

Does loss aversion predict firm survival?

Julian Emami Namini and Sacha Kapoor*

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Abstract

What predicts which firms survive? We measure loss aversion among restaurant owners, then track their firms over five years. Almost thirty percent exit—but not randomly. Experience, firm size, and perceived demand conditions do not predict survival. Loss aversion does: firms with loss-averse owners are 18-21 percentage points less likely to exit. This is the first evidence linking a validated behavioral measure among firm owners to firm survival.

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*Emami Namini (emaminamini@ese.eur.nl), Kapoor (kapoor@ese.eur.nl): Erasmus University Rotterdam, Erasmus School of Economics, Burgemeester Oudlaan 50, 3062PA Rotterdam, The Netherlands. We thank Georgios Angelis, Han Bleichrodt, David Byrne, Robert Dur, Aksel Erbahar, Jonathan Hall, Arvind Magesan, Robert Oxoby, Ivan Png, Vincent Rebeyrol, Laura Rondi, Dirk Schindler, Dana Sisak, Otto Swank, and Dinand Webbink for valuable comments. All omissions and errors are our own.

1 Introduction

In October 2021, we returned to check on the over 100 restaurant owners we had surveyed five years earlier. Thirty of their restaurants had closed—an exit rate of 28 percent. Many closures occurred during the COVID-19 period, when government-mandated shutdowns and collapsed demand pushed the restaurant industry to the brink. What distinguished surviving firms from those who exited? Not experience: owners with decades in the industry were no more likely to survive than newcomers. Not firm size: small restaurants closed at the same rate as larger ones. Not perceived demand conditions: owners who reported favorable markets were no more likely to survive. But surviving firms did share one trait: their owners were loss averse.

Our findings are striking. The exit rate for firms with loss-neutral or gain-seeking owners is 42 percent. For firms with loss-averse owners, it is 22 percent—a difference of 20 percentage points. Controlling for owner experience, customer volume, number of employees, perceived price elasticity, risk willingness, and age, loss-averse owners remain 18 percentage points less likely to exit. This effect is large relative to the baseline exit rate of 28 percent.

We measured loss aversion in 2016 and tracked outcomes through 2021, ruling out reverse causality. Loss aversion likely correlates with other traits—risk preferences, cognitive ability, financial resources—that independently affect survival, so we cannot establish causality. Still, this is the first evidence that a validated behavioral measure among firm owners predicts firm survival, which opens questions about mechanisms that future work can address.

Our study is of interest for two reasons. First, firm survival is a policy target, but subsidizing survival may not improve welfare if firms persist due to owner preferences rather than economic viability. The U.S. Paycheck Protection Program distributed over \$800 billion during COVID-19 to preserve employment, implicitly assuming firm survival serves social goals. But if loss-averse owners survive longer than profit-maximizers would—even when their firms are less productive—subsidies may preserve jobs at the cost of resource misallocation. Understanding how behavioral traits shape firm survival matters for evaluating these policies.

Second, we contribute to literatures on loss aversion and firm behavior. Loss aversion is one of the most robust findings in behavioral economics—a recent meta-analysis documents mean coefficients between 1.8 and 2.1 [Brown et al., 2024]—and field evidence exists among taxi drivers, marathon runners, financial professionals, and real estate sellers. But evidence among firm owners is sparse, and evidence linking owner preferences to firm outcomes is absent. Theoretical work has examined how loss aversion among managers affects firm

decisions like pricing [Angelis, 2024]. We provide empirical evidence on a different margin: whether owner loss aversion predicts firm survival.

The remainder of this paper is organized as follows. Section 2 provides a conceptual framework. Section 3 describes our setting and data. Section 4 presents results. Section 5 discusses interpretation, including potential mechanisms, and limitations. Section 6 concludes.

2 Conceptual Framework

Loss aversion describes preferences where losses loom larger than equivalent gains. Following Kobberling and Wakker [2005], we define the loss aversion coefficient λ as the ratio of marginal utility for losses to marginal utility for gains, evaluated at a reference point. An individual is loss averse if $\lambda > 1$, loss neutral if $\lambda = 1$, and gain seeking if $\lambda < 1$.

