Succession of Corporate Risk Preference And Sluggish Recovery from A Shock: Evidence from Japan's Lost Decades

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Comments welcomed.

Abstract

The literature documents the slow recovery of firms following large macroeconomic shocks, often attributing this persistence to firms' belief structures or learning frictions. This paper proposes an alternative mechanism based on executives' preference formation and its transmission through corporate customs. Exploiting Japan's "Lost Decades" following the asset price bubble burst of the early 1990s, we show that corporate culture succession plays a central role in firms' prolonged underperformance. Departing from the standard assumption of risk-neutral firms, we model firm decision-making as the outcome of a CEO's risk-averse preferences, which are shaped by idiosyncratic negative shocks and partially inherited from predecessors through firm-specific customs. In the model, firms characterized by stronger adherence to past customs are more likely to pass elevated risk aversion to successive CEOs after experiencing a negative shock, generating persistent conservatism in investment and growth. Consistent with the model, we first document that firms which experienced negative profits following the bubble burst exhibit a persistent divergence in investment and sales relative to firms that did not, and that this gap does not close even after the large-scale monetary and fiscal interventions associated with Abenomics. Using the regularity of CEO tenure lengths as a proxy for corporate custom stickiness, we then show that firms with stronger cultural stickiness experience significantly slower recovery, accounting for a substantial share of the observed divergence.

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Keywords: Slow Recovery, Asset Price Bubble, Risk Preference, Organizational Capital

JEL Codes:

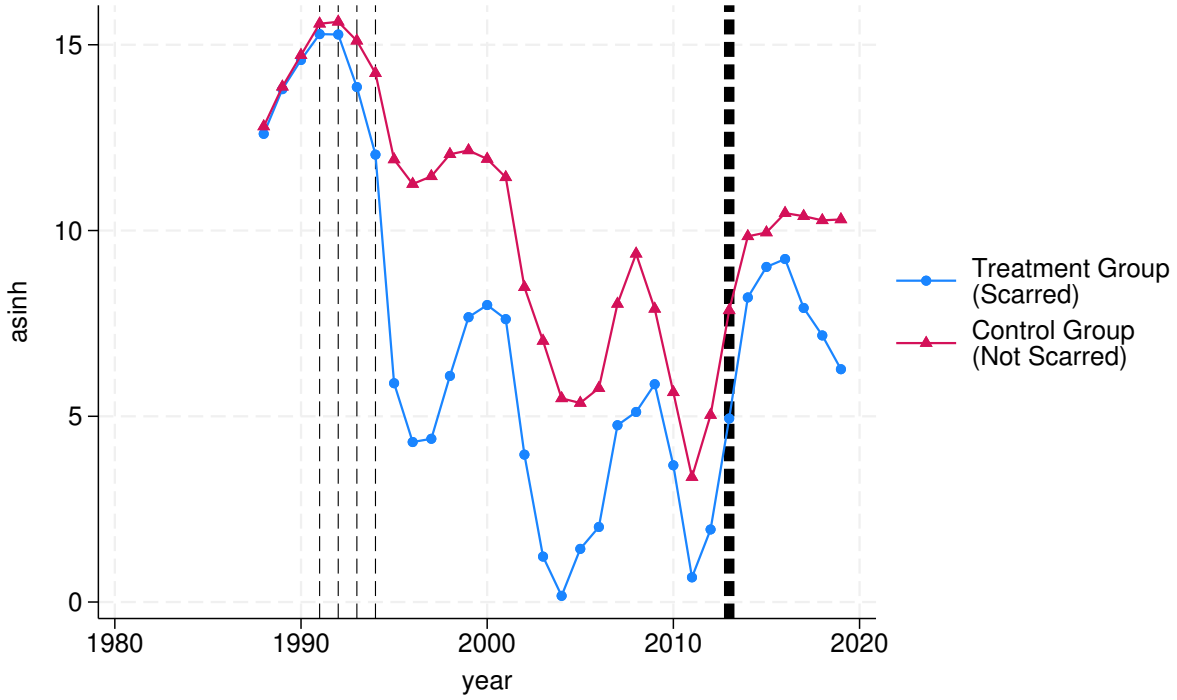
1 Introduction

Why do some firms recover quickly from large macroeconomic shocks while others remain persistently stagnant long after aggregate conditions improve? A growing literature documents that firm responses to economy-wide shocks are highly heterogeneous and that these differences can persist for months or even a couple of years. Existing explanations emphasize (i) financial constraints and balance-sheet amplification and (ii) uncertainty and belief-based frictions that delay adjustment. However, these accounts leave open a question that is central to long-run stagnation episodes: why do some firms remain persistently conservative even after policy interventions and leadership turnover?

This paper proposes a complementary mechanism based on executive preference persistence transmitted through corporate customs. We argue that large negative shocks can durably shift executives' willingness to take risk. Furthermore, we claim that the extent to which these preferences persist depends on how strongly firms adhere to established customs that govern leadership transitions and decision-making. In firms with "stickier" customs, elevated risk aversion is passed down more frequently across CEO transitions, generating organizational inertia rooted in corporate customs. In firms with less sticky customs, leadership transitions more often reset preferences toward a baseline, allowing faster recovery.

We study this mechanism in Japan's "Lost Decades," a phenomenon of nearly 30-year sluggish recovery following the asset price bubble burst in the early 1990s. Our empirical analysis begins by documenting a persistent divergence in real outcomes between firms that experienced negative profits during the burst ("scarred" firms) and those that did not. As demonstrated by Figure 1, scarred firms sharply reduce investment after the burst. Importantly, these gaps remain large for decades and do not close even following the major monetary and fiscal interventions associated with Abenomics.

Figure 1: Investment Trajectory between Firms with A Scar and Those without



Notes: x-axis indicates fiscal year. The outcome is five-year moving average of investment in inverse hyperbolic sign unit that is computed by an increase or decrease in tangible and intangible assets from the previous year plus the current-year depreciation amounts. The first four dotted vertical lines indicate the period of the asset price bubble burst in Japan, while the thick dotted line indicates the beginning of Abenomics. Blue line with circle markers are those firms which had positive profits prior to the burst but experienced a negative profit at least once during the burst, while red line with the triangle markers are those firms which are not in this category.

To interpret these patterns, we develop a simple, tractable model in which firm decisions are taken by a risk-averse CEO who chooses investment under idiosyncratic profit risk. A large negative shock increases the CEO's risk aversion ("trauma" or "scar") as empirically demonstrated by Malmendier et al. (2011) and Bernile et al. (2017). Crucially, CEO risk preferences do not reset mechanically with turnover; instead, each firm has a culture parameter governing whether the successor inherits the predecessor's elevated risk aversion or reverts toward a baseline.

