Do Women Panic More Than Men? An Experimental Study on Financial Decision

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An Experimental Study on Financial Decision

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Abstract

We report experimental evidence on gender differences in financial decision that involves three depositors choosing between waiting or withdrawing their money from a common bank. We find that the position in the line, the fact of being observed and the observed decisions are key determinants to explain subjects' behavior. Although both men and women value being observed, it has a greater effect on women's decisions. Observing a withdrawal increases the likelihood of withdrawal but women and men do not react differently to what is observed, so they are equally likely to panic if a bank run is already underway. Interestingly, risk aversion has no predictive power on depositors' behavior.

Keywords: bank run, gender difference, strategic uncertainty, experimental evidence, coordination.

JEL Classification: C91, D03, D8, G02, J16

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1. Introduction

Starting with the run on Northern Rock in the UK in 2007, the financial crisis has shown that bank runs are still a topic of first-order importance worldwide. Examples include the experiences of Washington Mutual, Bear Stearns, the IndyMac Bank, the Bank of East Asia or the fourth largest lender in Spain, Bankia.

During the previous waves of bank runs (the last one during the Great Depression) depositors were overwhelmingly men. However, due to social progress and changes in labor conditions, the gap in the proportion of men and women among the banks' depositors is closing. Because gender differences in preferences have been identified in different dimensions (see Croson and Gneezy, 2009, for a review), this may have relevant implications concerning how bank run episodes unfold nowadays. More concretely, women generally exhibit a higher degree of risk aversion what may suggest that they will be more likely to participate in a bank run.

We report experimental evidence on gender differences in a bank run situation. Our experimental design is based on the coordination problem formulated by Diamond and Dybvig (1983) that we modify to allow for different levels of observability, following Kiss et al. (2012a, 2012b). Diamond and Dybvig (1983) represent the depositors' coordination problem as a simultaneous-move game in which multiple equilibria emerge, one of which has depositors participating in a bank run. In their seminal model, individuals may suffer a liquidity shock after depositing their funds in a bank. This results in two different types: impatient depositors (who need their money immediately) and patient depositors (who derive utility both from immediate and future consumption). Liquidity type is private information, but there is no aggregate uncertainty about the number of patient and impatient depositors. Importantly, the payoff structure is such that patient depositors will get the highest possible payoff if they decide not to withdraw their money from the bank, however it is also possible to have a (bank run) equilibrium in which they decide to withdraw. In the current paper, we

also consider the case in which patient depositors get the highest payoff by waiting and define a bank run as a situation in which a patient depositor withdraws. One noteworthy aspect of our design that makes our paper differs from Diamond and Dybving (see Kiss et al. 2012a, 2012b) is that depositors choose sequentially between waiting or withdrawing their money, what implies that i) depositors may observe what other depositors have done before taking their decision, and ii) depositors know if other depositors will observe their decisions.[4]

We hypothesize that two forces may affect the decision of the patient depositors. The first one concerns the observation of other depositors' decision. For example, knowing that another depositor has already withdrawn might foster panicking behavior and favor further withdrawals, since a patient depositor observing that someone else withdraws does not know if (s)he is observing the impatient or the patient depositor. On the other hand, depositors at the beginning of the line might behave differently if their actions are being observed by subsequent depositors. More precisely, if a depositor is observed by the other depositors, then (s)he may decide to wait to induce the other depositors to do so as well, getting the highest possible payoff.

This paper studies if there are gender differences in withdrawal decisions, after controlling for risk preferences. Gender differences in other financial settings (different from depositor behavior) have been studied extensively. There are studies analyzing gender differences in retirement decisions (e.g. Bernasek and Shwiff, 2001; Sunden and Surette, 1998; Watson and McNaughton, 2007), mutual fund and pension investments (Dwyer, Gilkeson and List, 2002; Felton, Gibson and Sanbonmatsu, 2003; and Martenson, 2008), real estate investment (Seiler, Seiler and Lane, 2012) and trading activity (Kourtidis, Sevic and Chatzoglou, 2011). There are also some papers that find gender differences in the way people reacted to the recent

[4] Iyer and Puri (2012) and Kelly and O'Grada (2000) provide empirical evidence that many depositors know about other depositors' choices (both waiting and withdrawal) and react to them when making their decisions. In their experiment on bank runs, Schotter and Yorulmazer (2009) and Kiss, Rodríguez-Lara and Rosa-García (2012a, 2012b) note that observability of actions indeed affects the subjects' behavior in the lab.

financial crisis (see for instance Söderberg and Wester, 2012). Though there is a growing experimental and empirical literature on bank runs (see Schotter and Yorulmazer, 2009; Garratt and Keister, 2009; Starr and Yilmaz, 2007; Iyer and Puri, 2012; Brown, Trautmann and Vlahu, 2012, for some recent examples and Dufwenberg, 2012, for a survey on experimental banking, including a section on bank runs), to the best of our knowledge this is the first experimental study that specifically investigates gender differences in this context. We are only aware of two empirical studies that touch upon gender differences in bank run situations (Kelly and O'Grada, 2000; O'Grada and White, 2003). Both involve two bank runs in New York in 1854 and 1857 and gender was not clearly found to play a role in explaining panicking behavior.

