Does loss aversion predict firm survival?

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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, with the effect concentrated among the most loss averse. This is the first evidence linking a validated behavioral measure among firm owners to firm survival.

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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. Because loss aversion is a stable preference trait, experimental manipulation outside the laboratory is not feasible. Our design—measuring preferences years before observing outcomes—rules out reverse causality and provides the cleanest available field test of whether loss aversion predicts firm survival. We do not claim a causal relationship, but this timing allows us to examine whether a validated behavioral preference measured ex ante predicts long-run firm outcomes. To our knowledge, this is the first evidence linking such a measure among firm owners to firm survival.

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 is therefore important for evaluating such 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? The relationship is theoretically ambiguous.

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.

Loss aversion could also 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).

A third channel works through foregone opportunities. Loss-averse owners may reject in-

vestments with positive expected returns if the potential loss looms too large—forgoing equipment upgrades, marketing campaigns, or expansion opportunities that would strengthen the firm. Over time, this reluctance could weaken cash flow and competitive position, ultimately increasing exit risk.

Our finding that loss-averse owners exit less frequently implies that, in this setting, the persistence channel dominates. This pattern is difficult to reconcile with explanations in which loss aversion primarily operates through early abandonment or chronic underinvestment. But we estimate only the net effect of loss aversion on survival. Our data do not allow us to decompose this effect into its component channels or explain why persistence dominates.

3 Setting and Data

3.1 The Restaurant Industry

We focus on the restaurant industry, where ownership decisions are strongly influenced by preferences rather than purely by income maximization. Owners frequently accept lower earnings than their outside options in exchange for nonpecuniary benefits such as autonomy and creative control over menus and operations [Benz and Frey, 2004, Hamilton, 2000, Hurst and Pugsley, 2011].

Active owner involvement in day-to-day operations creates a direct channel through which individual preferences shape firm decisions. High exit rates in the restaurant industry heighten the salience of potential losses, making fear of failure—often conceptualized as a form of loss aversion—particularly relevant [Morgan and Sisak, 2016].

3.2 Sample Construction

We conducted face-to-face interviews with restaurant owners and managers in Rotterdam and Utrecht in summer 2016. Our sampling frame was `iens.nl`, a restaurant review platform listing restaurants and addresses in each city in the Netherlands. We interviewed owners or general managers of 107 restaurants—approximately 15 percent of listed establishments and essentially all restaurants we were able to contact—employing a total of 1,870 workers.

The sample size reflects the practical constraints of in-person elicitation using the method of Abdellaoui et al. [2016], which requires multiple iterative choices to elicit certainty equivalents and must be administered directly to owners or general managers.

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	20.87	0.27
	(11.44)	(8.83)	[2.24]
Food rating (/10)	7.77	7.60	-0.17
	(0.60)	(0.67)	[0.11]
Service rating (/10)	7.69	7.51	-0.18
	(0.67)	(0.76)	[0.12]
Decor rating (/10)	7.51	7.64	0.13
	(0.61)	(0.55)	[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], which elicits certainty equivalents for gain and loss prospects and allows individual-specific loss aversion coefficients to be computed without assumptions about probability weighting or utility curvature. Full procedural details are provided in Emami Namini and Kapoor [2025].

Participants made choices between certain outcomes and risky prospects framed as business scenarios with substantial monetary stakes (€200,000) to ensure salience. From these choices, we elicit certainty equivalents for a gain prospect (ce_g) and a loss prospect (ce_l), and compute the loss aversion coefficient as $\lambda = ce_g/|ce_l|$, with $\lambda > 1$ indicating loss aversion.

We deliberately used high stakes, which prior evidence suggests do not inflate loss aversion estimates [Bleichrodt and L'Haridon, 2023]. Although we did not distinguish explicitly between accounting and economic profit, measured loss aversion does not differ systematically between owners and managers in our sample, suggesting that interpretation differences are unlikely to drive our results.

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.

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.

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

	Mean	SD
Owner characteristics		
Age (years)	35.93	10.35
Experience (months)	144.88	124.25
Risk willingness (0-10)	6.67	1.76
Firm characteristics		
Employees	17.48	17.02
Customers per week	1,124	1,348
Perceived price elasticity (% change in customers after)		
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
Loss aversion		
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.