The model yields closed-form decision rules: higher risk aversion lowers desired investment, and stronger cultural inheritance implies slower mean reversion of risk aversion, generating persistent underinvestment after a large negative shock. This mechanism is consistent with prolonged stagnation at the firm level even when aggregate uncertainty, policy rates, and credit conditions change.

To test this mechanism, we construct a measure for the firm-level stickiness. Assuming that firms with sticky custom change corporate rules less often, we measure custom stickiness by the regularity of CEO succession periods between 1990 and 2013 prior to Abenomics. While this measure may be endogenous of firm performance, the correlation between the scar indicator and indicator for the sticky firm indicator we construct is precisely zero (0.0064).

With that said, the identification of sticky custom effect is challenging. Given that there were multiple strands of large macroeconomic shocks in Japan after the burst such as the Asian currency crisis and the bankruptcy of banks, the dot-com bubble burst, and the Lehman Brothers shock, even those firms which did not experience negative profits during the bubble burst could have turned into the state of scar. Then, when we test our model, we restrict our sample to those firms which did experience negative profits during the bubble burst.

This measure predicts persistent underperformance among scarred firms only after the bubble burst, even after controlling for time-invariant firm characteristics by taking out firm fixed effects and industry trend by industry-by-year fixed effects. The core empirical implication is that the transmission of conservative behavior is not merely an individual CEO effect, but an organizational phenomenon linked to corporate customs.

Literature Review A prominent line of work explains slow adjustment through uncertainty and belief frictions. In particular, uncertainty shocks can induce firms to temporarily "pause" investment and hiring, generating a sharp contraction and gradual rebound in aggregate activity (Bloom, 2009; Bloom et al., 2018). Senga (2025) shows that a temporary increase in signal noise can slow belief updating about productivity, generating gradual adjustment in investment even after uncertainty subsides.

Our mechanism differs in two ways from belief approaches. First, persistence in our model does not require uncertainty itself to remain elevated: even after conditions normalize, firms may remain conservative because risk preferences have shifted and are culturally transmitted. Second, rather than focusing on informational wedges that distort expectations, we emphasize a preference whose persistence is organizational. Thus, our approach complements uncertainty-based models by identifying a channel through which a temporary crisis can produce durable conservatism via leadership preferences and organizational capital.

Another important strand emphasizes leverage and balance sheets as amplifiers of demand shocks. For example, highly levered firms respond more strongly to demand declines, experiencing larger employment losses during downturns (Giroud and Mueller, 2017). Our paper is consistent with the view that finance matters in the short run, but our core contribution is to show that long-run divergence is strongly associated with custom stickiness

and preference transmission, even after accounting for leverage. In this sense, we provide an explanation for long-run underinvestment that is not reducible to persistent financial constraints alone.

The existing scholarship shows that managers matter for firm behavior. CEO fixed effects explain substantial variation in corporate investment, financing, and organizational practices (Bertrand and Schoar, 2003). We build on this insight but shift the emphasis from individual managerial heterogeneity to organizational transmission: our theory and evidence suggest that what persists is not only "who the CEO is," but also how the firm's customs shape which preferences are inherited by successors.

Finance research finds that CEO turnover is typically preceded by deteriorating performance and followed by improvement, and that improvement is stronger when an outsider is appointed (Huson et al., 2004). This is consistent with our mechanism: if outsiders are more likely to reset risk preferences toward baseline, firms may recover faster. Similarly, causal evidence from family firms shows that family successions can reduce performance relative to appointing external CEOs (Bennedsen et al., 2007). Our contribution is to provide a unifying mechanism—preference persistence through customs—that can rationalize why some governance/succession environments produce faster strategic change than others, even absent changes in technology.

A growing finance literature treats culture as measurable and economically consequential. For instance, employee-perceived managerial integrity is associated with stronger firm performance (Guiso et al., 2015). Our paper complements this work by focusing on a different cultural dimension: the persistence of risk preferences across leadership transitions. In this sense, we provide a new way to link "culture" to real outcomes through a formal mechanism and a behavior-based proxy (CEO tenure regularity).

Related work shows that CEOs' culturally rooted attitudes toward uncertainty shape corporate decisions such as acquisitions (Pan et al., 2020). We differ by studying culture as an organizational transmission device rather than an individual CEO heritage: we emphasize how firms vary in whether the risk preferences induced by a crisis are passed down within the organization, producing long-run investment divergence.

Recent theory highlights that firms accumulate organizational capital that can generate persistent performance differences and interact with leadership (Dessein and Prat, 2022). Our mechanism is complementary: we focus on preference persistence rather than capability accumulation. Empirically, both mechanisms predict persistent heterogeneity, but they differ in what state variable drives long-run conservatism. Our model generates persistence even with a simple production environment, because the key state is culturally inherited risk aversion.

This paper makes three contributions. First, it introduces a parsimonious model in which a macroeconomic crisis shifts executive risk preferences and corporate customs govern whether these preferences persist across CEO successions, generating organizational inertia and prolonged underinvestment. Second, using Japan's post-bubble experience, it documents a long-lasting divergence in investment and sales between scarred and unscarred firms that remains even under large-scale policy interventions. Third, it shows that CEO tenure regularity—a behavior-based proxy for adherence to corporate customs—predicts the persistence of underinvestment among scarred firms, consistent with the model's preference-transmission mechanism.

2 Historical Background: Japan's Asset Price Bubble and Its Collapse

Japan experienced an unprecedented asset price boom in the second half of the 1980s. The bubble burst in the early 1990s after a tightening of monetary policy aimed at curbing speculative excess. Equity prices collapsed beginning in 1990, which marked a turning point in Japan's postwar growth trajectory and initiated what is now referred to as the "Lost Decades."

In the years following the bubble burst, Japan entered a prolonged period of low growth, deflationary pressure, and weak investment. Despite multiple rounds of fiscal stimulus, near-zero interest rates, and unconventional monetary policies, private investment recovered only slowly. In 2012, Japan adopted a new and unusually aggressive policy framework known as Abenomics, built around three pillars: large-scale monetary easing, flexible fiscal policy, and structural reforms aimed at raising long-run growth. Under the first pillar, the Bank of Japan implemented quantitative and qualitative monetary easing, later supplemented by negative interest rates and yield curve control, dramatically expanding the central bank's balance sheet and lowering long-term interest rates. These policies succeeded in easing financial conditions, boosting asset prices, and weakening the yen.

Nevertheless, while Abenomics altered the macroeconomic environment, firm-level outcomes remained uneven. Many firms continued to exhibit subdued investment and sales growth, suggesting that even an extraordinary policy intervention was insufficient to stimulate firms' investment behavior much. In the next section, we suggest a model to explain

3 Data and Stylized Facts

3.1 Data

We use the data set compiled by the Development Bank of Japan (DBJ) and the data about board members from Toyo-Keizai's *Yakuin Shikiho* (YS). The DBJ data set contains detailed information about the (consolidated) financial statements for publicly traded firms in Japanese stock markets since 1978. The earlier the year is, the fewer firms are contained in the dataset. To reconcile the trade-off between the coverage and statistical power, we picked 1984-2019 as the period of our sample. The results are robust to other starting years such as 1982 and 1986.