The reference point determines which outcomes are coded as gains or losses. For small business owners, zero accounting profit is a natural reference. It is observable, salient, and marks the threshold between paying your bills and falling into debt. Owners who fail to break even face immediate pressure from unpaid suppliers, landlords, and employees. This pressure makes losses viscerally painful in a way that foregone opportunity costs—the domain of economic profit—typically are not.

Why might loss aversion predict firm survival, and in which direction?

On the one hand, loss aversion could encourage persistence. Consider an owner deciding whether to continue operating or exit. Exit avoids future uncertain profits but crystallizes current losses—sunk costs, reputational investments, and the non-pecuniary value of the business are forfeited. A loss-averse owner weighs the pain of realizing these losses more heavily than a loss-neutral owner would. This generates a bias toward continuation.

On the other hand, loss aversion could accelerate exit. Loss-averse owners might exit *more* frequently because they experience greater pain from ongoing operating losses. The difference depends on whether exit is coded as realizing a loss (continuation wins) or escaping from a loss (exit wins).

Our empirical finding—that loss-averse owners exit less frequently—is consistent with the first interpretation: loss aversion fosters persistence by making the crystallization of sunk costs particularly painful.

3 Setting and Data

3.1 The Restaurant Industry

We focus on the restaurant industry, which offers several features that make it suitable for examining loss aversion among firm owners. The ownership decision in this industry is strongly influenced by preferences, with owners often accepting lower wages relative to their outside options in exchange for non-pecuniary advantages such as menu development and autonomy. [Hamilton \[2000\]](#) shows entrepreneurs tend to earn less than they would in paid employment. [Benz and Frey \[2004\]](#) show entrepreneurs are happier than subordinate employees because of autonomy, despite earning less money. [Hurst and Pugsley \[2011\]](#) show approximately half of new business owners cite nonpecuniary motives relating to flexibility or control; only 34 percent cite income generation as the primary motive.

Active participation by owners in daily operations is commonplace, creating a direct channel through which individual preferences affect firm-level decisions. The industry also provides a natural setting for loss aversion to emerge through multiple channels. Characteristically high exit rates heighten the salience of potential losses. This fear of failure, which has been conceptualized as a form of loss aversion [[Morgan and Sisak, 2016](#)], can both deter entry and accelerate exit.

3.2 Sample Construction

We conducted face-to-face interviews with restaurant owners and managers in Rotterdam and Utrecht during summer 2016. Our sampling frame came from [iens.nl](#), a popular Dutch restaurant review platform that allows customers to evaluate restaurants based on price, food quality, service, and decor. The website provided a list of restaurants and addresses in the targeted cities.

Together with research assistants, we phoned restaurants to schedule in-person interviews or visited restaurants directly. We interviewed the owners or managers of 107 restaurants. The sample represents approximately 15 percent of the platform’s listings in these cities, and essentially all restaurants we could contact. These restaurants collectively employ 1,870 workers.

The sample size reflects the practical constraints of in-person elicitation. Personal interviews were costly and time-consuming, but ensured that questions were answered by owners and general managers themselves rather than by assistants. Each interview required schedul-

ing, travel, and careful explanation of the elicitation procedure. The [Abdellaoui et al. \[2016\]](#) method involves multiple iterative questions to pin down certainty equivalents, which cannot be rushed without compromising measurement quality.

3.3 Representativeness

The sample is selected on the basis of willingness and ability of owners to participate. If these traits correlate with both loss aversion and survival prospects, our estimates may be biased. We cannot rule out this possibility. However, we can examine whether sampled restaurants differ from non-sampled restaurants on observable characteristics. Table 1 compares the subset of restaurants we interviewed that have ratings on [iens.nl](#) with non-sampled restaurants on the same website. Sampled and non-sampled restaurants are similar in terms of average price paid by customers, food quality, service, and decor ratings. We cannot reject equality of means for any of these characteristics.

Table 1: **Representativeness of Sample**

	Not Sampled	Sampled	Difference
Price (€)	20.59 (11.44)	20.87 (8.83)	0.27 [2.24]
Food rating (/10)	7.77 (0.60)	7.60 (0.67)	-0.17 [0.11]
Service rating (/10)	7.69 (0.67)	7.51 (0.76)	-0.18 [0.12]
Decor rating (/10)	7.51 (0.61)	7.64 (0.55)	0.13 [0.11]
N	595	31	

Notes: Data from [iens.nl](#). Standard deviations in round parentheses. Standard errors for differences in square brackets. Not all sampled restaurants had ratings available on the platform.

