Deal or No Deal: comparing individual and group choices in a risky context

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Abstract

Purpose – The authors believe that comparing individuals to groups' decision making is crucial provided that many important choices in society are made by groups, i.e. committees, governing bodies, juries, business partners and families. This study aims to discuss the aforementioned topic.

Design/methodology/approach – The authors analyze risky decision making in the context of the television game show Deal or No Deal – Italian edition. Specifically, the authors scrutinize and compare individual (standard "Deal or No Deal" edition) and group (special edition) choices in the risky choice context provided by programe.

Findings – After analyzing contestant's behavior in the standard edition episodes plus a special edition the authors calculate a risk index observing that no statically significant difference is present between individuals' and groups' actions.

Originality/value – In the "Deal or No Deal" special edition contestant were groups of two strangers. It is not uncommon to have couples playing on TV, however the individuals usually know each other well and have relationships in real life. The special edition therefore provides a unique setting (absent to best of the authors' knowledge in the literature) for investigation and could offer real-world insight. Indeed, in many instances the authors have to contract/make decisions with people the authors do not know/know very little (i.e. occasional business partners, representative at other companies/institutions, insurance/finance advisors, new work colleagues, etc.).

Keywords Deal or No Deal, Risky context, Risk aversion, Group and individual risk preferences, TV game shows

Paper type Research paper

1. Introduction

This paper studies risky decision making in the context of the television game show Deal or No Deal – Italian edition. The usage of game shows to assess risk aversion and decisions under uncertainty is well recognized in the economics and finance literature. Incontrovertibly, during the past 20 years extensive research has been done on the behavior displayed by TV game shows contestants. This derives from the circumstance that risky choice experiments involving monetary payoffs although increasingly popular are either limited to small payment amounts or have a reduced subject pool due to researcher's budget scarcity. Searching for a solution to this issue is not an easy task, in fact in most cases it is not possible to directly infer risk preferences from real-life situations.

TV game shows even though generally designed by entertainment professionals to amuse the general public and not by scholars, provide a very good opportunity for natural experiment economic analysis. As for their design, they usually provide a simplified and controlled decision-making framework for participants with very large monetary amounts at stake (i.e. potential wins).

Some remarkable examples of research on TV games show include but not limited to "Card Sharks" (Gertner, 1993), Jeopardy (Metrick, 1995), Hoosier Millionarie (Fullenkamp *et al.*, 2003).

Gartner estimated the coefficient of absolute risk aversion for the contestants and found evidence that they segregate risky decisions and do not extrapolate previous luck in future decisions.

Metrick's results indicate near risk-neutrality and that, while most players behave rationally, the failure percentage for choosing best-responses grows as the betting problem becomes more complex and that players' choices are influenced by the "framing" of the problem. Anyhow, suboptimal betting decreases as inferior contestants are driven out of the game.

Fullenkamp *et al.* (2003) estimated coefficients of risk aversion implying pronounced risk aversion for the high-stakes lotteries in Hoosier Millionaire (the final lotteries have usually much larger stakes when compared to other 1990 and early 2000s TV shows) and near risk neutrality for small-stakes lotteries.

The three TV game shows are very different, indeed in the Hoosier Millionaire there is little skill involved, the potential winnings are large and contestants tend to be more representative of the general population while in Card Sharks the stakes are lower and the game rounds involve non-immediate probability calculation. In Jeopardy! individual skill is crucial and contestants are less descriptive of the general population.

Other notable examples are Friedman (1998) and Morone *et al.* (2021a, b) where they analyzed the famous Monty Hall's three door game (three doors; two have a goat behind and one has a prize) showing that the best strategy is to always switch the initially chosen door after the first goat has been revealed. While Friedman replicated the game in the laboratory with students under different treatments to check for switching rates, Morone *et al.* did so in an artefactual field experiment with subjects being shoppers in a mall (in Bari, Italy).

Some drawbacks of TV games show are: the researchers have no control on the players' selection process, socio-demographic data are not disclosed, inferences are generally confounded by the subjective assessment of contestants' skill, as well as the dynamic nature of the task in most games. However, Deal or No Deal, does not have, at least partially, such drawbacks. It is of the cleanest games for inference requiring very little skills and in Italy at least, anyone could potentially take part in the show by calling a dedicated line (i.e. no one was barred from potential participation). Therefore, it may be assumed that contestants are representative of Italy's general population.

