

According to Alloy and Abramson (1979), for example, in negative mood conditions subjects are supposed to reason and act more quickly as they are less capable of defining a situation as safe and consequently perceive limited control over it (e.g., Johnson and Tversky,

1983). We found this also in our experiment, but only with the mediation of the organisational culture. In fact, while pessimistic ( $M = 2148.65$ ,  $SD = 857.49$ ) and optimistic mood ( $M = 2251.62$ ,  $SD = 105.21$ ) did not differ significantly *per se*,  $t(118) = -0.6742$ ,  $p = \text{n.s.}$ , we found a fundamental difference in the two single treatments for each mood. In case of pessimistic mood in the combination with a “traditional company” ( $M = 1819.43$ ;  $SD = 1102.06$ ), subjects took less time to decide than in the innovative organisational setting ( $M = 2477.87$ ;  $SD = 239.12$ ),  $t(58) = -3.19$ ,  $p < .001$ . In general, we found that when asked to lead a traditional company ( $M = 1941.8$ ;  $SD = 1061.45$ ) subjects decided faster than when asked to lead an innovative company ( $M = 2561.43$ ;  $SD = 160.74$ ),  $t(58) = -3.161$ ,  $p < .001$ .

## Findings

Our results show that certain company-specific features had a mediating role between the social mood and individual behaviour, essentially filtering the impact of social mood on subjects' strategies and their time response, as did it for subjects' risk taking attitude. It is worth observing that the standard deviation was also significantly dissimilar when comparing treatment 1 (traditional company/pessimistic mood) and 3 (high-tech company/pessimistic mood), i.e., 61% of C.V. and 4.7% in the first and the second case respectively. This would indicate that the sample mean in treatment 1 was far from the true population compared with the mean in the treatment 3. Analogous remarks can be drawn for treatments 2 and 4 (55% and 6.3% respectively). This indicates that decision time in case of pessimistic mood and traditional company was highly dispersed, unlike the case of high-tech company, in which results are more concentrated around means.

While looking at subjects' time responses, Schwarz *et al.* (1988) showed that, in experimentally induced negative mood, individuals tend to reason more analytically and are grounded on narrow categories, while in positive mood they are less influenced by causality. They suggested that individuals are more heuristics-based and more creative also to reduce information processing of the current environment. This could be due to their (sometimes erroneous) perception of control over the environment, whereas individuals in bad mood are expected to pay more attention to task features. To zero in on here, it is necessary to look at the overall reasoning development of decision makers about the choice they made. This is why we used cognitive mapping techniques to represent individual perceptions and trace the process that they followed in more detail (e.g., Eden and Ackerman, 2002).

Results showed that social mood had an influence on decision-making and especially that its negative or positive meaning had a different impact on individual perceptions of risk. We found that certain organisational features, such as the degree of innovativeness of the company can help decision makers to filter such a mood effect and so have an active role in influencing managerial propensity towards risky investments. Therefore, on the one hand, the experimental study confirms the importance of non-business related information in moulding investment decisions of business managers; on the other hand, it suggests the constructive role of individual role perceptions, which might be influenced by certain company-specific, organisational cultures.

Our findings indicate that although risky investment options seem to be less likely when the business context is dominated by pessimism, certain company-specific features can drastically change the subjects' risk propensity. Indeed, we found that high-tech companies could filter social mood effects and be more resilient against mood change and so invest in more high risky strategies, e.g., launching new markets or investing in human resources. We also found that pessimism could even push innovators to make high-risk decisions. On the other hand, we found that traditional companies could reflect more social mood effects when pessimism is dominant. In this case, ambidextrous and retrenchment strategies seem to protect more these companies against uncertainty.

While the experimental study was focused on manipulating and observing subject behaviour in a well-controlled setting, the application of a cognitive mapping approach was essential to understand the links between decisions and context in more detail. The ex-post analysis by means of the cognitive mapping technique allowed to confirm the possible filtering effect of the organisational culture on individual perceptions against macro-effects of the social mood. The cognitive maps of the participants allowed us to compare the subjects' cognitive structures, motives and the logic behind their business strategies influenced by the social mood. As to our knowledge, this is the first study that used cognitive maps to look at business decision-making under social mood effects. Indeed, some of already existing maps on organisational behaviour either are simple strip maps, e.g., summarizing organisation routines, or are more complex maps to understand more difficult tasks (e.g., Fiol and Huff, 1992). However, no previous study has used cognitive maps to look at the impact of non business-related information on subject perceptions.

The results of the ex-post experimental analysis showed that the social mood shaped the perception of the different elements of the decision making in such a way that the subjects in the optimistic social mood focused on the goals and strategic policy-making process, while the subjects exposed to the pessimistic mood based their decisions on the external factors such as the socio-economic environment. These findings confirm the cognitive theories of depression (for ex., Beck, 1967 and 1987, Alloy and Abramson, 1979) in that the depressive mood induces negative, unrealistic and distorted perception of the reality, making individuals focusing on themselves, the world and future, whereas the positive mood stimulates more realistic view of the situation and therefore rational thinking.

