The role of «perceived loss» aversion on credit screening: An experiment *

La aversión a las «pérdidas percibidas» y la selección de prestatarios: un experimento

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ABSTRACT A major characteristic of credit markets is information asymmetry. To combat its problems, as credit rationing, principals can use a menu of contracts to screen clients with different risk level. We conduct a laboratory experiment to address an important question for such settings —does the framing of the offered menu of contracts interfere with the self-selection mechanism? The answer is yes. We find subjects' choices shift when the same (positive) outcomes of the same menu of contracts are presented in two different frames. Subjects exhibit loss aversion in their perception of the positive outcomes below the reference point, and self-selection fails to occur.

KEYWORDS Behavioral finance; Credit screening; Framing; Loss aversion; Reference point; Self-selection.

RESUMEN Uno de los mayores problemas actuales es el racionamiento del crédito, derivado fundamentalmente de las asimetrías informativas. Para disminuir las asimetrías informativas, los bancos pueden aplicar «screening». Esto es, pueden ofrecer a sus clientes un menú de contratos y, dependiendo de la elección de éstos, inferir su nivel de riesgo. Si las elecciones de los clientes de alto riesgo y de bajo riesgo difieren entre sí, hay autoselección de clientes y, por tanto, «screening». En este artículo presentamos un experimento que examina una cuestión esencial en estos contextos —¿Interfiere el punto de referencia de los clientes en su autoselección?— La respuesta es sí. De hecho, las elecciones cambian cuando los mismos datos (positivos) de los mismos contratos se presentan con una referencia diferente. Por ello, proponemos una aproximación teórica derivada de la «Prospect Theory» para explicar nuestros resultados. Observamos una aversión a las pérdidas percibidas que hace fracasar la autoselección.

PALABRAS CLAVE Finanzas conductuales; Credit screening; Efecto marco; Aversión a las pérdidas; Punto de referencia; Autoselección.

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1. INTRODUCTION

A large number of experimental studies, within economics and psychology, support that individuals decision-making differ depending on the reference they are given [(1)]. The Reference-Dependent approaches [see Thaler (1980)], and most prominently the Prospect Theory [Kahneman and Tversky (1979); Tversky and Kahneman (1992)] have gained widespread success in economics and decision research. In contrast with more conventional economic approaches, in which the possible outcomes of available choice options are valued in absolute terms, as the Expected Utility Theory, Reference-Dependent theories are based on the idea that outcomes are always evaluated relative to some relevant reference point.

In this paper, we present an experiment designed to study the reference effect on a question of major importance in financial markets: credit screening. A key characteristic of credit —and insurance— markets is information asymmetry. To combat its problems of adverse selection, moral hazard and credit rationing, banks and insurance companies can use screening. That is, they can offer the clients a menu of contracts and infer their characteristics from their choices. If the pattern of choices that individuals with different characteristics, as risk level, make when facing a menu of contracts differs, then there is self-selection of clients and screening occurs. The possibility of screening borrowers by their risk level is of great importance. When lenders offer a menu of contracts inducing the self-selection of firms, there is a separating equilibrium that reveals information and can resolve credit rationing. In addition, monetary policies by Central Banks improve its effectiveness.

Among the extant screening mechanisms, lenders may employ collateral requirements along with the interest rate [(2)]. Bester (1985) shows that applicants with lower-risk projects are willing to accept higher collateral at a lower premium, while those with higher-risk projects select unsecured loans at a higher premium.

Our experiment aims to answer an essential question for such settings: Does the framing of the offered menu of contracts interfere with the self-selection of clients? The answer is yes. In fact, subjects' choices shift when the same (positive) outcomes of the same menu of contracts are presented in two different frames. Since both frames differ only in the «perceived» reference point, we propose a theoretical approach that initially follows Prospect Theory to explain our results.