3.4 Measuring Loss Aversion

We measured loss aversion using the method developed by [Abdellaoui et al. \[2016\]](#). The procedure elicits certainty equivalents for gain and loss prospects, which can then be used to compute individual-specific loss aversion coefficients without requiring assumptions about

probability weighting or utility curvature. Full details of the elicitation procedure and distributional findings are provided in [Emami Namini and Kapoor \[2025\]](#); here we summarize the key elements.

The elicitation involves presenting participants with choices between certain outcomes and risky prospects. We framed choices as business scenarios with substantial monetary stakes (€200,000) to ensure salience for professional decision-makers. For example, a typical question asked owners to choose between a guaranteed profit of €0 and a coin flip yielding either a profit of €200,000 or a loss of some amount. By varying the loss amount and identifying the point of indifference, we can infer attitudes toward losses.

Through a series of such questions, we elicit the certainty equivalent for a gain prospect (ce_g) and the certainty equivalent for a loss prospect (ce_l). The loss aversion coefficient is then computed as $\lambda = ce_g/|ce_l|$. Values above 1 indicate loss aversion—the owner requires a larger potential gain to compensate for a given potential loss.

We deliberately chose large stakes to ensure the scenarios were meaningful for business decision-makers. Recent evidence suggests loss aversion is robust to stake size [[Bleichrodt and L’Haridon, 2023](#)], so our choice is unlikely to inflate estimates.

We did not explicitly distinguish between accounting and economic profit in our scenarios, recognizing that owners and managers may not be familiar with technical distinctions. This raises a potential concern: if owners interpret profit differently than managers, our measurements might not be comparable across respondents. However, our sample contains both owners and managers, providing a natural test. Economic profit—which includes opportunity costs—is more relevant for owners who could sell their business and earn returns elsewhere. Accounting profit is more relevant for managers who do not bear these opportunity costs. If interpretation differences mattered, we would expect systematic differences in measured loss aversion between these groups. We find no such differences.

3.5 Summary Statistics

Table 2 presents summary statistics. The typical owner is 36 years old with 12 years of industry experience. Establishments average 17 employees and serve roughly 1,100 customers per week. Owners report moderate risk tolerance, with a mean score of 6.67 on a 0-10 scale.

Seventy-four percent of owners exhibit loss aversion ($\lambda > 1$), with a median coefficient of 1.57. We tested the hypothesis that owners are gain seeking or loss neutral ($\lambda \leq 1$) against the alternative of loss aversion. Both the full sample and the interquartile range reject gain seeking and loss neutrality ($p < 0.01$).

We also elicited perceived demand elasticities by asking owners how many customers they would lose after price increases of 5, 10, and 20 percent. Owners perceive elasticities of -0.98 at current prices, -1.81 at 105 percent of current prices, and -1.94 at 110 percent of current prices. Pricing on an inelastic segment of the demand curve is consistent with differentiated firms operating in monopolistically competitive markets.

Table 2: **Summary Statistics (N=107)**

	Mean	SD
<i>Owner characteristics</i>		
Age (years)	35.93	10.35
Experience (months)	144.88	124.25
Risk willingness (0-10)	6.67	1.76
<i>Firm characteristics</i>		
Employees	17.48	17.02
Customers per week	1,124	1,348
<i>Perceived price elasticity (% change in customers after)</i>		
5% price increase	0.98	2.00
5% increase at 105% of current price	1.81	2.90
10% increase at 110% of current price	1.94	2.10
<i>Loss aversion</i>		
Mean λ	10.14	35.06
Median λ	1.57	
Share with $\lambda > 1$	0.74	
Exit rate (by Oct 2021)	0.28	

Notes: Loss aversion measured using the method of [Abdellaoui et al. \[2016\]](#). Risk willingness measured on a scale from 0 (risk averse) to 10 (fully prepared to take risks). See [Emami Namini and Kapoor \[2025\]](#) for detailed distributional statistics on loss aversion.

3.6 Survival Tracking

We tracked firm survival in October 2021, more than five years after the original survey. We searched for evidence of closures using Google, Facebook, local newspapers, and firm websites. Some firms announced closures on Facebook. For others, Google indicates if the

firm has been closed permanently. Local newspapers reported closures of many long-standing establishments, often mentioning COVID-19 lockdown measures as a contributing factor.