The rest of the paper is organized as follows. In section 2 we present the bank-run game that is played in our experiment, which is outlined in Section 3. Section 4 contains the experimental results. Section 5 concludes.

2.The bank-run game with observability of actions

We describe in this section the coordination problem that is played in each round of the experiment. Our game relies on the model of Kiss et al. (2012a, 2012b), who extend the model of Diamond and Dybvig (1983) to allow for observability of actions.

Consider a bank that is formed by 3 depositors. At t=0, each of them deposits her/his initial endowment (in our experiment, 80 ECUs) in this bank that has thus initially 240 ECUs to be invested in a project. The project yields a sure high return in period t=2, but the investment can be liquidated without any cost at t=1.

In t=1 depositors choose in an exogenously determined sequence whether they want to withdraw their initial endowment or keep it deposited. Depositor *i* is the one that chooses in position *i*, where $i = 1,2,3$. If a depositor decides to withdraw, (s)he immediately receives 100

ECUs as long as there is enough money in the bank to pay this amount (out of this amount, 80 ECUs correspond to the initial endowment and 20 ECUs are obtained in the form of interests). In our experiment, if depositors 1 or 2 withdraw, they receive 100 ECUs for sure. But if depositor 3 decides to withdraw after two withdrawals, (s)he only receives 40 ECUs (because the first two depositors who withdrew received 100 ECUs each and the bank has only 40 ECUs to pay depositor 3). However, if depositor 3 withdraws after one withdrawal and one waiting, the bank pays her/him 100 ECUs.

Depositors who decide to wait receive their payoff in period t=2. The amount that depositors receive in t=2 depends on the total number of waitings. If only one depositor waits, (s)he receives 60 ECUs. If two depositors wait, then their payoff is 140 ECUs. In our model, we assume that the three depositors cannot wait and keep the money deposited in the bank. In particular, one of the depositors is hit by a liquidity shock at t=1 and is forced to withdraw. In line with Diamond and Dybvig (1983), there exists no aggregate uncertainty about the fundamental demand; i.e., it is common information in our setup that one of the depositors will need the money and will be forced to withdraw. We refer to this depositor who is forced to withdraw as impatient depositor, whereas depositors who can wait or withdraw their money are called patient.

The decision situation in our study is such that it pays off for patient depositors to wait if they know or believe that the other patient depositor does so as well, so that we define a bank run as a situation in which at least one of them withdraws. Our setup differs in two important ways from standard coordination games: i) decision of depositors will be observable conditional on the information structure; ii) one of the depositors always withdraw, increasing substantially the degree of strategic uncertainty. More precisely, in a setup in which a patient depositor observes a withdrawal, (s)he will not know if this was due to the impatient depositor or to a patient depositor that decided to run the bank. Similarly, in a context in which nothing

is observed, a patient depositor will decide having uncertainty about what the other patient depositor is doing (or will do). We want to study how different information structures and the observability of actions affect men's and women's decisions.

3. Experimental Design and Procedures

We recruited a total of 60 subjects (30 men, 30 women) with no previous experience in coordination problems or experiments dealing with financial decisions. We ran two sessions at the Laboratory for Research in Experimental Economics (LINEEX) of Universidad de Valencia in June 2013, with an even distribution of gender within each session. All participants in the experiment were students from Economic and Business School.

The experiment was programmed using the z-Tree software (Fischbacher, 2007). Instructions were read aloud and the bank-run game described in Section 2 was played during 15 rounds. At the beginning of each round, each subject was informed that (s)he had been matched in a random pair and assigned a third depositor (simulated by the computer) so as to form a three-depositor bank.[5] Likewise, she/he was told that she had deposited her/his initial endowment (80 ECUs) in the common bank. All these information was publicly known. Appendix A contains the instructions.

Each depositor was also then privately informed about her/his position in the sequence of decision (i=1,2,3). It was common knowledge that this position was randomly and exogenously determined, so that subjects were equally likely to be in each position. Depositors decided then in sequence (according to their position in the line) whether to withdraw their money from the bank or keep it deposited (that we call waiting). If the action of the depositor was going to be observed by some subsequent depositor, she was also

[5] Since the impatient depositor always withdraws, to maximize the amount of data we had the computer act as the impatient depositor.

informed about it. In the same way, if the depositor was observing a predecessor in the line, (s)he was informed about her/his action before deciding.