An essential feature of Prospect Theory and other Reference-Dependent approaches is the behavioral assumption that postulates that individuals overvalue what is lost from their reference viewpoint (loss aversion). If individuals perceive the collateral

(1) The empirical/experimental literature on Reference-Dependent individual decision-making is too large to be cited here. See Camerer (1995) and Sugden (1999) for insightful surveys.
(2) See Bester (1985), Chan and Kanatas (1985), Besanko and Thakor (1987), Chan and Thakor (1987), Deshons and Freixas (1987), Igawa and Kanatas (1990), Stiglitz and Weiss (1992).

contract terms as a possible loss, it may imply that individuals value the collateral more than Bester's theory predicts. As a result, applicants with lower-risk projects may not be willing to accept higher collateral at a lower premium to self-select, and the screening mechanism may fail.

Our results show that subjects exhibit loss aversion in their perception and assessment of the positive outcomes under the reference point, and self-selection fails to occur. To the best of our knowledge, this is the first paper that applies a Reference-Dependent approach to self-selection mechanisms.

A few experimental papers have examined screening, but have focused on the principal's behavior not in the self-selection mechanism [Shapira and Venezia (1999), Posey and Yavas (2007), and Kübler *et al.* (2008) have studied screening in the insurance and the labor markets]. Only Capra *et al.* (2009) have focused on the self-selection mechanism and have studied the effects of moral hazard on self-selection. Our experiment studies framing effects in the self-selection mechanism needed in credit screening.

In the next section, the game theoretic prediction and hypotheses are presented. In section 3, the experimental design and procedures are described. Section 4 presents the results from the experiment and the final section summarizes the main conclusions.

2. GAME-THEORETIC PREDICTION AND HYPOTHESES

Our theoretical framework revolves around a principal-agent game that initially follows Bester's (1985) model on credit screening. In this setting, we introduce a Reference-Dependent Expected Utility approach that allows for loss aversion in the perception and assessment of collateral.

We consider a market with two types of agents $n = r$ (*riskier*), s (*safer*), according to their project risk level. Each agent has the possibility of starting an annual project that requires an initial fixed investment I [(3)]. The return on the project for agent n is given by the random variable $\tilde{R}_n$, with $0 \leq \tilde{R}_n \leq \bar{R}_n$ and a distribution function $F_n(R) > 0$ for all $R > 0$. The agents have an initial wealth $W < I$, which together with a loan $B = I - W$ finance the project. Given the size of the loan B, and the interest rate i, a credit contract $\gamma = (P, D)$ is specified by the Price, $P = (1 + i)\, B$, and the collateral (Deposit), D. If agent n's project fails, agent loses the collateral. Thus, following Expected Utility Theory as Bester's (1985) model, the expected profit of the project for agent n and a credit contract γ is given by:

$$\Pi_n(\gamma) = E\{\max[\tilde{R}_n - P, -D]\} \quad (1)$$

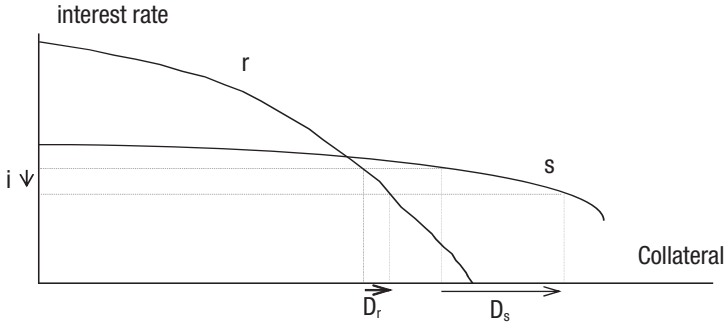
(3) Given that the required investment is fixed, it is not used as a way to signal information about the agent's risk. See Milde and Riley (1988) for models in which the investment is used as a signal.

Banks cannot distinguish borrowers by risk; however, they can separate them by offering a pair of contracts (γ_r, γ_s) that are incentive compatible and act as self-selecting mechanisms. The pair (γ_r, γ_s) is incentive compatible if:

$$\Pi_r(\gamma_r) \geq \Pi_r(\gamma_s); \qquad \Pi_s(\gamma_s) \geq \Pi_s(\gamma_r) \tag{2}$$

As long as a pair of contracts (γ_r, γ_s) is offered, the agent prefers the contract that maximizes its expected profits. Thus, if preferences of investors depend systematically on their types, banks can utilize a menu of contracts with different collateral requirements as self-selection mechanisms. The low risk loan applicants try to differentiate themselves from high risk applicants by accepting higher collateral for a given reduction in interest rates. The isoprofit curves for the two types of loan applicants are depicted in figure 1. Applicant *r* isoprofit curve has a steeper slope than applicant *s*, because the former's project is riskier and, by stochastic dominance of second degree, profits are a convex function of the realized returns (*R*). This means that type *s* agents are inclined to accept a higher increment in collateral for a given reduction in interest rates than type *r* agents. This fact allows self-selection of agent's types when the principal (bank) offers different pairs of incentive-compatible contracts(4).