The aim of this paper is to expand on the TV game show literature by studying risk aversion in a special edition of Deal or No Deal – Italian edition where contestant was a group of two people (two strangers). It is not uncommon to have couples or groups playing on TV, however those usually know each other very well and have some relationship in real life. The special edition therefore provides a unique setting for investigation and could offer real-world insight. Indeed, in many cases we have to contract/make decisions with people we do not know/know very little (i.e. occasional business partners, representative at other companies/institutions, insurance/finance advisors, new work colleagues, etc.).

2. The TV show description and research hypothesis
The focus of this paper is the Italian edition of "Deal or No Deal", known as "Affari Tuoi" (produced by Endemol Shine and aired by the state broadcaster Rai).

The game consists of 20 players, one from each of the 20 Italian regions. Each player has his/her own reserved spot in the TV studio. Every participant is randomly assigned a sealed box, each containing a prize from a known distribution (see table underneath). Boxes' content is unknown to players (see Table 1).

Boxes "content ranges from 0.50 € to 500,000 €": the average prize is 52,045.83 €; the standard deviation of prizes is 120,953.44 €; the distribution of prizes is highly skewed.

The game then proceeds as follows; after a contestant is chosen from the 20 players (the contestant makes his/her way to the center of the TV studio to play carrying his/her sealed box), in each of the 10 game rounds, he/she opens several boxes (three in the first four rounds, one in the following – cannot open his/her box until the game ends), foregoing the possibility of winning the prizes contained therein. A screen in the studio publicly displays the unopened boxes' content.

In-between rounds, the contestant receives an offer from the banker. The banker, who does not appear during the show and whose identity is unknown to the contestant, communicates after each round via telephone with the show presenter and the contestant. He/she belongs to the show production, no further information is provided on his/her background and skills.

The banker can propose to the contestant either to swap the box with any of the unopened ones (i.e. unopened box of choice), or a certain amount of money to eventually accept and exit the game. If the contestant plays up to end of the final round (i.e. no banker's money offers have been accepted) he/she wins the prize content of the box owned at such stage (in the Italian edition the prize is paid in gold tokens) (see Figure 1).

Recently Affari Tuoi suffered from a quickly diminishing viewership and to boost numbers, for a limited number of episodes, one special editions of "Affari Tuoi" aired on the Italian TV channel "Rai 1". The edition known as "Raddoppia" [1] had its peculiarity in players being groups consisting of two strangers (dyads put together by the show production) for a total of 20 groups. The chosen contestant was therefore, in such edition, one group instead of one single person.

Hence, the key discriminant is as follows:

(1) "Affari Tuoi" standard edition: the contestant is a single individual.

(2) "Affari Tuoi" raddoppia edition: the contestant is a group of two i.e. dyad of strangers – splitting equally the wins [2].

With our research, we aim to expand on previous literature, even though limited, investigating the standard edition of "Affari Tuoi". Botti *et al.* (2008), find that contestants are risk averse and that when observed heterogeneity is considered, the only relevant demographic variable is sex. In contrast with other literature, this dummy variable shows that in the sample the mean of the risk attitude parameter is higher for men than for women.