For surviving firms, we verified continued operation through recent posts on Facebook, opening hours information on Google, and whether reservations were still possible on booking platforms.

Of the 107 firms, 30 had exited by October 2021. The implied exit rate was 28 percent over the five-year period.

4 Results

We first examine raw differences in survival by loss aversion status. The exit rate for firms with loss-neutral or gain-seeking owners ($\lambda \leq 1$) is 42 percent. For firms with loss-averse owners ($\lambda > 1$), it is 22 percent—a 20 percentage point difference.

Table 3 examines whether this relationship holds in regression analysis.

Table 3: **Loss Aversion and Exit Probability**

	(1) Unconditional	(2) With Controls
Loss averse ($\lambda > 1$)	-0.21** (0.10)	-0.18* (0.10)
Controls	No	Yes
N	107	102
R-squared	0.05	0.08

Notes: Dependent variable equals 1 if firm closed permanently by October 2021. Controls include log experience, log number of customers, log number of employees, perceived price elasticity of demand, risk willingness, and age. Robust standard errors in parentheses. ** $p < 0.05$, * $p < 0.1$.

Column 1 reports the unconditional relationship. Loss-averse owners are 21 percentage points less likely to exit ($p < 0.05$). Column 2 adds controls for owner experience, customer volume, number of employees, perceived price elasticity, risk willingness, and age. The coefficient remains large and significant: loss-averse owners are 18 percentage points less likely to exit.

The effect is economically substantial. Against a baseline exit rate of 28 percent, the 18 percentage point reduction implies loss-averse owners are approximately two-thirds less

likely to exit than other owners.

None of the control variables significantly predict exit in this specification. This may reflect limited statistical power given the sample size, or it may indicate that loss aversion captures variation in survival propensity that these observable characteristics do not.

5 Interpretation

We cannot claim that loss aversion causes survival. Loss aversion may correlate with other traits that independently affect survival. Risk preferences are an obvious candidate, but we control for self-reported risk willingness and the coefficient on loss aversion remains stable. Cognitive ability is another possibility; [Stango and Zinman \[2022\]](#) and [Chapman et al. \[2024\]](#) document loss aversion among high-ability individuals. Financial resources, stubbornness, or experience with adversity could also confound the relationship.

As discussed in [Emami Namini and Kapoor \[2025\]](#), the elicitation method does not fully separate loss aversion from risk aversion. Our measured coefficients likely reflect a combination of both. Yet this limitation applies to the measurement, not to the survival prediction: whatever the elicitation captures, it predicts firm survival.

Our data cannot definitively distinguish whether loss-averse owners survive because they refuse to quit or because they run better firms. Loss-averse owners may simply persist longer than profit-maximizing owners would—surviving not because their firms are more viable but because exit feels like realizing a loss. Alternatively, loss aversion may improve firm performance directly: owners who feel losses acutely may work harder, manage costs more carefully, or build financial buffers. Both mechanisms are consistent with our findings.

COVID-19 lockdown measures were implemented during our observation period. Many exits happened during this extreme shock, but the Dutch government also provided substantial support to affected businesses—including wage subsidies covering up to 90 percent of payroll, fixed cost reimbursements, and one-time grants targeted at hospitality. Loss-averse owners may have been more likely to apply for or persist long enough to receive these subsidies, meaning the relationship we document could reflect differential take-up of government support rather than differential resilience to shocks. Both channels are plausible. Regardless of the mechanism, the finding that loss aversion predicts survival during a period of intense pressure—when many firms exited despite available support—suggests owner preferences matter for firm outcomes.

6 Conclusion

We provide direct evidence that loss aversion among firm owners predicts firm survival. Firms with loss-averse owners are 18-21 percentage points less likely to exit over a five-year period, against a baseline exit rate of 28 percent. This relationship is robust to controlling for owner and firm characteristics and persists through the COVID-19 period.

The finding that a validated measure of individual preferences, elicited in a business context, predicts firm survival years later suggests behavioral preferences among firm owners deserve greater attention in research on firm dynamics and in the design of crisis intervention policies. If survival reflects owner preferences rather than firm viability, government subsidies to preserve firms may have unintended distributional consequences—loss-averse owners may capture a disproportionate share of support not because their firms are more productive, but because these owners are more reluctant to exit.

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