We use consolidated financial data rather than non-consolidated financial data. This is because some firms use accounting techniques to report positive profits on a nonconsolidated basis during the bubble period. We use net profits for profit measure for a similar reason: firms sometimes use special losses to avoid negative operating or ordinary profits.

The coverage of the YS dataset starts from 1990. This dataset contains information about the names of board members for public firms in Japan including their demographics. We identify the timing of CEO succession from this dataset.

Since small firms can easily turn into negative profits, to justify the definition of a scar, we exclude the firms whose 1989 sales values lie in the bottom 25th percentile. The results are robust without this procedure. The final sample is a balanced panel of 389 firms which has data on tangible and intangible assets, net profits, sales, and board member information.

As for investment measure, we adopt the following procedure. We compute investment amounts by the sum of an increase or decrease in tangible and intangible assets from the previous period and the depreciation amounts. Notice that this measure does not exactly correspond to capital expenditures in accounting sense since firms may sell or write off capital from their balance sheets. Rather, this difference measure is closer to the economic investment amount.[1] Investment amounts are volatile, so we take the five-year moving average of investment amounts. Since this investment measure can take negative values, we take the hyperbolic sine transformation of this value instead of the standard logarithmic transformation. On the other hand, we take the standard natural logarithmic transformation for sales amounts.

[1] Hayashi and Inoue (1991) invented a way to make this measure potentially closer to economic investment amounts. While we plan to analyze with this measure in the future version, we think that this method also has some measurement issues driven mostly by the ambiguity of the initial purchase year of assets.

3.2 Stylized Facts

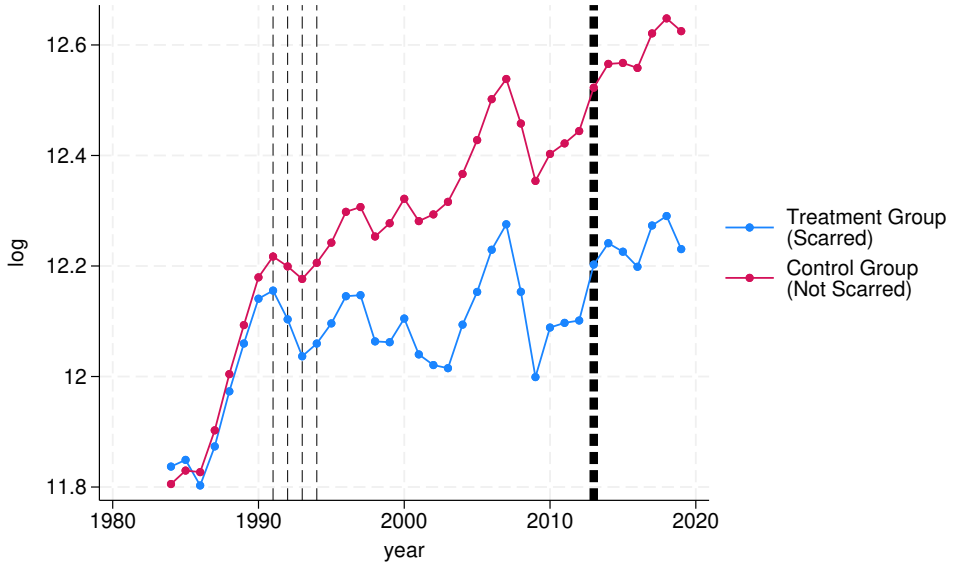
Using the pre- and post-bubble data, we identify the scarred firms in our dataset. In particular, we define those firms whose profits declined into loss during the bubble—i.e., positive profits during the pre-bubble period but experienced negative profits at least once—as the scarred firms.

In management literature, turning unprofitable is a large shock to firms. Many studies on firm turnaround supports profit-to-loss as a critical threshold for the typical scenario of a mature firm in trouble. Lohrke, Bedeian, and Palmer's (2004) comprehensive review of turnaround research explicitly frames the turnaround timeline around the firm's first loss. Studies that explicitly operationalize decline via losses generally find that crossing into unprofitability correlates with the need for drastic strategic change. For instance, Francis and Desai (2005) classify firms by decline severity and note that incurring net losses sharply increases the top management's sense of urgency to turn the firm around. We follow this convention to define the severity of a shock during the bubble.

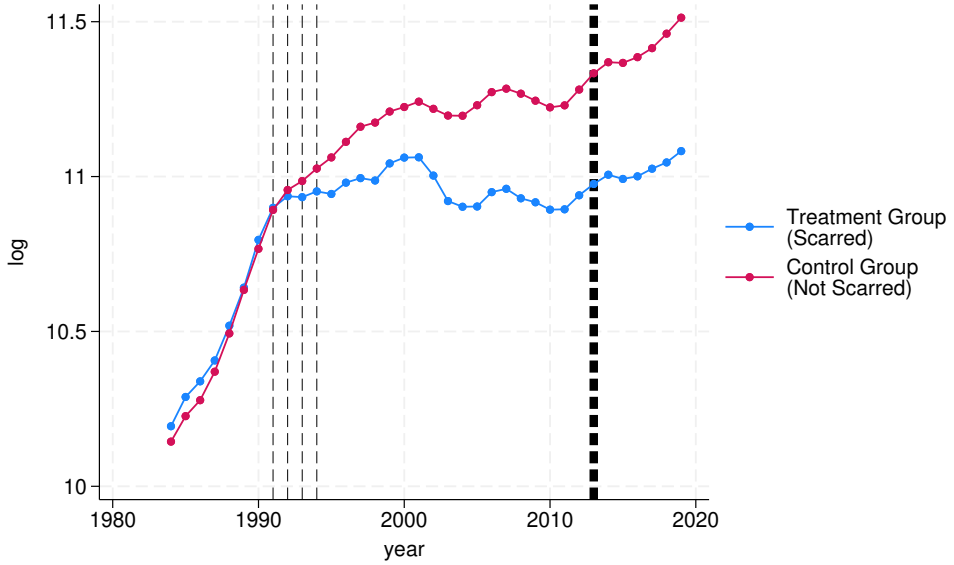
Given the volatility of profits, we take the 3-year average of 1987-1989 net profits to decide if a firm had positive profits prior to the bubble burst. We define the bubble burst period as 1991-1994.

Figure 2: Outcome Trajectories between Firms with A Scar and Those without

(a) Sales



(b) Tangible Assets



Notes: x-axis indicates fiscal year. The outcome is in natural logarithmic unit. The first four dotted vertical lines indicate the period of the asset price bubble burst in Japan, while the thick dotted line indicates the beginning of Abenomics. Blue line with circle markers are those firms which had positive profits prior to the burst but experienced a negative profit once during the burst, while red line with the triangle markers are those firms which are not in this category.