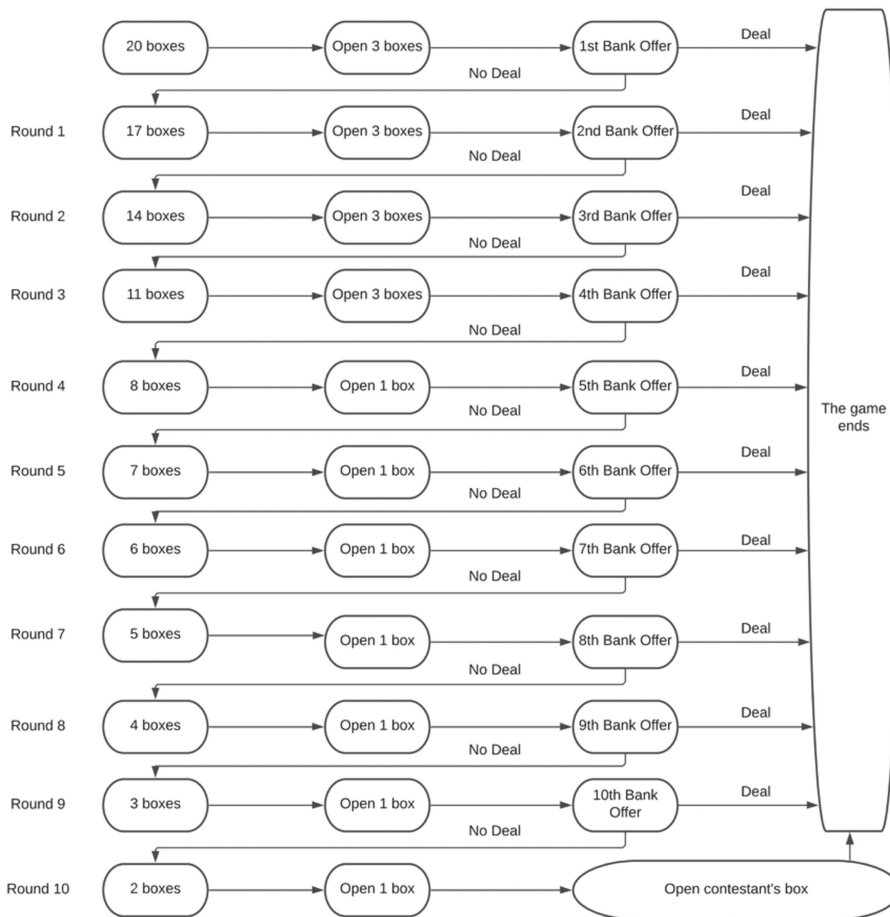|	
0.50 €	500 €
1 €	3,000 €
2 €	11,000 €
5 €	19,000 €
10 €	32,000 €
20 €	50,000 €
28 €	75,000 €
50 €	100,000 €
100 €	250,000 €
200 €	500,000 €

Table 1.
Prize distribution

Figure 1.
Game schematic
description

Blavatskyy and Pogrebna (2008) investigate the Italian (Affari Tuoi) alongside the British (Deal or No Deal UK) version of Deal or No Deal comparing risk attitudes when contestants face lotteries with high and low probability of a gain. They consider two groups of contestants, who learned that the probability of their box containing a large prize is 20 and 80% correspondingly. Contestants in either group receive qualitatively similar monetary offers to accept and exit the game. If contestants are less risk averse when dealing with unlikely gains, the offer is likely to be more frequently rejected in the first group compared to the second. However, the rejections rate is almost identical across the two groups. Contestants, therefore, display alike risk attitudes over (large) gains of low and high probability.

We must note that more extensive literature is available for non-Italian "Deal or No Deal" editions.

The milestone paper written by Post *et al.* (2008) in contrast to the traditional assumptions of expected utility theory, illustrates that the round choices can be explained to a large extent by previous outcomes seen during the game. Their results in fact point toward prospect theory suggesting that path-dependence is relevant, even when choices are easy and well-defined and high real monetary amounts are at stake.

Particularly, our research question is to comprehend whether the behavior (i.e. degree of risk aversion) displayed by singlets during the standard edition of "Affari Tuoi" diverges from that of duets in the special edition.

We believe that comparing individuals to groups' decision making is crucial provided that many important choices in society are made by groups, i.e. committees, governing bodies, juries, business partners and families. Some experiments outlined systematic differences between choices made by groups and choice made by individuals. Extensive literature in social psychology investigated this phenomenon, labeling it as the discontinuity effect, while recently economic research analyzed it both experimentally and theoretically.

Some experiments feature tasks with a normative benchmark for assessing decisions. Laughlin and Adamopoulos (1980) and Laughlin and Ellis (1986) indicate those tasks as intellective. In these situations, it is expected that the distribution of groups' decisions differs systematically from that of individual decisions if group members can interact with each other. More interestingly, there is a group shift in several non-intellective tasks, in particular those tasks where the decision-makers' personal preferences only, should direct choice.

There is a large literature around cooperation and reciprocity, mostly concluding that people when in groups behave more selfishly than when they make decisions individually (selfish shift).