Figure 1
Agents' Isoprofit Curves



However, under Prospect Theory and other Reference-Dependent models, individuals overvalue what is lost from their reference viewpoint. These behavioral approaches are at odds with traditional economic models, as Bester's, according to which the reference point should not affect valuations of the collateral.

In this paper, we aim to study if the reference effect interferes with the self-selection of clients. Thus, based on the incentive compatible contracts à la Bester (1985) we

(4) In Bester (1985), self-selection resulted from stronger assumptions than in Stiglitz and Weiss (1981). To produce a separating equilibrium the additional assumption that $Fi(R) > 0$ for all $R > 0$ is needed. With this assumption, it is possible to have a monotonous relationship between risk and applicants' preferences.

design an experiment (described in section 3) where the subject's expected payoffs, according to the expected profit of the project (equation [1]), are given by:

$$E_{Payoff}[\Pi_n(\gamma_j)] = q(W + \tilde{R}_n - P_j) + (1-q)(W + 0 - D_j) \quad \forall j=1,\ldots, J \tag{3}$$

Where q is the probability of the project's success, and J is the number of credit contracts $\gamma_j = (P_j, D_j)$.

In this setting, a Reference-Dependent Expected Utility approach that allows for loss aversion in the perception and assessment of collateral is used. This specification is typically used for cumulative Prospect Theory [Tversky and Kahneman (1992)] without its characteristic probability weighting functions, removed for simplicity.

Under this Reference-Dependent Expected Utility model, the value function V of the subject's payoffs is defined by:

$$V(W, \tilde{X}_j) = \begin{cases} (\tilde{X}_j - W)^{\alpha} \text{ if } \tilde{X}_j \geq W \\ -\lambda (W - \tilde{X}_j)^{\alpha} \text{ if } \tilde{X}_j < W \end{cases} \tag{4}$$

Where $\tilde{X}_j = [W + \tilde{R}_n - P_j,\ W + 0 - D_j]$ is the outcome of each contract $\gamma_j = (P_j, D_j)$ for each type of agent n, α is the parameter indicating the curvature of the value function, and λ is the loss aversion parameter (normally above 1).

According to this Reference-Dependent value (RDV), equation [3] can be re-defined as:

$$RDV(q) = qV[W, \tilde{X}_j(\tilde{R}_n P_j)] + (1-q)V[W, X_j(D_j)] \tag{5}$$

This Reference-Dependent approach allows for the loss aversion behavior documented in the theoretical literature and can help explain the mixed results obtained by the empirical literature on the relationship between collateral and borrower risk(5).

Following this Reference-Dependent approach, in this paper we design an experiment to test agents' self-selection under two different frames (both positive).

By designing ad hoc incentive compatible contracts à la Bester (1985), we test the following hypotheses:

H1: Contracts combining pairs of collateral and price screen agents with different risk levels.

H2: Framing (reference) affects the valuation of collateral and interferes with the screening mechanism.