We considered all possible information structures that a depositor in any position could observe and whether (s)he was observed or not. Depositors had only local knowledge of the information structure, that is, they did not know if the other two depositors were linked or not. Hence, knowing i) the position; ii) what predecessor(s) did; and iii) the link(s) to subsequent depositors was the only information that was available to the subjects.

Figure 1. Screenshots for depositors 1 and 2.

Figure 1A. Depositor 1

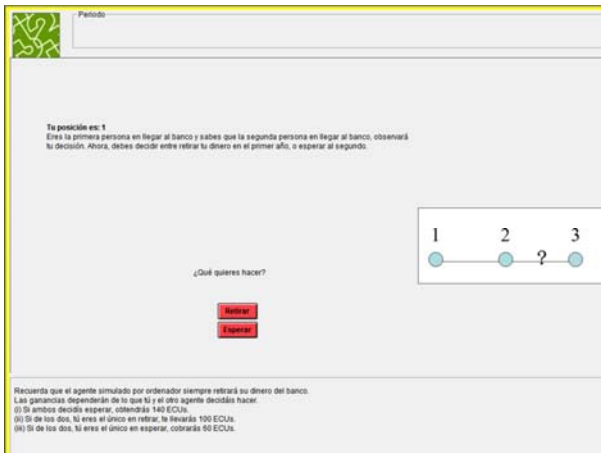
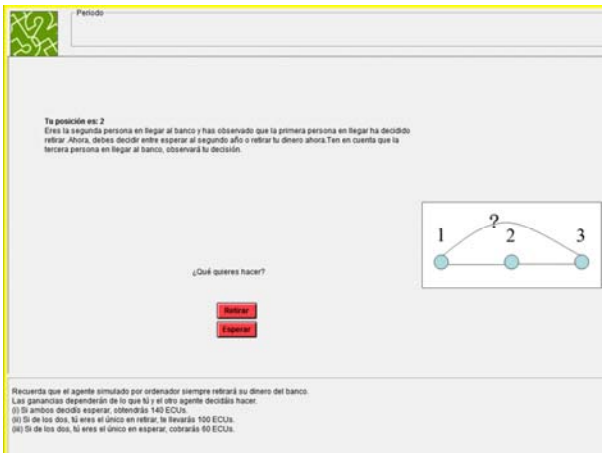


Figure 1B. Depositor 2



In Figure 1 we present some screenshots of our experiment. In Figure 1A, we show the case of depositor 1 who is asked to choose between waiting ("esperar") or withdrawing ("retirar"). The figure on the left-hand side shows that depositor 1 knows that depositor 2 in the line will observe her/his decision, but (s)he is unaware if depositor 3 observes depositor 2 or not. Because there is no link between depositor 1 and 3, depositor 1 knows that 3 will not observe his/her action. Figure 1B presents the case of a depositor 2 who has observed a waiting and has to decide what to do. Depositor 2 knows that depositor 3 will observe her/his decision.

In each round, subjects' payoff depended on their decisions and on their position in the line. Next we present the payoff table that subjects received in the instructions of the experiment.[6]

		In you decide to wait in the first year and withdraw in the second, the…	
Number of previous withdrawals	If you withdraw the first year	If you both wait and only the computer withdraws	If, in addition to the computer, the other depositor withdraws
0	100	140	60
1	100	140	60
2	40	Not applicable	60

Table 1: The payoff table

These payoffs imply that depositor 3 was always better off if (s)he waited, while depositor 1 and 2 received the highest payoff if they did the same action than the other experimental subject. [7]

It was common information in our experiment that three depositors formed the bank and the computer was programmed to always withdraw (acting as the impatient depositor). In each round subjects were asked to choose between waiting or withdrawing. We note that the position in the line and the information structure changed across rounds (i.e., in each round, subjects were placed in a different position or faced a different environment in that their links were different).

In both sessions, subjects were divided into three matching groups of 10. Subjects from different matching groups never interacted with each other throughout the session. Subjects within the same matching group were randomly and anonymously matched in pairs at the end of each round.

At the end of the experiment, subjects filled out a questionnaire that was used to collect additional information about gender and the degree of risk aversion. We elicited risk attitudes using the investment decision in Gneezy and Potters (1997). Each subject hypothetically

[6] The payoffs were also explained to subjects at the bottom of their screenshoot (see Figure 1).
[7] In our setup, waiting in position 3 yields 140 ECUs (60 ECUs) if only the computer has withdrawn (in addition to the computer, the other depositor has withdrawn), whereas withdrawing yields 100 ECUs (40 ECUs).

received 10 Euros and was asked to choose how much of it, $x, (s)he wanted to invest in a risky option and how much (s)he wished to keep. The amount invested yielded a dividend $2.5x with ½ probability, being lost otherwise. The money not invested in the risky option $(10-x) was kept by the subject. In this situation, the expected value of investing is higher than the expected value of not investing; therefore a risk-neutral (or risk-loving) subject should invest the 10 Euros, whereas a risk-averse subject will invest less. The amount not invested in the risky asset is a natural measure of risk aversion.[8]

Each session lasted approximately 90 minutes and subjects received on average 16 Euros. For the payment, we used a random lottery incentive procedure by which one choice (i.e., one of the rounds) was paid out, with ECUs being transformed in Euros using the exchange rate 10 ECUs = 1 Euro.