Morone and Temerario (2018) analyzed dyads (group of two strangers) strategies in a one-shot public goods game. Employing a variation of the strategy-method they recorded larger self-regarding behavior of dyads rather than individuals and a larger share of free riders when the decision units were dyads.

Another strand of literature, beginning with Stoner (1961), investigates risk attitudes expressed by groups and individuals. In most choice problems involving a safe and a risky option, groups tend to take more risk (risky shifts), but in some types of lottery decisions the opposite is observed (cautious shift).

Zhang and Casari (2012), and Brunette et al. (2015) observe that individuals when in a group (of strangers) tend to be less risk averse (with weak or strong unanimity decision rule) while Morone et al. (2021b) results clearly display that individuals are more risk seekers than groups (of strangers) when confronted with gambles with positive expected payoff difference while being more risk averse in the opposite case.

They did not impose an exogenous disagreement-breaking rule, but left each group free to resolve the disagreement, the only restriction they imposed is that subjects had to come to a decision.

Social psychology proposes the two main general explanations for those shifts: the social comparison theory (Levinger and Schneider, 1969) and the persuasive argument theory (Burnstein et al., 1973). The social comparison theory stresses that people in group settings behave differently than when in isolation. In particular, it implies that people are motivated both to perceive and present themselves in a socially desirable way. A person might behave in a way that is closer to what is regards as the social norm than how he/she would act individually.

According to the persuasive argument theory, the reason why deliberation drives group decisions in a certain direction is that the pool of arguments in such direction is more persuasive. In fact, people with certain preferences tend to be more persuasive than others (for example, more selfish individuals may be more aggressive in deliberation).

However, we must note that there is also growing literature observing no difference between individual and group behavior. For example, Harrison and Klein (2007), reported no difference between individual and group attitudes toward risk in a lottery-choice experiment finding no tangible group shift effect and Baker et al. (2008) using the Holt and Laury (2002) also reported no difference.

Therefore, our research hypotheses are,

H0. No significant difference between individuals' and groups' behavior.

H1. Groups display less risk aversion.

H2. Groups display more risk aversion.

In addition, we also investigate for gender differences. Many scholars agree that women are more risk averse than men. Indeed, Byrnes *et al.* (1999) find that females responders display greater risk averse after analyzing 150 studies ranging from 1967 to 1997. Charness and Gneezy (2012) discover that women make smaller size investments in risky asset, therefore appearing financially more risk averse.

Jetter and Walker (2017) investigating the Jeopardy! TV game show find that women compete more aggressively, become (marginally) more competitive, and take on more risk when paired against men.

3. Data analysis
As explained in the introduction, the TV programe has been analyzed by going through two different editions.

"Affari tuoi" standard: this is the traditional TV programe where we have one competitor. We will refer to this as *AFI*. This is by far the largest edition for episode number, therefore, to make it effectively comparable to the specials we set a sample size of 34 episodes (dating to 2015 and 2016).

"Affari tuoi raddoppia": This is an alternative version of the traditional TV programe. In this case we have as competitors, groups of two individuals who do not know each other; we will refer to this edition as *AFG*. Both are contestants to the show and come from different Italian regions. 34 episodes in total were broadcast (during 2015 and 2016), it was possible to use 29 for our analysis, since five saw the banker propose in the last round a box swap instead of some monetary offer (rationale: a swap has no associable monetary value). Given the context of this edition, which provides in its rules for the split of the prize pool into two equal parts between subjects, it is strongly suggested in line with standard economic theory we compute expected values (EVs) at individual level. Therefore, each episode analyzed accounts for two observations ($29*2 = 58$).

We can therefore summarize the data in Table 2:

Our sample size in consistent with previous literature as in Deck *et al.* (2012).

We perform our analysis in accordance to one of three methods proposed by Andersen *et al.* (2006a, b, c). Although intuitive our analysis may lead to initial robust conclusions.