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.

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

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

	(1) Unconditional	(2) With Controls
Loss averse ($\lambda > 1$)	-0.21**	-0.18*
	(0.10)	(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. ** $p < 0.05$, * $p < 0.1$.

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.

Table 4 examines robustness to alternative measures of loss aversion. Column 1 reproduces our main specification. Column 2 uses $\ln(1+\lambda)$ as a continuous measure; the coefficient is negative but imprecisely estimated. Columns 3 and 4 use higher thresholds ($\lambda > 1.5$ and $\lambda > 2$); the coefficients are larger and more precisely estimated than in Column 1. Column 5 replaces the binary indicator with quartile dummies, using the lowest quartile (most gain-seeking) as the omitted category. The second quartile shows little difference from the first, but exit probability drops sharply for the third and fourth quartiles. The results suggest the relationship is driven by owners who are substantially loss averse, not those just above the threshold.

5 Interpretation

We estimate a reduced-form relationship between loss aversion and firm survival. We do not claim that loss aversion causes survival, nor do we identify the mechanisms through which it operates. Loss aversion may affect exit decisions through multiple channels with opposing effects, including persistence in the face of losses, reluctance to undertake risky but positive

Table 4: **Robustness to Alternative Measures of Loss Aversion**

	(1)	(2)	(3)	(4)	(5)
$\lambda > 1$	-0.18*				
	(0.10)				
$\ln(1+\lambda)$		-0.06			
		(0.04)			
$\lambda > 1.5$			-0.20**		
			(0.09)		
$\lambda > 2$				-0.21**	
				(0.09)	
Quartile 2					-0.06
					(0.14)
Quartile 3					-0.23*
					(0.12)
Quartile 4					-0.25*
					(0.13)
N	102	102	102	102	102
R-squared	0.08	0.07	0.10	0.09	0.10

Notes: Dependent variable equals 1 if firm closed permanently by October 2021. All specifications include controls for log experience, log number of customers, log number of employees, perceived price elasticity of demand, risk willingness, and age. Column 5 uses quartile dummies with the lowest quartile (most gain-seeking) as the omitted category. Robust standard errors in parentheses. ** $p < 0.05$, * $p < 0.1$.

expected value investments, differential take-up of government support, and differences in effort or cost management. Our data do not allow us to decompose these channels. We document that loss-averse owners are less likely to exit, but identifying which mechanisms dominate requires data on firm-level decisions and cash flows that we do not observe. Higher survival should therefore not be interpreted as evidence of superior performance or efficiency, as persistence may reflect owner preferences rather than underlying firm productivity.

Loss aversion may also correlate with other traits that independently affect survival. Risk preferences are an obvious candidate, but controlling for self-reported risk willingness leaves the estimated relationship unchanged. Prior work documents substantial heterogeneity in

loss aversion among high-ability and financially sophisticated individuals, suggesting that loss aversion need not reflect cognitive limitations or mistakes [Chapman et al., 2024, Stango and Zinman, 2022]. Other correlated traits—such as financial resources or experience with adversity—could also play a role.

As discussed in Emami Namini and Kapoor [2025], the elicitation method does not fully separate loss aversion from risk aversion, so our estimates likely capture a combination of both. This limitation applies to the interpretation of the preference parameter, but not to the predictive relationship we document.

Our observation period includes the COVID-19 shock, during which many restaurants experienced severe revenue losses alongside substantial government support. In such an environment, persistence may have been rewarded, for example by enabling firms to access subsidies or outlast temporary disruptions. Loss-averse owners may therefore have been more likely to survive through continued operation rather than exit.

More generally, the relationship between loss aversion and survival is likely to be context-dependent. In settings where persistence is rewarded, loss aversion may increase survival; in settings where rapid adaptation is essential, it may reduce survival by delaying exit from failing strategies. Whether loss aversion predicts firm survival in other industries or periods remains an open question.

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, with the effect driven by owners who are substantially loss averse rather than those just above the threshold. 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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