4. Experimental Results

4.1. Aggregate Data

This section presents our main results. In Figure 2, we report the likelihood of withdrawal by gender in each position. We see that the position in the line affects depositor's behavior, with depositors being more likely to withdraw in position 1 or 2 than in position 3. Gender does not seem to affect systematically depositors' behavior. We observe that women (men) withdraw more frequently in position 2 and 3 (position 1), but gender differences are never significant (p-values > 0.146).[9]

[8] Our questionnaire contained also four different lotteries in the spirit of[16] (2002). Although we choose to elicit risk aversion using Gneezy and Potters (1997), we can also proxy risk aversion by the number of times that a subject chose the risky choice in the Holt and Laury task. The results presented in the next section are invariant to the measure of risk aversion that we use as both measures are correlated (Correlation coefficient = 0.26, p-value < 0.0000)

[9] Unless otherwise noted, the tests refer to the t-test and the Mann–Whitney U.

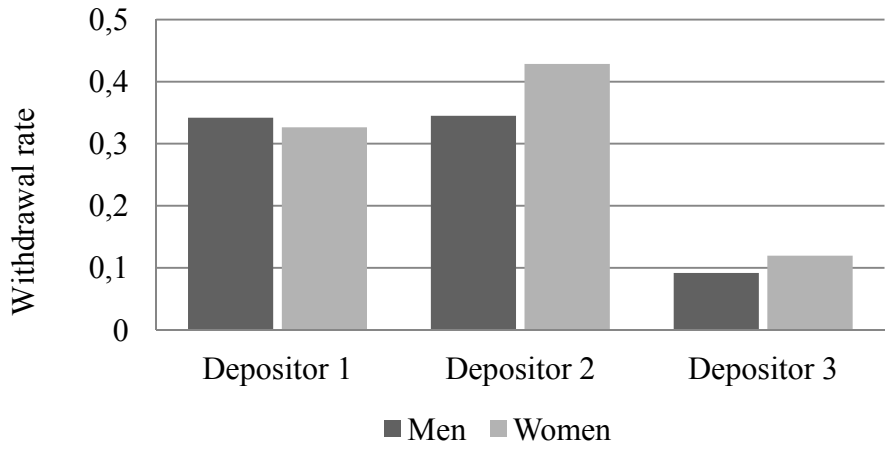


Figure 2: Decisions by gender in each position

An interesting question concerns depositors' behavior in the presence (absence) of strategic uncertainty. Strategic uncertainty is absent if a subject can infer without problem the decision of the other subject in the room before deciding what to do. Obviously, this is never the case for the first depositor in the line (who has no information about what other depositors have done), whereas depositors 2 and 3 in the line make their decision in the absence of strategic uncertainty if they observe a waiting or depositor 3 observes the two previous actions. When depositor 2 or 3 observes either nothing or a withdrawal, their decisions are taken in a context of strategic uncertainty. In Figure 3 we group the data according to the cases in which depositors choose in the presence (absence) of strategic uncertainty

In line with Figure 2, we observe that men and women behave similarly, once we condition on the presence or the absence of strategic uncertainty and on a particular position in the line (p-values > 0.443). [10]

10 This is in line with previous evidence in the literature on coordination problems reporting no gender differences with regard to strategic uncertainty, e.g., Dufwenberg and Gneezy, 2005; Glaeser et al, 2000.