Figure 1 shows the divergence in the investment amounts. This figure shows that the gap

initiated by the bubble burst during the burst period is never closed throughout our sample period. Furthermore, Figure 2a demonstrates the divergence is observed in sales as well. In later section, we will show these results are robust even after taking out firm fixed effects and industry-by-year fixed effects.

The stylized facts motivate a mechanism behind this extrodinarily prolonged shock persistence. In the next section, we will provide a simple model of executives' decision making process.

4 Model

Time t is discrete. The CEO of firm i chooses next-period capital $K_{i,t+1} \geq 0$. While we can add additional layer of complexity such as financing channels, for transparency, we abstract away from additional state variables such as debt.

Risky profit technology Next-period operating profit is

$$\pi_{i,t+1} = (a + \varepsilon_{i,t+1})K_{i,t+1} - \frac{1}{2}K_{i,t+1}^2, \qquad a > 0, \tag{1}$$

with idiosyncratic shock

$$\varepsilon_{i,t+1} \sim \mathcal{N}(0, \sigma^2), \qquad \sigma^2 > 0, \tag{2}$$

that is i.i.d. across time.

CEO preferences At each date t, the firm is controlled by a CEO with CARA utility over profit:

$$U_{i,t}(\pi_{t+1}) = -\exp(-\gamma_{i,t}\pi_{t+1}), \qquad \gamma_{i,t} > 0, \tag{3}$$

Then, the CEO at t chooses $K_{i,t+1}$ to maximize $\mathbb{E}_t[U_{i,t}(\pi_{i,t+1})]$.

Optimal capital choice given CEO risk aversion Notice that conditional on information at time t, $\pi_{i,t+1}$ is normally distributed for any chosen $K_{i,t+1}$. Then, the following lemma is immediate.

Lemma 1 (CARA-normal certainty equivalent)**.** *Maximizing* $\mathbb{E}_t[U_{i,t}(\pi_{i,t+1})]$ *over* $K_{i,t+1}$ *is equivalent to maximizing*

$$CE_{i,t}(K) = \mathbb{E}_t[\pi_{i,t+1}] - \frac{\gamma_{i,t}}{2}\mathrm{Var}_t(\pi_{i,t+1}). \tag{4}$$

Proof. If $X \sim \mathcal{N}(\mu, v)$, then $\mathbb{E}[-e^{-\gamma X}] = -\exp(-\gamma\mu + \frac{\gamma^2}{2}v)$. Since $-\exp(\cdot)$ is strictly decreasing, maximizing expected utility is equivalent to maximizing $\mu - \frac{\gamma}{2}v$. Apply with $X = \pi_{i,t+1}$, and we get the equation above. □

With this lemma, we can get a closed-form solution to the CEO's decision.

Proposition 1 (Closed-form optimal capital)**.** *Given CEO risk aversion $\gamma_{i,t}$, the unique optimal choice is*

$$K^*_{i,t+1} = \frac{a}{1 + \gamma_{i,t}\sigma^2}, \tag{5}$$

and $K^*_{i,t+1}$ is strictly decreasing in $\gamma_{i,t}$.

Proof. From (1), we get

$$\mathbb{E}_t[\pi_{i,t+1}] = aK - \frac{1}{2}K^2, \qquad \mathrm{Var}_t(\pi_{i,t+1}) = \mathrm{Var}_t(\varepsilon_{i,t+1}K) = \sigma^2K^2.$$

By Lemma 1, the firm maximizes

$$aK - \frac{1}{2}K^2 - \frac{\gamma_{i,t}}{2}\sigma^2K^2 = aK - \frac{1}{2}(1 + \gamma_{i,t}\sigma^2)K^2,$$

which is a strictly concave quadratic. FOC gives $a - (1 + \gamma_{i,t}\sigma^2)K = 0$, yielding (5). Finally,

$$\frac{\partial K^*_{i,t+1}}{\partial \gamma_{i,t}} = -\frac{a\sigma^2}{(1 + \gamma_{i,t}\sigma^2)^2} < 0.$$

□

Bubble burst as a shock to CEO risk aversion Let $t = 0$ denote the bubble-burst date. We assume that a negative shock alters the risk aversion of the CEO.

Assumption 1 (Risk-aversion jump)**.** *At $t = 0$ CEO risk aversion jumps above baseline:*

$$\gamma_{i,0} = \bar{\gamma} + \Delta_i, \qquad \bar{\gamma} > 0,\ \Delta_i \geq 0. \tag{6}$$

Δ_i is increasing in shock severity.

Corporate culture and transmission of risk preference Let $\tau \in (0, 1)$ be the per-period probability of CEO turnover, which for simplicity, we assume to be constant across firms. At each turnover, the next CEO's risk aversion is either inherited from the firm's culture or "reset".

Let R_i be how strongly a firm sticks to its custom and the past behavior. Assume that the firm's culture implies an *inheritance probability* $\rho_i \in [0,1]$ that is increasing in R_i:

$$\rho_i = g(R_i), \qquad g'(\cdot) > 0, \qquad 0 \leq g(R) < 1. \tag{7}$$

Now, with these variables, we make the following assumption of the risk preference transition probability.

Assumption 2 (Risk-preference transmission at turnover)**.** *Conditional on* $(\gamma_{i,t}, R_i)$*,*

$$\gamma_{i,t+1} = \begin{cases} \gamma_{i,t}, & \text{if no CEO turnover at } t, \\ \gamma_{i,t}, & \text{if turnover and culture is inherited with probability } \rho_i, \\ \bar{\gamma}, & \text{if turnover and culture is not inherited with probability} (1-\rho_i). \end{cases}$$

Turnover occurs with probability τ *each period, independently of other shocks.*

High-R_i firms have low "flexibility," so successors are likely to follow the same "risk culture" (high ρ_i).

Expected law of motion for risk aversion We now derive the analytical solution to the preference transition.