Indeed, we found that high-tech companies could filter social mood effects and be more resilient against mood change and so investing in high risky strategies, e.g., launching new markets and investing in human resources, also in times of pessimism. We also found that pessimism could even encourage innovators towards high-risk decisions. On the other hand, we found that traditional companies could reflect more social mood effects when pessimism is dominant. In this case, ambidextrous and retrenchment strategies seem to protect more these companies against uncertainty, with all due negative implications.

Our findings showed that subject behaviour can change even as a mere result of social mood information that has no direct business content. This is more likely when pessimism

dominates social mood. If we consider that our subjects made decisions in a fictitious experimental environment, we could even hypothesise that, in “real” life with “real” decision makers, such a trend could be even more pronounced.

To sum up, while business decision making is viewed as the realm of calculative, instrumental rationality, our experimental study shows that social mood could be an indirect force that may endogenously determine business decisions. This means that looking at these factors is important to understand emergent behaviour in organisations and markets (Pretcher and Parker, 2007). This would confirm the importance of looking at the constructive role that individual perceptions play in organisational contexts, not only at instrumental and calculative decision makers’ rationality.

## References

1. Alloy, L.B., Abramson, L.Y. (1979). Judgement of Contingency in Depressed and Nondepressed students: Sadder but Wiser? *Journal of Experimental Psychology: General*, 108 (4), 441-485.
2. Alloy, L.B., Abramson, L.Y (1988). Depressive Realism: Four theoretical perspectives. In L.B. Alloy (Ed.). *Cognitive Processes in Depression*, New York: Guilford Press, 223-265.
3. Archibugi, D., Filippetti, A., & Frenz, M. (2013). Economic crisis and innovation: Is destruction prevailing over accumulation?. *Research Policy*, 42(2), 303-314.
4. Beck, A.T. (1967). *Depression: Clinical experimental and theoretical aspects*. New York: Harper Row.
5. Beck, A.T. (1987). Cognitive models of depression. *Journal of Cognitive Psychotherapy: An International Quarterly*, 1, 5-37.
6. Campbell, J. D., Fairey, P. (1985). Effects of self-esteem, hypothetical explanations, and verbalization of expectancies on future performance. *Journal of Personality and Social Psychology*, 48(5), 1097.
7. Casti, J.L. (2010). Mood matters. From Rising Skirt Lengths to the Collapse of World Powers. *Springer Science+Business Media*, LLC, New York.
8. Eden, C., Ackermann, F., Cropper, S. (1992). The analysis of cause maps. *Journal of management Studies*, 29(3), 309-324.
9. Fiol, C. M., Huff, A. S. (1992). Maps for managers: Where are we? Where do we go from here? *Journal of management studies*, 29(3).
10. Fischbacher Urs (2007). z-Tree: Zurich Toolbox for Ready-made Economic Experiments. *Experimental Economics* 10(2), 171-178.
11. Hussain, D. (2012). Depressive Realism Hypothesis: Reflections and Critical Analysis. *International Journal of Psychological Rehabilitation*, Vol. 17, 1, 59-64.
12. Johnson, E.J., Tversky, A. (1983). Affect, Generalization and the Perception of Risk. *Journal of Personality and Social Psychology*, 45, pp.20-31.

13. Kitching, J., Blackburn, R., Smallbone, D., Dixon, S. (2009). Business Strategies and Performance During Difficult Economic Conditions. *BIS, Small Business Research Centre*, Kingston University, July.
14. Kuiper, N. A. (1978). Depression and causal attributions for success and failure. *Journal of Personality and Social Psychology*, 36(3), 236.
15. Lupia, A., McCubbins, M. D., Popkin, S.L. (Ed.) (2000). *Elements of reason: Cognition, choice, and the bounds of rationality*. Cambridge University Press.
16. Niederle, M., Vesterlund, L. (2007). Do Women Shy Away from Competition? Do Men Compete too Much? *The Quarterly Journal of Economics* 122: 1067 - 1101.
17. Olson, K. R. (2006). A literature review of social mood. *The Journal of Behavioral Finance*, 7(4), 193-203.
18. Powell, M., Ansic, D. (1997). Gender Differences in Risk Behaviour in Financial Decision making: An Experimental Analysis. *Journal of Economic Psychology* 18, 605-628.
19. Prechter, Jr., R.R., Parker, W.D. (2007). *Dichotomy in Social Behavioural Dynamics: The Socionomic Perspective*. *Journal of Behavioural Finance*, Vol. 8, No. 2, 84-108.
20. Simon, H. A. (1957). *A Behavioural Model of Rational Choice, in Models of Man, Social and Rational: Mathematical Essays on Rational Human Behaviour in a Social Setting*. New York, Wiley.
21. Schwarz, N., Clore, G.L. (2003). Mood as information: 20 years later. *In Psychological Inquiry: An International Journal for the Advancement of Psychological Theory*, 14, 296-303
22. Sweeney, P. D., Shaeffer, D. E., Golin, S. (1982). Pleasant events, unpleasant events, and depression. *Journal of Personality and Social Psychology*, 43(1), 136.
23. Taylor, S.E., Brown, J.D. (1988). Illusion and Well-being: A Social Psychological Perspective on Mental Health. *Psychological Bulletin*, 103, 193-210.
24. Yuen, K. S., & Lee, T. M. (2003). Could mood state affect risk-taking decisions?. *Journal of affective disorders*, 75(1), 11-18