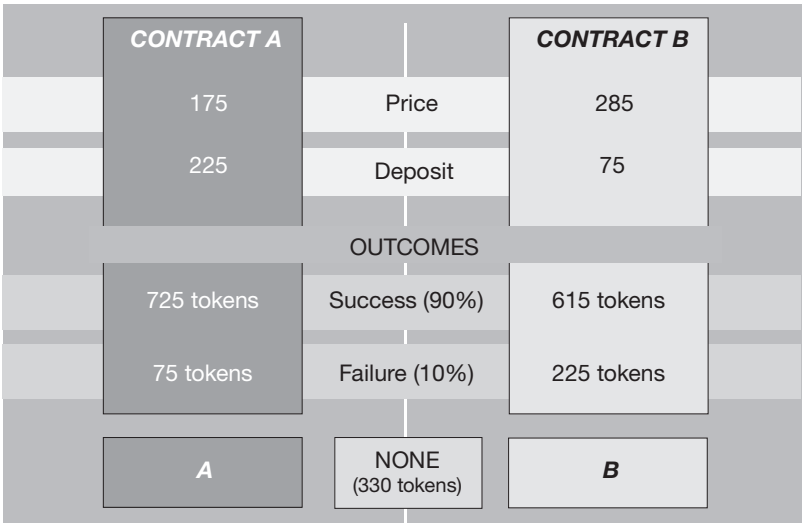
(5) Berger and Udell (1998) offer a comprehensive review of this literature. Some papers show that secured lending is associated with risky borrowers [i.e. Orgler (1970), Hester (1979), Scott and Smith (1986), Leeth and Scott (1989), Berger and Udell (1990, 1992), Booth (1992), Reig and Ramírez-Comeig (1998), Jimenez and Saurina (2004)], and others find the opposite relationship [Cressy (1996), Machauer and Weber (1998), Burke and Hanley (2006), Comeig *et al.* (2013)].

3. EXPERIMENTAL DESIGN AND PROCEDURES

An environment was designed in which there were *N* subjects that needed money to develop a project with some expected future return. Each subject had the two types of projects $n = r$ (riskier: 50% prob. success), s (safer: 90% prob. success). They played 10 rounds with the safer project and 10 rounds with the riskier project in each treatment. We offered a menu of two contracts each round. Each contract included two features: the price to be paid and a deposit, representing the collateral.

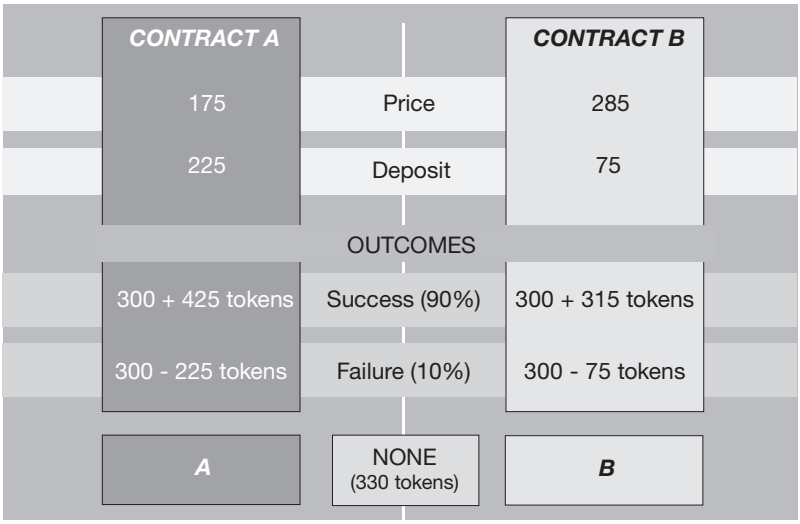
We run two treatments, Framing 1 (F1) and Framing 2 (F2), one with broken down payments. There is only one difference between the two treatments: The payoffs' framing (See figures 2 and 3). Framing 1 (figure 2) shows, in this example, a payoff of 725 units for contract A when the project succeeds, whereas Framing 2 (figure 3) shows a payoff of 300 + 425 (that equals 725). Similarly, Framing 1 (figure 2) shows a payoff of 75 units for contract A when the project fails, whereas Framing 2 (figure 3) shows a payoff of 300-225 (that equals 75). Both treatments had the same instructions [6].

Figure 2
Experimental design: Framing 1



(6) The instructions and other documents used in this experiment are available upon request.