Lemma 2 (Culture stickiness induces geometric persistence)**.** *Under Assumption 2,*

$$\mathbb{E}[\gamma_{i,t+1} - \bar{\gamma} \mid \gamma_{i,t}] = \theta_i(\gamma_{i,t} - \bar{\gamma}), \qquad \theta_i \equiv 1 - \tau(1-\rho_i) \in (0,1). \tag{8}$$

And θ_i *is strictly increasing in* ρ_i *and thus increasing in* R_i*.*

Proof. With probability $1-\tau$, no turnover and $\gamma_{i,t+1} = \gamma_{i,t}$. With probability τ, turnover occurs; then, with probability ρ_i inheritance yields $\gamma_{i,t+1} = \gamma_{i,t}$, and with probability $1-\rho_i$ reset yields $\gamma_{i,t+1} = \bar{\gamma}$. Therefore,

$$\mathbb{E}[\gamma_{i,t+1} \mid \gamma_{i,t}] = (1-\tau)\gamma_{i,t} + \tau\left[\rho_i\gamma_{i,t} + (1-\rho_i)\bar{\gamma}\right] = \bar{\gamma} + (1-\tau(1-\rho_i))\,(\gamma_{i,t} - \bar{\gamma}).$$

This gives (8). Since $\partial\theta_i/\partial\rho_i = \tau > 0$ and $g'(R_i) > 0$, θ_i increases in R_i. □

For closed-form impulse responses, we now study the deterministic expected dynamics:

$$\gamma_{i,t+1} - \bar{\gamma} = \theta_i(\gamma_{i,t} - \bar{\gamma}), \tag{9}$$

which is exactly the conditional expectation in Lemma 2. The next proposition shows that risk aversion mean reverts geometrically at rate θ_i.

Proposition 2 (Risk-aversion impulse response)**.** *Under* (9) *and the initial condition* (6)*,*

$$\gamma_{i,t} = \bar{\gamma} + \theta_i^t \Delta_i, \qquad t = 0, 1, 2, \ldots \tag{10}$$

Proof. By induction: at $t = 0$, (10) holds by (6). Assume it holds at t. Then,

$$\gamma_{i,t+1} - \bar{\gamma} = \theta_i(\gamma_{i,t} - \bar{\gamma}) = \theta_i(\theta_i^t \Delta_i) = \theta_i^{t+1} \Delta_i,$$

so (10) holds at $t + 1$. □

Investment recovery and custom stickiness Given the preference transition results, we can analytically solve the optimal path of investment choices and asymptotics.

Proposition 3 (Capital path and slow recovery under stronger cultural stickiness)**.** *Under Assumptions 1 and* (9)*, optimal capital satisfies*

$$K^*_{i,t+1} = \frac{a}{1 + \sigma^2(\bar{\gamma} + \theta_i^t \Delta_i)}. \tag{11}$$

If $\Delta_i > 0$ *and* $\theta_i \in (0, 1)$*, then* $K^*_{i,t+1} < \bar{K}$ *for all finite* t *and* $K^*_{i,t+1} \uparrow \bar{K}$ *as* $t \to \infty$*, where*

$$\bar{K} \equiv \frac{a}{1 + \sigma^2 \bar{\gamma}}.$$

Proof. Combine Proposition 1 with Proposition 2. If $\Delta_i > 0$, then $\gamma_{i,t} > \bar{\gamma}$ for all finite t and thus $K^*(\gamma_{i,t}) < K^*(\bar{\gamma}) = \bar{K}$. As $t \to \infty$, $\theta_i^t \Delta_i \to 0$ and therefore $\gamma_{i,t} \to \bar{\gamma}$, implying $K^*_{i,t+1} \to \bar{K}$. □

Given the analytical path, we can demonstrate the greater stickiness, the slower recovery.

Proposition 4 (CEO tenure regularity slows recovery)**.** *Fix* $\Delta > 0$ *and compare two firms* H *and* L *with the same shock size* $\Delta_H = \Delta_L = \Delta$ *but different tenure-regularity measures* $R_H > R_L$*. Then, for any finite* t*,*

$$\theta_H > \theta_L \quad \Rightarrow \quad \gamma_{H,t} > \gamma_{L,t} \quad \Rightarrow \quad K^*_{H,t+1} < K^*_{L,t+1}.$$

Thus, higher CEO-tenure regularity (stickier culture) implies persistently lower investment/capital after the bubble burst (slower recovery).

Proof. By Lemma 2, $R_H > R_L$ implies $\rho_H > \rho_L$ and therefore, $\theta_H > \theta_L$. Then, $\gamma_{i,t} = \bar{\gamma} + \theta_i^t \Delta$ implies $\gamma_{H,t} > \gamma_{L,t}$ for finite t. Finally $K^*(\gamma)$ is strictly decreasing in γ (Proposition 1), so $K^*_{H,t+1} < K^*_{L,t+1}$. □

5 Econometric Approach

5.1 Baseline Specification

To test our model, we employ a difference-in-differences (DiD) framework at the firm–year level. Given that there were multiple strands of large macroeconomic shocks in Japan after the burst such as the Asian currency crisis and the bankruptcy of banks, the dot-com bubble burst, and the Lehman Brothers shock, even those firms which did not experience negative profits during the bubble burst could have turned into the state of scar. Thus, while we use the full sample to check the robustness of the stylized facts after taking out industry trend and firm time-invariant characteristics, for the test of our model, we restrict our sample to those firms which did experience negative profits during the bubble burst. This results in 141 firms. Our baseline specification is:

$$Y_{int} = \alpha_i + \gamma_{nt} + \beta \, \mathrm{DID}_{it} + \varepsilon_{int}, \tag{12}$$

where i indexes firms, n indexes industries, and t indexes years. The dependent variable Y_{int} represents firm outcomes such as investment, sales growth, or profitability, constructed from consolidated financial statements.

The specification includes firm fixed effects α_i, which absorb all time-invariant firm characteristics, including size, long-run productivity, ownership structure, and baseline managerial preferences. We also include industry–year fixed effects γ_{nt} to flexibly control for industry-specific shocks, aggregate business-cycle conditions, and macroeconomic policies that may differentially affect industries over time.

The DiD term DID_{it} exploits two sources of variation: timing relative to the bubble burst and cross-sectional heterogeneity across firms. Let Post_t be an indicator equal to one for years after the collapse of Japan's asset price bubble in the early 1990s and zero otherwise. As for cross-sectional heterogeneity across firms, there are two indicators. One is whether or not a firm is scarred during the bubble as explained above. For the test of our model, we define Sticky_i as an indicator equal to one for firms that have sticky corporate customs. As a measure of stickiness, we use the coefficient of variation (CV) of CEO tenure length. The distribution of the CV is normal with mean is around 1, and we take 0.7 as the cutoff for the indicator. The results are robust to different choices of cutoff such as 0.6 and 0.8.

The coefficient β therefore captures the average post-bubble differential change in outcomes for sticky-custom firms relative to non-sticky firms among the firms scarred during the bubble. Standard errors are clustered at the firm level to account for serial correlation in firm outcomes over time. To assess the dynamic evolution of outcomes and to evaluate the parallel-trends assumption, we complement the baseline DiD analysis with event-study specifications that trace the evolution of firm outcomes in the years before and after the bubble burst, separately by shock exposure and by corporate custom stickiness.

6 Results

6.1 Scarred vs. Not-scarred

In this section, we simply check if the stylized facts are robust to the inclusion of firm and industry-year fixed effects. Figure 3 presents the event-study estimates comparing scarred firms to non-scarred firms after controlling for firm fixed effects and industry-by-year fixed effects.