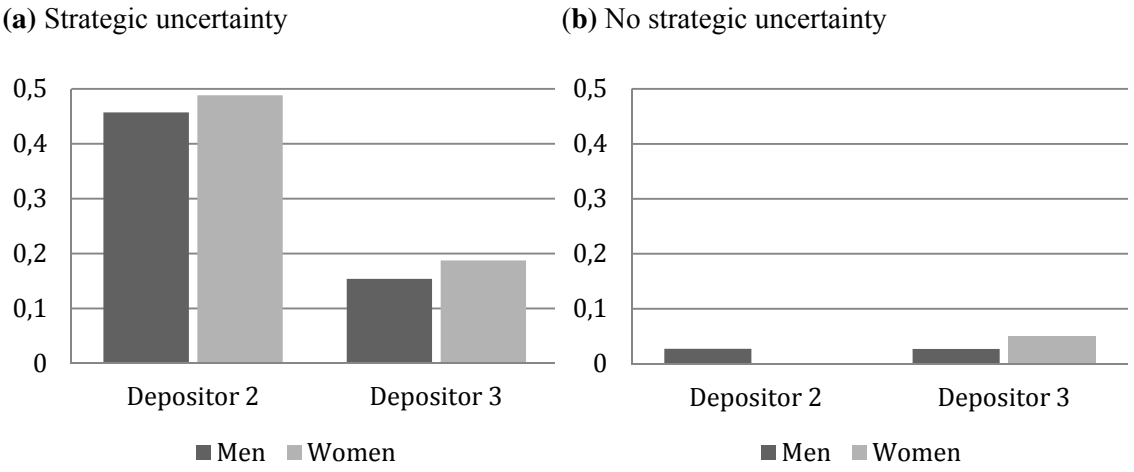


Figure 3: Decisions by gender in presence/absence of strategic uncertainty

One interesting insight of Figure 3 is that strategic uncertainty increases the withdrawal rate for both men and women in position 2 and 3 (p-values < 0.0080). These findings highlight the importance of strategic uncertainty; however gender differences are not crucial to explain depositors' behavior.

4.2. Depositors' behavior

The position in the line and the information structure determine in our context what depositors might observe and whether subsequent depositors can observe their actions. To disentangle if there are gender differences in the effects of these variables on withdrawal decision, we analyze depositors' behavior more in detail by performing an econometric analysis. We estimate a logit model on the probability of withdrawal in each position. The set of independent variables includes the subject's gender, the observation possibilities and the interaction effects. Our regressions also control for risk aversion, which is measured using the investment decision in Gneezy and Potters (1997).[11] Because subjects are asked to make

[11] Our data for risk aversion is consistent with previous evidence (see Croson and Gneezy, 2009, for a summary of results) with men investing significantly more than women (Women: 4.97, Men: 5.80, p-value= 0.064). Along

decisions during 15 rounds, we control also for the history of decisions as Garrat and Keister (2009). In particular, the variable *History* measures the share of previous rounds in which the subject witnessed a bank run.

4.1.1. Depositor 1's behavior

When depositor 1 chooses between waiting or withdrawing, (s)he has no information about what will occur in the bank. However, the depositor knows whether subsequent depositors will observe her/his decision or not. This can affect depositor 1's decision as a patient depositor would like to wait to induce the other patient depositor to follow suit.[12] Our data are consistent with such a behavioral pattern. When they are not being observed, men withdraw 57% and women 64% of the times. These withdrawal rates decrease to 32% and 24% when one other depositor will observe the action of the first depositor, and to 11% and 16% when depositor 1 knows that the two other subsequent depositors will observe her/his action.

In the logit specification the independent variables are the subject's gender (W is equal to 0 for men and 1 for women), the number of subsequent followers observing depositors (F1 equals 1 if depositor 1 is observed by only one depositor, and F2 equals 1 if she is observed by two depositors) and the interaction effects, controlling for risk aversion and history (*History)*. In Table 2 we report our estimates, the standard errors of the parameters (which take into account the matching group clustering) and the marginal effects.

this line, we find that men take more risky lotteries than women in the Holt and Laury task (p-value= 0.001). Both the investment decision and the Holt and Laury task yield a measure of risk aversion that is significantly correlated with gender (p-values = 0.044 and 0.007 respectively), with women being more risk averse.

[12] Kiss et al. (2012b) find that depositors in the first position are more likely to wait if their actions are being observed. This may be related to contribution in public good games and strategic commitment in Choi et al. (2011).

	Logit Coefficients		Marginal Effect	
	Coefficient	***Robust Std. Error***	**Coefficient**	***Std. Error***
F1	-1.441***	*0.52*	-0.249***	*0.08*
F2	-3.682***	*0.89*	-0.369***	*0.05*
W	-0.180	*0.81*	-0.031	*0.13*
WF1	-1.065	*0.81*	-0.157	*0.11*
WF2	1.107	*1.27*	0.231	*0.28*
Risk Aversion	0.117	*0.10*	0.020	*0.02*
History	7.374***	*0.72*	1.260***	*0.24*
Intercept	-3.729***	*0.68*		
Log-Likelihood		-112.17		
Pseudo R^2		0.41		
N		299		

Note. Significant at the *10%, **5%, ***1%.

Table 2: Logit regression for Depositor 1.

We do not find gender differences in the baseline model, where actions are not being observed (F1 = F2 = 0). Our estimates indicate that both men and women value that their actions will be observed as they are less likely to withdraw if one or two other depositors observe their actions (p-values < 0.0006). We also find that men and women react differently to the fact of being observed, with the decrease in the withdrawal rate being higher for women when we compare the case in which nothing is observed with the one in which one action is observed (chi2(1) = 3.36, p-value = 0.0669).[13] Along these lines, we reject for men the null hypothesis that the withdrawal rate when they have one subsequent observing depositor is the same as the withdrawal rate when they have two (χ^2 = 7.17, p-value = 0.0074), while women do not care about the number of subsequent depositors that observe their choices; i.e., we cannot reject the previous null hypothesis for women at any common significance level (χ^2 = 0.01, p-value = 0.9310). When we compare men and women's behavior we do not find any gender differences.