Figure 3
Experimental design: Framing 2



In this experimental market, each individual started each round with an initial wealth of 300 units. Each subject had to choose one or none of the two offered contracts in each round. The subjects who did not choose any contract in the round received a return of thirty monetary units. Under Expected Utility, as in Bester's (1985) model, the individuals expected payoffs were:

$$E_{Payoff}(\Pi_s) = 0.9\,(300 + 600 - P_j) + 0.1\,(300 + 0 - D_j) \quad (6)$$

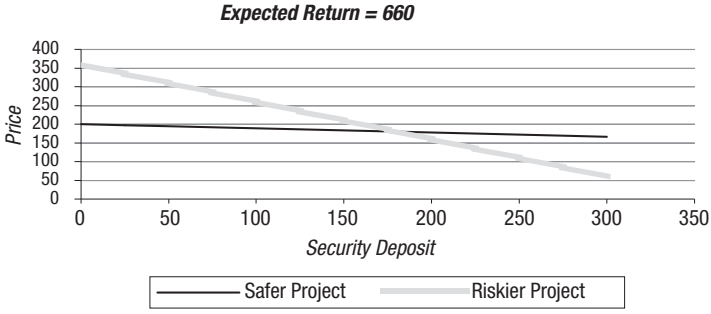
$$E_{Payoff}(\Pi_r) = 0.5\,(300 + 1{,}080 - P_j) + 0.5\,(300 + 0 - D_j) \quad (7)$$

In each of the rounds, we offered a pair of theoretically incentive compatible contracts (γ_r, γ_s), with: $\Pi_r(\gamma_r) > \Pi_r(\gamma_s)$ and $\Pi_s(\gamma_s) \geq \Pi_s(\gamma_r)$. Table 1 shows the five pairs of contracts offered to the subjects and Figure 4 illustrates the iso-profit curves designed with the five pairs of offered contracts. The pairs of theoretically incentive-compatible contracts applied here are the ones used originally by Capra *et al.* (2009). In Capra *et al.* (2009) these pairs of contracts —shown without broken down payments in a between subjects experiment— screen borrowers characterized by different risk-levels. Unlike Capra *et al.* (2009), in our experiment, each pair of contracts was shown in two different rounds, in order to counterbalance the side (left, right) and colors (blue and yellow) of the contracts in each pair. The experiment was programmed and run in E-prime for these graphical reasons.

Table 1
Pairs of Offered Contracts

Pair	Contract r		Contract s	
	Price (P_j)	Deposit (D_j)	Price (P_j)	Deposit (D_j)
1	360	0	166	300
2	335	25	169	275
3	310	50	172	250
4	285	75	175	225
5	260	100	177	200

Figure 4
Designed Contracts' Isoprofit Curves



We chose a within subjects design in order to control for individual differences in personality or risk attitude (we avoid the possibility of having one group of subjects playing one treatment, and other different group playing the other treatment). Half of the subjects played Framing 2 first, to control for order effects.

Thus, the design of the experiment controls for the order of treatments, the presentation (right/left; blue/yellow colors), and allows for indifference: We ask two times the same choice (an indifferent participant may choose contract one once, and contract two once).

The forty-seven subjects of the experiment were students from the University of Geneva (Switzerland) recruited from various courses and grades using flyers (twenty-three males, twenty-four females). During the experiment, they were not allowed to communicate with the rest of the participants. The individuals read the instructions and we answered their questions. During the game the subjects received no feedback. At the end of the experiment, they received their earnings (the average payment was 17 CHF) [7]. Each session lasted for one hour and 15 minutes and was run either at the laboratory of the Swiss Center for Affective Sciences or at the laboratory of the Faculty of Psychology, both at the University of Geneva.

(7) Subjects were paid four rounds drawn at random: one from the low risk and one from the high risk project in treatment F1 and one from the low risk and one from the high risk project in treatment F2.

4. RESULTS

The results of the experiment are summarized in table 2 and figure 5. There are a total of 470 observations per treatment. Framing 1 differs from Framing 2 only in the presentation of outcomes.

In Framing 1, as predicted by Bester's model, subjects with riskier project mostly choose the low collateral contract (58.94%). The Wilcoxon test shows that the difference between low collateral and high collateral contract choices is significant at 1% level (p=0.01). By contrast, when the same subjects have the safer project, they prefer (55.32%) the contract with the higher collateral (p=0.08). Our results confirm that Framing 1 allows the subjects to self-select and, therefore, screening occurs[8]. H1 is confirmed in Framing 1.