We employ a risk index (measured at the last played game round for each analyzed episode) is the most natural way to study and visualize if being a group, i.e. a couple formed exogenously during the television program (AFG), might influence choice behavior and risk aversion. This index is the calculated as the ratio between the certain equivalent (CE) - the monetary value offered by the banker–and the EV, which can be explained as, the expected monetary value of the lottery (in other words the average of the unopened boxes' monetary value). Based on the trend of this index we can assess the degree of risk aversion of the participants. It can take values greater than 0 (i.e. the banker's offer cannot be 0)

Name edition	Year edition	Number of competitors	Number of observations
Affari tuoi standard	2015–2016	1	34
Affari tuoi raddoppia	2015–2016	2 strangers	58

Table 2.
Summary of the
sample, distinction by
edition

$$0 < \frac{CE}{EV}$$

Risk index formula

Where in line with literature:

(1) For values close to 0: the subject is **risk averse** (i.e. willing to accept a small banker's offer compared to the EV).

(2) For values close to 1: the subject is **risk neutral (**i.e. willing to accept an offer close to the EV).

(3) For values bigger than 1: the subject is **risk seeker** (i.e. willing to decline offers smaller or like the EV and to accept offers to some degree larger than the EV only—how large depends on the actual value taken, e.g. 2 means willing to accept offers double the amount of the EV or more).

As we can infer from Figure 2, the box plot highlights that groups and individuals seem to behave in a similar fashion.

Table 3 displays a summary statistic regarding the mean risk index associated to each competitors' category. From a preliminary analysis we can confirm the visual results: AFI and AFG have a similar mean.

To draw more robust conclusions, we ran two non-parametric tests, the Wilcoxon rank-sum (Mann–Whitney) test and the Kolmogorov–Smirnov test. We compared the categories in pair. As Table 4 shows, comparing AFI and AFG, the risk index is not different,
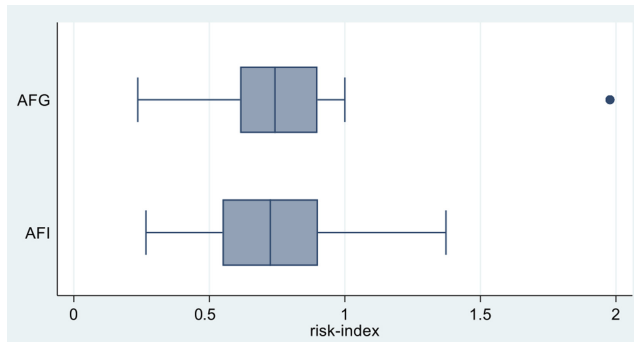

Figure 2.
Box plot of risk index for each category of competitor,
AFI = individual,
AFG = group

Table 3.
Summary statistic of risk index by categories of competitors

Risk index	Mean	Std.dev
AFI	0.713	0.238
AFG	0.754	0.295

Table 4.
Wilcoxon rank-sum test and Kolmogorov–Smirnov test by risk index

Risk index	Wilcoxon rank-sum test (*p*-value)	Kolmogorov–Smirnov test (*p*-value)
AFI vs AFG	0.6435	0.549

in fact, both the *p*-values are not statistically significant, in both, Wilcoxon rank-sum (Mann–Whitney) test and in the Kolmogorov–Smirnov test (0.6435 and 0.549 respectively).

From review of the analysis, our research hypothesis "H0: No significant difference between individuals' and groups' behavior" is confirmed.

According to the literature, risk aversion could also vary with gender. Our analysis, however, shows no difference based on the gender of our competitors. We generated a gender variable with a value from 1 to 5 (1 = female, 2 = male, 3 = female-male, 4 = female–female, 5 = male-male) by grouping all possible gender combinations and after running an Anova test [3] we can affirm that there is no variation in behavior based on the gender.

4. Conclusions

Game show data have been employed by scholars to estimate risk aversion coefficients for the general population. While prior game show literature has been able to supply general estimates of risk aversion for individuals, it has not been able to study the impact of group decision making on risk aversion. In this paper, using data collected from the game show Deal or No Deal – Italian edition "Affari Tuoi", we are able to explore this issue since individuals and two-sized groups of contestants are subjected to the same gameplay.

We calculated the risk index (measured at the last played game round for each analyzed episode) and ran two non-parametric tests, the Wilcoxon rank-sum (Mann–Whitney) test and the Kolmogorov–Smirnov test.

Our analysis shows no significant difference between decisions taken by individuals and groups of strangers, therefore we cannot reject the null hypothesis "*H0: No significant difference between individuals' and groups' behavior*".