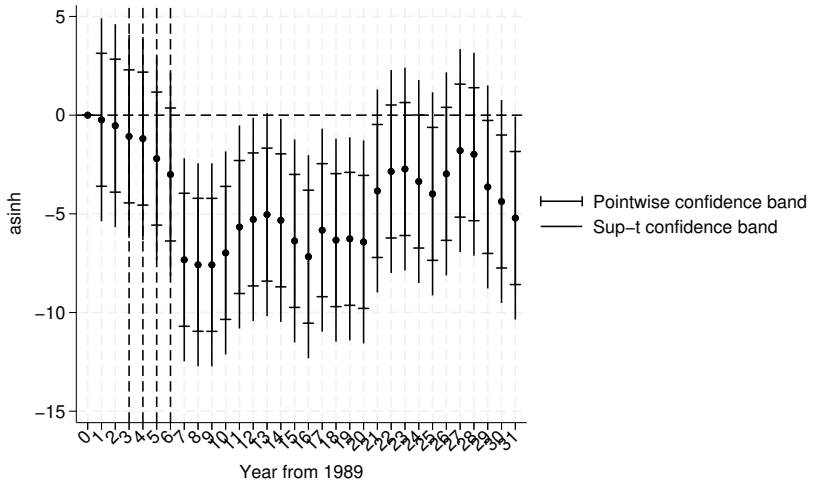
Panel (a) displays the dynamic treatment effects for investment. The estimates show that scarred firms exhibit a sharp and persistent decline in investment following the bubble burst, with the gap remaining statistically significant throughout the post-bubble period. The magnitude of the decline reaches approximately 10 units in the inverse hyperbolic sine scale, indicating a substantial and economically meaningful reduction in capital expenditure.

Panel (b) reports the results for sales. The trajectory reveals a gradual divergence between scarred and non-scarred firms, with the gap widening over time and reaching approximately 0.4 log points by the end of the sample period. This implies that scarred firms experienced roughly 30-40 percent lower sales growth relative to their non-scarred counterparts over the three decades following the bubble burst. However, the pre-trend coefficients suggest some divergence prior to the bubble period, which warrants caution in interpreting the causal effect.

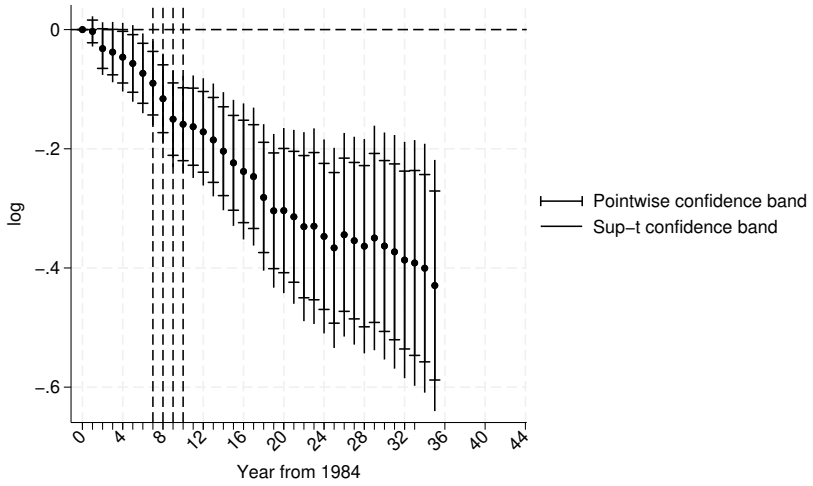
Panel (c) shows the results for tangible assets. Similar to sales, scarred firms accumulate significantly fewer tangible assets over time, with the gap reaching approximately 0.6 log points. The parallel trends assumption appears better satisfied for this outcome, as the pre-bubble coefficients are closer to zero. Overall, these results confirm that the stylized facts documented in Section 3 are robust to controlling for time-invariant firm characteristics and industry-specific shocks, suggesting that the persistent divergence is not driven by pre-existing differences across firms or differential exposure to industry trends.

Figure 3: Event-study Plots between Firms with A Scar and Those without

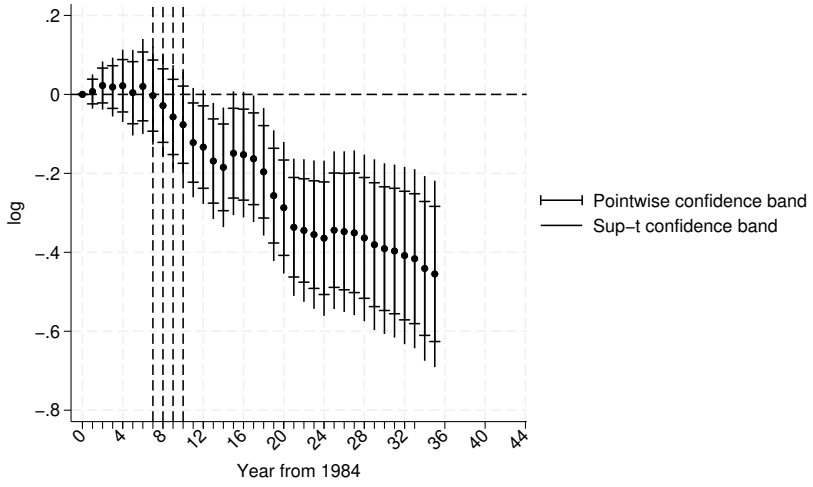
(a) Investment



(b) Sales



(c) Tangible Assets



Notes: x-axis indicates fiscal year from 1984 (1989 for Investment). The first four dotted vertical lines indicate the period of the asset price bubble burst in Japan.

6.2 Empirical Test of Our Model

6.2.1 Outcome Trend

First, we show the raw outcome trends with the sample of only scarred firms. Figure 4 displays the raw outcome trajectories for scarred firms, comparing those with sticky corporate customs (dashed red line) to those without (solid blue line). Restricting attention to scarred firms allows us to isolate the role of corporate culture in determining recovery speed, conditional on having experienced a negative shock during the bubble burst.