In Framing 2, the percentage of choices of the low collateral contract rises in both projects, and screening fails to occur (71.91% choices for riskier projects, and 44.89% choices for safer projects —although the increase in choices for safer projects is not statistically significant, p=0.20). This result supports H2. Subjects perceiving they may «lose» the initial wealth (remember Figure 3; subjects see, for example: 300+425, 300-225), avoid high collateral contract choices. Table 2 shows that, in Framing 2, there is no self-selection. When subjects have the safer project, the difference between low collateral contract choices (44.89%) and high collateral contract choices (49.36%) is not significant (p=0.71). The presence of a default option did not significantly affect decisions.

TABLE 2
DESCRIPTIVE AND TEST STATISTICS BY TREATMENT AND PROJECT

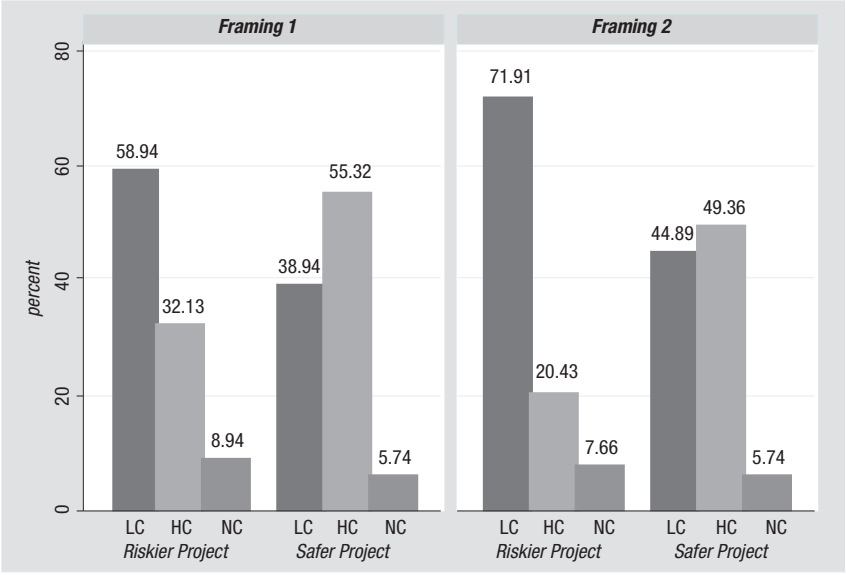
	Framing 1				***Framing 2***			
	Riskier Project		*Safer Project*		*Riskier Project*		*Safer Project*	
	Obs.	*%*	*Obs.*	*%*	*Obs.*	*%*	*Obs.*	*%*
Lowcoll (LC)	277	58.94%	183	38.94%	338	71.91%	211	44.89%
Highcoll (HC)	151	32.13%	260	55.32%	96	20.43%	232	49.36%
None (NC)	42	8.94%	27	5.74%	36	7.66%	27	5.74%

Wilcoxon Test	***Riskier Project***		***Safer Project***	
	Framing 1	*Framing 2*	*Framing 1*	*Framing 2*
Lowcoll-Highcoll	p = 0.01	p = 0.00	p = 0.08	p = 0.71
Lowcoll-None	p = 0.00	p = 0.00	p = 0.00	p = 0.00
Highcoll-None	p = 0.00	p = 0.03	p = 0.00	p = 0.00
Lowcoll	p = 0.01		p = 0.20	
Highcoll	p = 0.01		p = 0.32	
None	P = 0.43		P = 0.62	

(8) Capra *et al.* (2009) also present the outcomes in absolute values and find screening.

Figure 5 shows the histograms of these results by framing and project type. Most of the subjects with the safer project choose, in the Framing 1, the high collateral contract, whereas in Framing 2, the same subjects modify their choices and reduce their choices of high collateral contract. Therefore, Framing 2 interferes with self-selection and screening fails to occur.

Figure 5
Histogram by Framing and Project



We run a (panel) logistic model to confirm that self-selection is influenced by framing, as descriptive statistics show. Table 3 displays the results of the logistic analysis.

As expected, in both frames, the probability of choosing the low collateral contract increases when subjects have a riskier project (F1*Risker and F2*Risker variables). On the other hand, when subjects have the safer project, they prefer the high collateral contract in Framing 1 (see the negative sign in F1*Safer). However, having the safer project in Framing 2 does not play any significant role in subjects' choices (F2*Safer).