This finding is line with developing literature such as Harrison and Klein (2007), and Baker *et al.* (2008).

Our results may have important implications in the contexts of finance and economics. Indeed, many risky decisions are made by groups rather than individuals, i.e. corporate resolutions, mutual fund management, corporate budgeting, etc. Differences in risk aversion coefficients could also affect asset pricing as well as financial contracts.

We note that this research insight applied to TV shows is almost absent in the current literature and this work could be a starting point for future applications. Previous literature includes investigation on the TV Show "Cash Cab", however we must note that the contestants constituting the group knew each other in real life (friends, coworkers, family members, etc.) while in Deal or No Deal – Italian edition they were total strangers.

Our findings might be explained by the fact that being matched with a total stranger does not change subjects' behavior during a one-off TV experience (as it was not possible to take part again in the TV show after playing once and winnings were equally split) and essentially contestants tend to play as if they were on their own when trying to reach an agreement on the move to take with the other contestants.

In the decision-making contestants were free to discuss and find a common agreement, even though time was constrained by the TV time slot available (around 40 min for the whole gameplay). However, this does not exclude the possibility that people with certain preferences could have been more persuasive than others (for example, more selfish individuals are also more aggressive in deliberation).

To best of our knowledge no other Deal or No Deal edition in Europe or North America had groups of strangers as contestants, therefore the dataset is non-expandible.

A limitation of this work is no knowledge of socio-economic characteristics of the contestant. Apart from the Italian region where they come from, marital status and brief and very generic description of their occupation no further information is available. However, we may confidently assume that the contestants are representative of the general

Italian population. General shortcomings of TV game shows are no control over contestant's selection process (however in the case of Affari Tuoi the selection processes was open to the public and regulated by an unbiased set of rules), the allocation of a fixed TV air time which could possibly rush some contestants decision making and the presence of an audience that could potentially bias player's decision making with behaviors such as cheering, applauding or discouraging.

Our insights are also important considering that in many occasions we have to contract/make decisions with people we do not know/know very little (i.e. occasional business partners, representative at other companies/institutions, insurance/finance advisors, new work colleagues, etc.).

Further research might concentrate on the effect of previous losses on player's subsequent decisions.

Notes

1. For the 2015 edition (ending on 06/01/2016), boxes' content ranges from 0.01€ to 500,000 €, the average prize is 52,095.84 €, the standard deviation is 120,911.41 the distribution of prizes is highly skewed. For the 2016 edition, boxes' content ranges from 0.50 € to 500,000 €, the average prize is 52,045.83 €, the standard deviation of prizes is 120,953.44 €, the distribution of prizes is highly skewed.

2. The TV show regulations state that 2 separate payments of equal amount are made.

3. We cannot reject the null hypothesis, the p-value (0.6435) is not statistically significant. We do different behavior based on gender.

References

Andersen, S., Harrison, G., Lau, M. and Rutström, E. (2006a), "Dynamic choice behavior in a natural experiment", Working Paper 06-10, Department of Economics, College of Business Administration, University of Central Florida.

Andersen, S., Harrison, G., Lau, M. and Rutström, E. (2006b), "Risk aversion in game shows", Working Paper 06-19, Department of Economics, College of Business Administration, University of Central Florida.

Andersen, S., Harrison, G.W. and Rutström, E.E. (2006c), "Dynamic choice behavior: asset integration and homegrown reference points", Working Paper 06, Department of Economics, College of Business Administration, University of Central Florida.

Baker, R., Laury, S. and Williams, A. (2008), "Comparing small-group and individual behavior in lottery-choice experiments", *Southern Economic Journal*, Vol. 75 No. 2, pp. 367-382.

Blavatskyy, P. and Pogrebna, G. (2008), "Risk aversion when gains are likely and unlikely: evidence from a natural experiment with large stakes", *Theory and Decision*, Vol. 64, pp. 395-420.

Botti, F., Conte, A., Di Cagno, D. and D'Ippoliti, C. (2008), "Risk attitude in real decision problems", *The B.E. Journal of Economic Analysis and Policy*, Vol. 8 No. 1, pp. 1-32.