[13] As noted, the withdrawal rate for men (women) decreases from 57% to 32% (from 64% to 24%), when their actions are being observed by a subsequent depositor.

Result 1.

i) Women initiate bank runs as frequently as men when their decisions are not observed.

ii) When one subsequent depositor observes their decisions, the likelihood of withdrawal reduces both for men and women, although the decrease is higher for women, ceteris paribus.

iii) When both subsequent depositors observe their decisions, both men and women are significantly less likely to withdraw, compared with the case in which decisions are not observed. There is no difference in the withdrawal rate of women when having one or two subsequent observing depositor, whereas men withdraw less frequently when observed by two other depositors.

4.2. Depositor 2

Depositor 2 might choose after observing nothing (ObsNo), or after having observed what depositor 1 has already done. In this latter case, depositor 2 can either observe a waiting (ObsWa) or a withdrawal (ObsWi). Interestingly, the observation of the withdrawal arises in a context of strategic uncertainty as depositor 2 is not be able to identify if this was due to the computer or the other subject in the room. Figure 3 already suggests that strategic uncertainty may play an important role. Depositor 2 is more likely to withdraw upon observing nothing or a withdrawal, than upon observing a waiting. But being observed or not may also influence depositor 2's decision.

To see if there are gender differences in how the observation of previous decisions and the fact of not being observed influence the depositor 2's behavior, we perform an econometric analysis. Our baseline model relies on the case in which depositor 2 observes nothing. The dummy variable ObsWi (ObsWa) takes the value 1 if a withdrawal (a waiting) is observed, with W standing for the depositor's gender –we interact these dummies to investigate whether men and women react differently to what is being observed. We shall also take into account

that depositor 2's decision may be observed by depositor 3 (i.e., the dummy variable F1 takes the value 1 in this case). To distinguish between men and women's reaction to what is being observed when there is (not) a link with depositor 3, we interact the depositor 2's gender and what is being observed with F1. Finally, we control for the degree of risk aversion and what subjects observed in previous rounds (*History*), as we did in the case of depositor 1. Our estimates for this specification are reported in Table 3.[14]

	Logit Coefficients		Marginal Effect	
	Coefficient	***Robust Std. Error***	**Coefficient**	***Std. Error***
W	-0.877	*0.72*	-0.206	*0.17*
ObsWi	0.757	*0.89*	0.181	*0.21*
ObsWa	-3.561***	*0.56*	-0.427***	*0.04*
F1	-1.301***	*0.38*	-0.300***	*0.09*
WObsWi	-0.32	*1.21*	-0.007	*0.29*
WF1	0.847	*1.06*	0.205	*0.26*
F1ObsWi	0.143	*0.78*	0.034	*0.18*
WF1ObsWi	0.199	*1.14*	0.048	*0.28*
Risk Aversion	-0.016	*0.12*	-0.004	*0.03*
History	6.353***	*1.12*	1.508***	*0.28*
Intercept	-2.930**	*1.26*		
Log-Likelihood	-111.17			
Pseudo R^2	0.36			
N	252			

Note. Significant at the *10%, **5%, ***1%.
WObsWa, F1ObsWa and WF1ObsWa are excluded because they predict waiting perfectly.

Table 3: Logit regression for Depositor 2.

Our estimates indicate that observing a withdrawal does not have any influence on men's or women's behavior (p-values>0.2526), whereas the observation of a waiting significantly decreases their likelihood of withdrawal (p-values<0.0000).[15] This, in turn, implies that we can easily reject the null hypothesis that depositors' choice is invariant to what is being

[14] We note that the dummy variables F1ObsWa, WObsWa and WF1ObsWa have been eliminated from the analysis because i) men who observed a waiting and know that their actions will be observed, and ii) women who observe a waiting (regardless of whether they are linked with depositor 3 or not), never withdraw their money from the bank; i.e., F1ObsWa, WObsWa and WF1ObsWa predict waiting perfectly.

[15] In fact, depositor 2 waits in 53 out of the 54 cases in what (s)he observes a waiting, and waits only in 39 out of the 94 occasions in which (s)he observes a withdrawal.

observed (p-values<0.0000). When we look at gender differences in behavior, we do not find any evidence that men and women behave differently, neither in the baseline model where nothing is observed (p-value=0.218) nor when a waiting or a withdrawal is observed (p-values>0.2259). Overall, these findings are in line with our description of Figure 3 and highlight that strategic uncertainty is the major force driving depositor's behavior, with men and women withdrawing more frequently when nothing or a withdrawal is observed. Women and men react similarly to what they observe.