The results clearly support H1 (Contracts combining pairs of collateral and price screen agents with different risk levels) for Framing 1. Nevertheless, by presenting the outcomes in a slightly different way in Framing 2, the results confirm H2 (Framing, reference, affects the valuation of collateral and interfere the screening mechanism).

TABLE 3
LOGIT MODEL

Prob. of Low Collateral	*dy/dx*	*Std. Errors*
*F1*Safer*	-0.09	0.05*
*F2*Safer*	-0.01	0.04
*F1*Risker*	0.18	0.03***
*F2*Risker*	0.32	0.02***
Number of obs.	= 1748	Wald χ^2 = 166.82
Number of groups	= 47	Prob. > χ^2 = 0.00
Obs per group: min	= 22	

Marginal effects after Random-effects logit regression. *, ** and *** significant at 10%, 5% and 1% confidence level respectively.

Given that Framing 1 and Framing 2 differ only in terms of the «perceived» initial position, it seems natural to use a Reference-Dependent approach to explain our results.

We use our experimental data to estimate the Reference-Dependent parameters of the model presented in section 2. We estimate maximum likelihood of value function using a structural model of binary choice, following Harrison and Rutström (2008). In particular, equations [4] and [5] in our model are defined by:

$$\begin{aligned} &W = 300; \text{ the initial wealth.} \\ &X_{js} = [300 + 600 - P_j,\ 300 + 0 - D_j] \\ &X_{jr} = [300 + 1{,}080 - P_j,\ 300 + 0 - D_j] \end{aligned} \quad \textbf{(8)}$$

We estimate the model using the clustering method that allows for within-subjects choices' correlation. Table 4 shows the estimated parameters and figure 6 depicts the resulted functions. The estimated α parameter, $\alpha = 0.26$, shows risk aversion. Interestingly, the estimated α does not differ significantly between Framing 1 and Framing 2 (*p-value = 0.95*). As expected, above the initial wealth (300), subjects' choices are similar for Framing 1 and 2 (see figure 6).

However, bellow the «perceived» reference point of 300, the same subjects facing the same menus of contracts make different decisions in Framing 1 and Framing 2. Remember that Framing 1 differs from Framing 2 only in the presentation of outcomes [(9)] (see figures 2 and 3). The estimated λ parameter is significantly different in Framing 1 and 2, *p-value = 0.03*. In Framing 2, the $\lambda > 1$ shows loss aversion. Subjects perceive the outcomes below 300 (for example, 300-225 in figure 3) as a loss, and loss aversion is elicited. No loss aversion is elicited by Framing 1, $\lambda < 1$, were the outcomes are shown in absolute values (for example, 75 in figure 2).

(9) Both Framings even share exactly the same instructions.

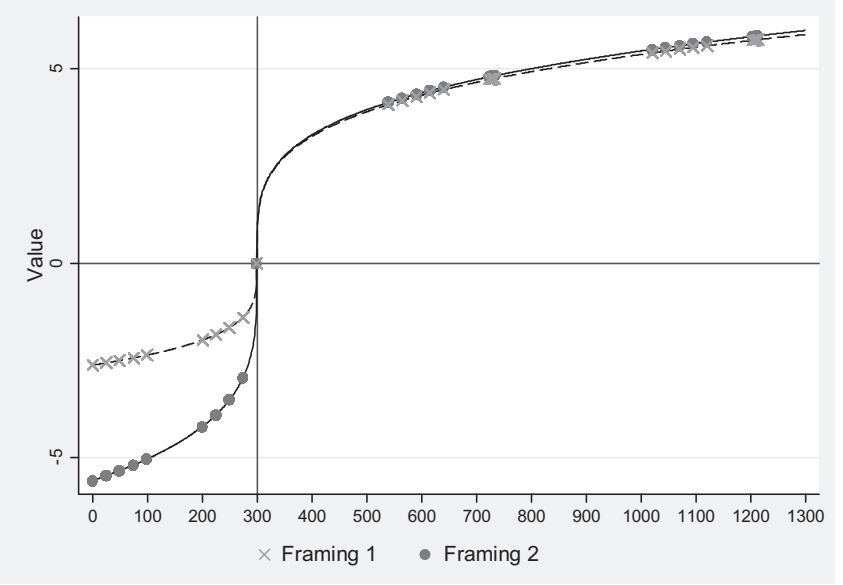
TABLE 4
ESTIMATED REFERENCE-DEPENDENT PARAMETERS