Brunette, M., Cabantous, L. and Couture, S. (2015), "Are individuals more risk and ambiguity averse in a group environment or alone? Results from an experimental study", *Theory and Decision*, Vol. 78 No. 3, pp. 357-376.

Burnstein, E., Vinokur, A. and Trope, Y. (1973), "Interpersonal comparison versus persuasive argumentation: a more direct test of alternative explanations for group-induced shifts in individual choice", *Journal of Experimental Social Psychology*, Vol. 9 No. 3, pp. 236-245.

Byrnes, J., Miller, D. and Schafer, W. (1999), "Gender differences in risk taking: a meta-analysis", *Psychological Bulletin*, Vol. 125 No. 3, pp. 367-383.

Charness, G. and Gneezy, U. (2012), "Strong evidence for gender differences in risk taking", *Journal of Economic Behavior and Organization*, Vol. 83 No. 1, pp. 50-58.

Deck, C., Lee, J., Reyes, J. and Rosen, C. (2012), "Risk-Taking behavior: an experimental analysis of individuals and dyads", *Southern Economic Journal*, Vol. 79 No. 2, pp. 277-299.

Friedman, D. (1998), "Monty Hall's three doors: construction and deconstruction of a choice anomaly", *The American Economic Review*, Vol. 88 No. 4, pp. 933-946.

Fullenkamp, C., Tenorio, R. and Battalio, R. (2003), "Assessing individual risk attitudes using field data from lottery games", *Review of Economics and Statistics*, Vol. 85 No. 1, pp. 218-226.

Gertner, R. (1993), "Game shows and economic behavior: risk-taking on 'card Sharks'", *The Quarterly Journal of Economics*, Vol. 108 No. 2, pp. 507-521.

Harrison, D. and Klein, K. (2007), "What's the difference? Diversity constructs as separation, variety, or disparity in organizations", *Academy of Management Review*, Vol. 32 No. 4, pp. 1199-1228.

Holt, C. and Laury, S. (2002), "Risk aversion and incentive effects", *American Economic Review*, Vol. 92 No. 5, pp. 1644-1655.

Jetter, M. and Walker, J. (2017), "The gender of opponents: explaining gender differences in performance and risk-taking?", *European Economic Review*, Vol. 109, pp. 238-256.

Laughlin, P. and Adamopoulos, J. (1980), "Social combination processes and individual learning for six-person cooperative groups on an intellective task", *Journal of Personality and Social Psychology*, Vol. 38 No. 6, pp. 941-947.

Laughlin, P. and Ellis, A. (1986), "Demonstrability and social combination processes on mathematical intellective tasks", *Journal of Experimental Social Psychology*, Vol. 22 No. 3, pp. 177-189.

Levinger, G. and Schneider, D. (1969), "Test of the "risk is a value" hypothesis", *Journal of Personality and Social Psychology*, Vol. 11 No. 2, pp. 165-169.

Metrick, A. (1995), "A natural experiment in 'Jeopardy'", *The American Economic Review*, Vol. 85 No. 1, pp. 240-253.

Morone, A. and Temerario, T. (2018), "Is dyads' behaviour conditionally cooperative? Evidence from a public goods experiment", *Journal of Behavioral and Experimental Economics*, Vol. 73, pp. 76-85.

Morone, A., Caferra, R., Casamassima, A., Cascavilla, A. and Tiranzoni, P. (2021a), "Three doors anomaly, 'should I stay, or should I go': an artefactual field experiment", *Theory and Decision*, Vol. 91 No. 3, pp. 357-376.

Morone, A., Nuzzo, S. and Temerario, T. (2021b), "Decision process and preferences over risk under the "endogenous decision rule": results from a group experiment", *Economics and Business Letters*, Vol. 10 No. 2, pp. 107-115.

Post, T., van den Assem, M.J., Baltussen, G. and Thaler, R.H. (2008), "Deal or No deal? Decision making under risk in a large-payoff game show", *American Economic Review*, Vol. 98 No. 1, pp. 38-71.

Stoner, J. (1961), "A comparison of individual and group decisions involving risk", Thesis (master) - Massachusetts Institute of Technology, School of Industrial Management.

Zhang, J. and Casari, M. (2012), "How groups reach agreement in risky choices: an experiment", *Economic Inquiry*, Vol. 50 No. 2, pp. 502-515.

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