One interesting insight from our regression analysis is that men do care about their link with depositor 3 (p-values < 0.0050), whereas women do not value the fact of being observed by depositor 3 (p-values > 0.6028). This finding seems to support our Result 1 in what men care more than women about the number of links.

Result 2.

i) Withdrawal rates increase in situations of strategic uncertainty (i.e., when nothing or a withdrawal is observed), but we do not find evidence for gender differences in behavior.

ii) Men value the fact of being observed by depositor 3 more than women do.

4.3. Depositor 3

Depositor 3 was always better off by waiting[16] and did it in 90% of the cases. Interestingly, the description of our data in Figures 2 and 3 indicates that withdrawals in position 3 occur when there exists strategic uncertainty and depositor 3 is not able to infer what the other patient depositor has done.

To investigate whether gender differences are important for depositor 3, we estimate a logit model in which the baseline specification assumes that there is no strategic uncertainty; i.e.,

[16] See footnote 4.

we pool the cases in which a waiting or the two previous actions are observed.[17] We then define the dummy variable StrUnc, which takes the value 1 if a withdrawal or nothing is observed. Our specification controls for gender, risk aversion and the history of decisions and our estimates are presented in Table 4.[18]

	Logit Coefficients		Marginal Effect	
	Coefficient	***Robust Std. Error***	**Coefficient**	***Std. Error***
W	0.461	*1.36*	0.020	*0.06*
StrUnc	1.800	*1.26*	0.087	*0.72*
WStrUnc	-0.579	*1.45*	-0.051	*0.04*
Risk Aversion	-0.007	*0.13*	-0.000	*0.01*
History	5.348***	*1.23*	1.508***	*0.28*
Intercept	-6.594**	*1.71*		
Log-Likelihood	-78.51			
Pseudo R^2	0.25			
N	312			

Note. Significant at the *10%, **5%, ***1%.

Table 4: Logit regression for Depositor 3.

Once we control for the history of decisions and risk aversion, we observe that strategic uncertainty does not have any significant effect on men's behavior. The same is true for women (chi2 (1) = 2.40; p-value = 0.1216). Along similar lines, gender has no predicting power in explaining withdrawal rates as men and women cannot be rejected to behave in the same manner both when there is strategic uncertainty (p-values = 0.8512), and when there is not (p-value = 0.737).

Result 3.

We find that neither strategic uncertainty nor gender have an effect on the depositors' behavior in position 3.

[17] Observing two withdrawals or a waiting and a withdrawal predicts waiting perfectly for both men and women. Men do never withdraw if a waiting and a withdrawal is observed, whereas 4 out of the 32 women's choices correspond to withdrawing in this scenario. We note that these 4 choices correspond to 2 subjects.

[18] We define only a dummy for the case of strategic uncertainty because for depositor 3 we have a very small number of withdrawals, thus there is small variability in the data, and with a more detailed model we would require several regressors more.

Besides the described effect of gender, observability and strategic uncertainty, one important finding is that risk aversion is not significant in none of the regressions. On the contrary, the history of decisions seems to have a predictive power as the frequency of bank runs that the subject witnessed tend to increase the likelihood of withdrawal in any position. While the latter result is in line with Garratt and Keister (2009) and Kiss et al. (2012b), the former one points out that decisions in our setup are not driven by the attitude toward risk.[19] In our view, this is an interesting finding. Risk aversion is sometimes related to subjects' behavior in financial decisions. In the particular case of a bank run episode, the fact that women are usually more risk averse could be interpreted as they being more likely to participate in bank run situation. We find that women are more risk averse than men, but risk aversion seems to play no role in withdrawal decisions.

5. Concluding remarks

After the recent financial turmoil, researchers have shown keen interest in studying what factors affect the widespread appearance and propagation of bank runs. One interesting question to be addressed is how men and women behave in this context, an issue that has been disregarded by the literature.

We present experimental data where the bank run problem is modeled as a coordination game (as originally proposed by Diamond and Dybvig, 1983) with depositors choosing sequentially between waiting or withdrawing, after potentially observing previous decisions (Schotter and Yorulmazer, 2009; Garrat and Keister, 2009; Kiss et al., 2012a; Kiss et al., 2012b).

Similarly to Kiss et al. (2012b), our results highlight that the information structure is a key element to explain subjects' behavior. Our main contribution is to show that men and women initiate bank runs equally, and react to the observation of withdrawals in a similar manner.

[19] Even if we omit risk aversion from the regressions, gender does not become significant in the baseline cases.

We find that both men and women value the fact that their actions will be observed, although there exists some gender differences worth mentioning: whereas women are more affected than men by the fact of being observed, men are more concerned about the number of subsequent depositors that will observe their decisions.

When we investigate how men and women react to what is being observed, we find that strategic uncertainty (e.g., observing nothing or a withdrawal) has a predictive power in our sample by increasing the likelihood of withdrawal, but no gender difference in behavior are found. Overall, these results could be interpreted as men being more concerned about whether their financial decisions will be observed, but there are no gender differences in the reaction to observing withdrawal(s).