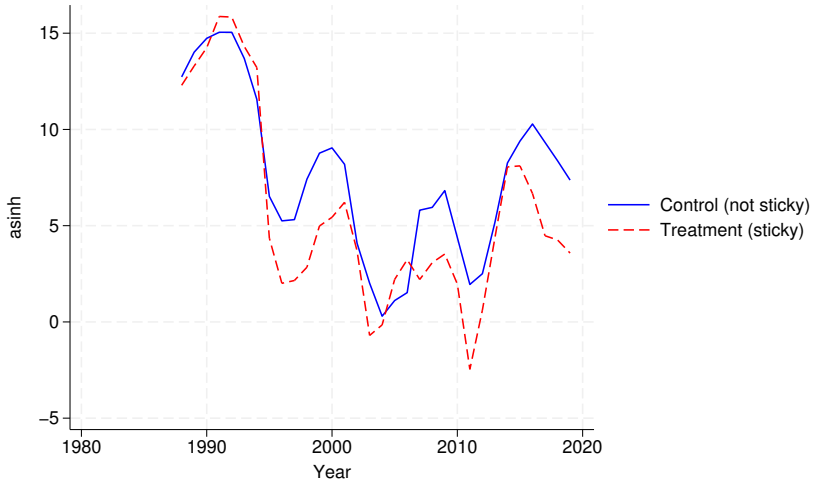
Panel (a) shows that investment patterns diverge substantially after the bubble burst. Firms with sticky customs exhibit a sharper decline and slower recovery in investment, consistent with the model's prediction that stronger cultural inheritance leads to more persistent risk aversion and thus more prolonged underinvestment. While both groups experience declining investment during and after the burst, the gap between them widens considerably in the 2000s and persists through the end of the sample period.

Panel (b) reveals a similar pattern for sales. Prior to the bubble burst, both groups follow nearly identical trajectories, supporting the parallel trends assumption underlying our identification strategy. After the burst, however, firms with sticky customs experience systematically lower sales growth. The divergence becomes particularly pronounced after 2000, with sticky-custom firms falling approximately 0.4 log points below their non-sticky counterparts by 2019.

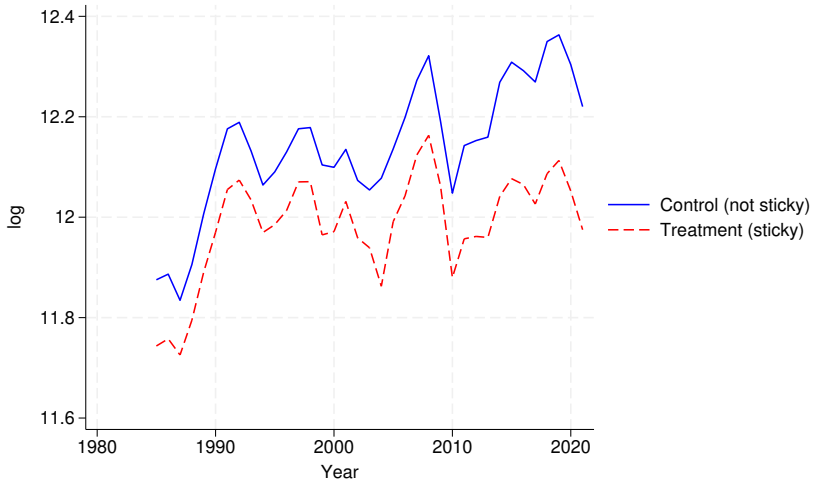
Panel (c) presents the tangible asset trajectories. Again, the pre-bubble trends are nearly parallel, but a clear divergence emerges after the burst. Firms with sticky customs accumulate tangible assets at a slower rate, with the gap reaching approximately 0.5 log points by the end of the sample. These raw patterns are consistent with our theoretical prediction that corporate customs govern the persistence of elevated risk aversion, leading to prolonged conservatism in investment and slower asset accumulation among firms with stickier cultures.

Figure 4: Trends between Firms with Sticky Customs and Those without

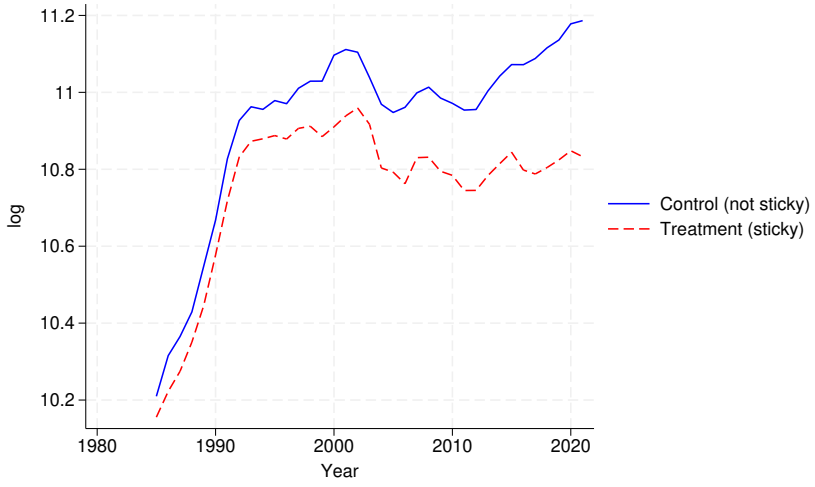
(a) Investment



(b) Sales



(c) Tangible Asset



Notes: x-axis indicates fiscal year.

6.2.2 Event-study Plot

Figure 5 presents the formal event-study estimates that test the core prediction of our model: among scarred firms, those with stickier corporate customs should exhibit slower recovery. The specification includes firm fixed effects and industry-by-year fixed effects, isolating the differential effect of custom stickiness on post-bubble outcomes.

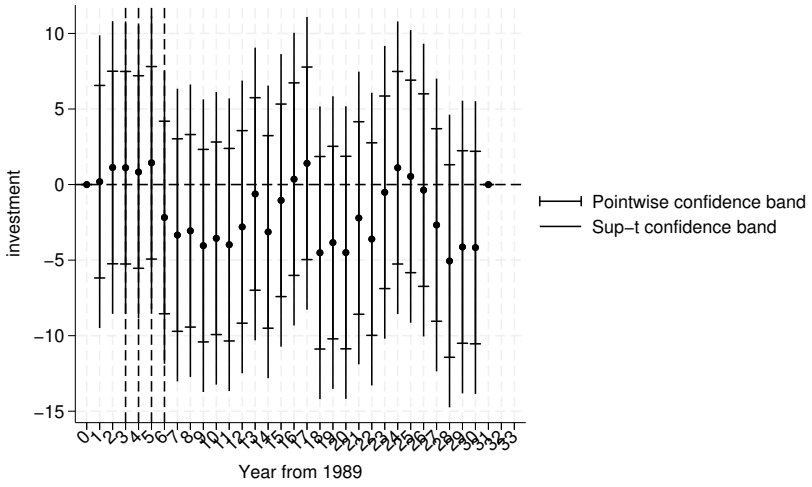
Panel (a) reports the results for investment. While the point estimates suggest that sticky-custom firms invest less in the post-bubble period, the confidence intervals are wide, and we cannot reject the null hypothesis of no differential effect at conventional significance levels. This lack of statistical power likely reflects the high volatility of investment at the firm level, combined with the reduced sample size from restricting attention to scarred firms only.