	Framing 1		Framing 2	
	Coefficient	Std. Errors	Coefficient	Std. Errors
α	0.26	0.04***	0.26	0.03***
λ	0.61	0.22***	1.28	0.29***
	Number of obs. = 871		Number of obs. = 877	
H_0: $\alpha_{F1} = \alpha_{F2}$	*p-value* = 0.95			
H_0: $\lambda_{F1} = \lambda_{F2}$	*p-value* = 0.03			

Standard Errors adjusted for 47 clusters in subject. *** significant at 1% confidence level.

An essential feature of Prospect Theory is that the carriers of value are gains and losses rather than the final outcome (i.e. gains and perceived losses, in our experiment). Loss aversion is the behavioral assumption that postulates that individuals, from their reference viewpoint, value losses more than gains. This implies, as shown in figure 6, that the perception of a potential loss generated by the collateral contract terms makes subjects overweight this component of the contract. In Framing 2 subjects perceive that they are already enjoying a good (the

FIGURE 6
ESTIMATED REFERENCE-DEPENDENT PARAMETERS



initial wealth), and realize that with some probability they can lose this existing good (collateral) [10]. Loss aversion interferes with the self-selection of subjects in Framing 2, and the screening mechanism fails.

5. CONCLUDING REMARKS

Inspired by the Reference-Dependent approaches, and most prominently by the seminal works of Kahnemann and Tversky and their Prospect Theory, we have conducted an experiment to study framing effects in the self-selection mechanism needed in the classic problem of credit screening, a problem with important economic and policy implications: Screening borrowers by their risk level may help solve credit rationing.

Extant theories on credit screening assume that borrowers' preferences among different combinations of interest and collateral systematically depend on their risk levels. However, these models so far, have not addressed an important question for such settings: Does the framing (reference) of the offered menu of contracts interfere with the self-selection of clients? We have found that framing does affect the valuation of collateral and interferes with the screening mechanism. In fact, subjects' choices shift when the same (positive) outcomes of the same menu of contracts are presented in two different frames.

Since both frames differ only in the perceived reference point, we use a Reference-Dependent approach that initially follows Prospect Theory to explain our results. This approach takes explicitly into account that individuals, from their reference viewpoint, value losses more than gains. In fact, our results show that the «loss perception» generated by the collateral contract terms makes subjects overvalue this contract component. Subjects exhibit loss aversion in their perception and assessment of the collateral —although framed as a positive outcome under the reference point—, and self-selection fails to occur.

Our result emphasizes the need to account for the frames of reference under which evaluations of probabilistic information take place. In general, principal-agent games and the theoretical models on financial markets should take into account the reference points (and the related concept of endowment effect).

This finding can be used to explain the mixed empirical results reported in the literature on the relationship between collateral and borrower risk. Some papers show that secured lending is associated with risky borrowers [i.e. Orgler (1970), Hester (1979), Scott and Smith (1986), Leeth and Scott (1989), Berger and Udell (1990, 1992), Booth (1992), Reig and Ramírez-Comeig (1998), Jimenez and Saurina (2004)], while others find the opposite relationship [Cressy (1996), Machauer and Weber (1998), Burke and Hanley (2006), Comeig *et al.* (2013)]. Banks —and more

(10) In the same line, Georgantzís and Navarro-Martínez (2011), in their paper on psychological processes behind the endowment effect, find that two different phases contribute to the endowment effect: (1) a first phase of enhancement of subject's positive feelings produced by ownership and (2) a second phase of aversion to possible loss.

generally principals— should consider framing and the agents' reference point when offering a menu of alternatives.

By changing the collateral term of the contract by a co-payment term, our model and results are applicable to other important financial sectors, as insurance. Insurance companies should also consider framing and the agents' reference point when offering a menu of alternatives to screen clients of different risk levels.

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