One interesting finding in our paper relates to attitudes towards risk. There is a robust literature on the existence of a gender difference regarding risk aversion. Consistent with previous findings, our data indicate that women are more risk averse than men (e.g., Charness & Gneezy, 2012; Croson and Gneezy, 2009), but it does not translate into a more panicking behavior. Numerous studies show that women and men behave differently when making diverse financial decisions due to the differences in risk aversion. We provide evidence that this is not the case in our particular setup that resembles a coordination game.

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Appendix A: Experimental Instructions (originally in Spanish)

Welcome to the experiment!

This is an experiment to study decision making, so we are not interested in your particular choices but in individuals' average behavior. Therefore, during the experiment you'll be treated anonymously. Neither the experimenters nor the people in this room will ever know your particular choices.

Next, you will find the instructions in the computer screen explaining how the experiment unfolds. The instructions are the same for all subjects in the laboratory and will be read aloud by experimenters. It is important for you to understand the experiment before starting, as the money that you will earn will depend on your choices.

Should you have any problem during the experiment, raise your hand and remember that you are not allowed to speak with anyone except the experimenter.

Number of round

This experiment has 18 rounds in total. The first 3 rounds are for you to become familiar with the software. The remaining 15 rounds will be used to determine your final payoff, so please be sure that you understand the experiment before starting the 4th round. This will help you to earn more money.

Deposits

At the beginning of each round, you will be provided a certain amount of money (80 ECUs) to be deposited in a bank. The bank in which you will invest your money will be formed by 3 depositors: one of them is you, the other one is someone else in this room and the third depositor is simulated by the computer. Therefore, the bank in which you deposit your money will have 240 ECUs per round in total.

Decisions and Earnings

In principle, your decision is to choose whether to withdraw your money from the common bank in the first period or to wait until the second period, taking into account that your earnings will depend not only on your choice but also on other depositors' choices. Indeed, it is important to know that the computer will always withdraw her money, thus your earnings in each round will only depend on your choice and the choice of the other depositor in this room.

Specifically, if you both wait until the second period to withdraw your money, you will get 140 ECUs, corresponding to your initial investment (80 ECUs) plus interests generated during the first period of time (in which you have decided to wait).

If only one of you withdraws the money, then the one who withdraws takes 100 ECUs (exactly the same amount that the computer will take in this case). The depositor who waits will receive 60 ECUs (corresponding to the remaining amount in the bank after two withdrawals – 40 ECUs –plus an additional 20 ECUs as interests).

Finally, it might be the case that both of you withdraw your money in the first period. As a result, your earnings will depend on the available amount of money in the bank and your position in the line. Therefore, if you are at Position 1 or Position 2 in the line and decide to withdraw, you will receive 100 ECUs, but if you are the last one in the line (Position 3), only 40 ECUs remain in the bank and this is exactly the amount of money that you will receive.

Therefore, your payoffs can be summarized in the following table:

		In you decide to wait in the first year and withdraw in the second, the…	
Number of previous withdrawals	If you withdraw the first year	If you both wait and only the computer withdraws	If, in addition to the computer, the other depositor withdraws
0	100	140	60
1	100	140	60
2	40	Not applicable	60

Please remember that the depositor simulated by the computer will always withdraw the money in the first period.

Before starting, it may be important for you to consider that:

1. The person with whom you are linked will change every round. As a result, do not think that you are going to play with the same person.

2. You will always know your position in the line, but this position might change in each round. In particular, you may be located at Position 1, Position 2 or Position 3 with the same probability. The same is true for the computer.

3. In each round, you will have different information about what other depositors at your bank have done. Therefore, in some cases, you will know what has happened before you arrived at the bank (number of waitings and withdrawals) and in some other cases, you will not. At the time of making your choice, you will also know whether someone else will observe your decision. It may be of your interest to consider this information when making your decision. The information will appear on the left-hand side of the computer screen:

E.g., You are at Position 1. Depositors at Position 2 and Position 3 will observe your choice.

E.g., You are at Position 2. Depositor at Position 1 has waited. Depositor at Position 3 will not observe your choices

On the right side of your screen a small graph shows with whom you are linked (that is whom do you observe and who will observe you). If there is no link between two depositors, it indicates that the one that decides later, cannot observe the decision of the other. If you see "?" it indicates that you do not know if the other two depositors are linked or not.

Final payoff

When the experiment ends, we choose randomly one of the 15 rounds and pay according to the earnings of that round. We convert your earnings in that round at a rate 10 ECUs = 1 Euro.

We are now going to start with the first three rounds. At the end of the three rounds, you can ask any questions to make sure that you have understood the procedure. If you have any doubt afterwards, please raise your hand and remain silent. You will be attended by the experimenters as soon as possible. Talking is forbidden during this experiment.