Panel (b) displays the results for sales, which provide stronger support for our model. The pre-bubble coefficients are statistically indistinguishable from zero, validating the parallel trends assumption. Following the bubble burst, sticky-custom firms experience a gradual but persistent decline in sales relative to non-sticky firms. The estimates become statistically significant in the mid-2000s and remain so through the end of the sample, with the gap reaching approximately 0.2-0.3 log points. This implies that among scarred firms, those with stickier customs experienced 20-30 percent lower sales growth over the post-bubble period.

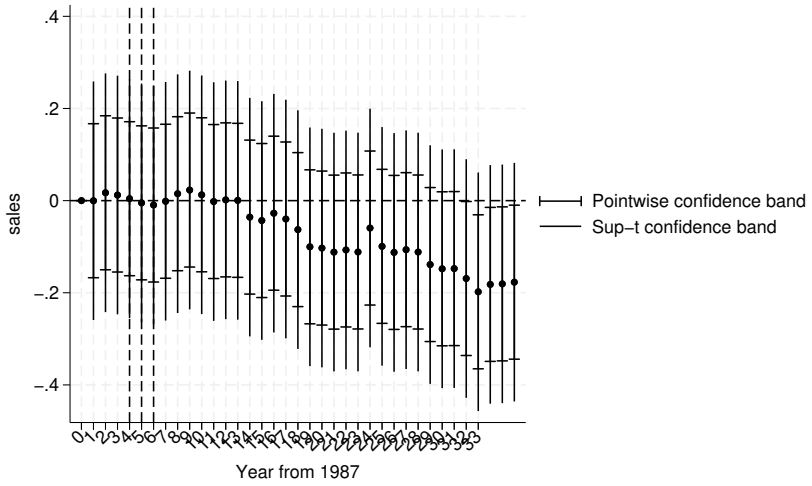
Panel (c) shows the tangible asset results, which exhibit a similar pattern. The pre-trend coefficients are close to zero, and a clear negative divergence emerges after the bubble burst. The estimates become statistically significant around 15 years after the burst and reach approximately -0.3 log points by the end of the sample. Both the pointwise and sup-t confidence bands exclude zero for the later post-bubble periods, providing robust statistical evidence for our mechanism. Taken together, these results support the model's central prediction: corporate customs govern the persistence of elevated risk aversion following a large negative shock. Among firms that were scarred by the bubble burst, those with stickier customs—as measured by the regularity of CEO tenure—exhibit significantly slower recovery in sales and asset accumulation. This finding is consistent with the interpretation that sticky customs facilitate the intergenerational transmission of conservative risk preferences across CEO successions, generating organizational inertia that persists for decades

Figure 5: Event-study Plots between Firms with Sticky Customs and Those without

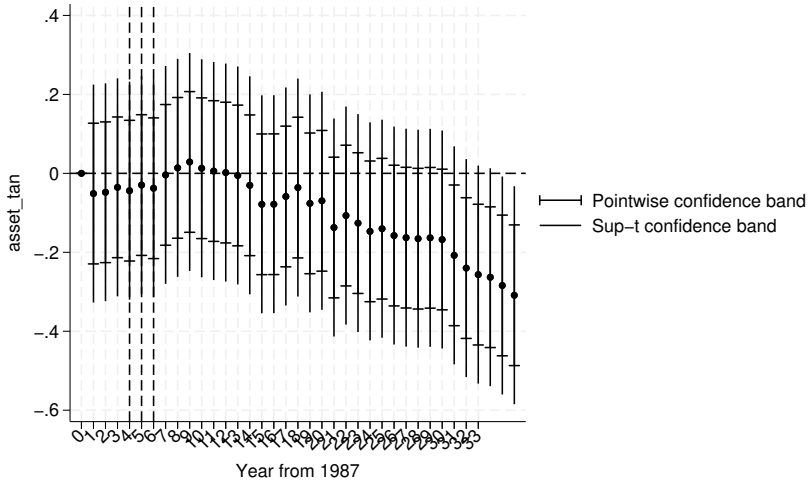
(a) Investment



(b) Sales



(c) Tangible Assets



Notes: x-axis indicates fiscal year from 1984 (1989 for Investment). The first four dotted vertical lines indicate the period of the asset price bubble burst in Japan.

7 Conclusive remarks

This paper proposes and tests a novel mechanism for understanding why some firms remain persistently conservative long after large macroeconomic shocks subside. We argue that executive risk preferences, once elevated by a negative shock, can be transmitted across CEO successions through corporate customs, generating organizational inertia that standard models of uncertainty or financial frictions cannot fully explain.

We formalize this mechanism in a tractable model where risk-averse CEOs choose investment under idiosyncratic profit risk. A key innovation is that CEO risk preferences do not reset mechanically upon turnover; instead, each firm's corporate culture determines whether successors inherit the predecessor's elevated risk aversion or revert to a baseline. Firms with stickier customs—those that adhere more rigidly to established practices—exhibit slower mean reversion in risk preferences and thus more prolonged underinvestment following a crisis.

Using Japan's Lost Decades as a laboratory, we provide empirical evidence consistent with this mechanism. We first document that firms which experienced negative profits during the asset price bubble burst ("scarred" firms) exhibit persistent divergence in investment, sales, and tangible assets relative to non-scarred firms—gaps that remain large even after the aggressive policy interventions of Abenomics.

We then show that among scarred firms, those with stickier corporate customs, as measured by the regularity of CEO tenure lengths, experience significantly slower recovery. This finding holds after controlling for firm fixed effects and industry-by-year fixed effects, suggesting that the result is not driven by time-invariant firm characteristics or differential exposure to industry shocks.

Our findings have several implications. First, they suggest that the persistence of firm-level stagnation may be rooted not only in financial constraints or informational frictions but also in organizational factors that govern how preferences and behaviors are transmitted within firms.

Second, they highlight the importance of corporate governance and succession practices in shaping firm recovery from crises. Firms that allow for greater flexibility in leadership transitions may be better positioned to reset organizational risk preferences and adapt to changing conditions.

Third, our results suggest that macroeconomic policies aimed at stimulating investment may have limited effectiveness for firms whose conservatism is rooted in culturally inherited preferences rather than external constraints.

Several limitations warrant acknowledgment. Our measure of corporate custom sticki-

ness—CEO tenure regularity—is an indirect proxy that may capture other organizational characteristics. While the near-zero correlation between this measure and the scar indicator mitigates concerns about mechanical endogeneity, we cannot fully rule out the possibility that tenure regularity reflects unobserved firm attributes that independently affect recovery. Additionally, the pre-trend in sales outcomes suggests some caution in interpreting the scarred versus non-scarred comparison, though the sticky versus non-sticky comparison among scarred firms exhibits cleaner pre-trends.

8 Plan for next steps

We plan to compute investment following Hayashi and Inoue (1991) to construct an investment variable that is closer to the economic investment definition. We also plan to calibrate our model and conduct more quantitative exercises for some counterfactual policies such as promoting external or foreign CEOs that presumably change corporate culture.

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