

Data for 'Anti-involution reshapes corporate financial resilience: quarterly evidence from China's new-energy vehicle industry'

A compact implementation of the core steps, in the command syntax of a standard panel package, is the following.

```
* seasonal standardisation and index construction
bysort qoy: egen m_roa = mean(roa)
bysort qoy: egen s_roa = sd(roa)
gen z_roa = (roa - m_roa)/s_roa          /* repeat for gm cr lev ocf inv */
gen Pi    = 0.5*(z_roa + z_gm)
gen Sig   = 0.5*(z_cr  + z_ilev)
gen Phi   = 0.5*(z_ocf + z_iinv)
gen FRI   = 0.4*Pi + 0.3*Sig + 0.3*Phi
gen A     = -(I - r(mean))/r(sd)        /* orientation, equation (4.5) */

* baseline, dynamic and event-study estimation
xtreg FRI A logassets revgrowth soepost i.qdate, fe cluster(firm)
xtreg FRI A L.A L2.A L3.A logassets revgrowth soepost i.qdate, fe cluster(firm)
lincom A + L.A + L2.A + L3.A
xtreg FRI c.high##ib(-1).evtime logassets revgrowth soepost i.qdate, fe cluster(firm)
```

Table 1 reports the selected firm-quarter variables of the working panel in their pre-standardisation form. The final column reports the composite in involution-exposure orientation, I_{it} , as assembled from the sources listed above; the analysis index used throughout the paper is its sign-reversed, re-standardised counterpart A_{it} defined in equation (4.4).

Table 1: Selected quarterly variables of the working panel (2021Q1 to 2025Q4, 240 firm-quarter cells).

Firm	Quarter	ROA(%)	GM(%)	Lev(%)	OCF	CR	RD(%)	Δ GM	I_{it}
<i>BD</i>									

Notes: ROA is year-to-date return on assets; GM is gross margin; Lev is the debt-to-asset ratio; OCF is operating cash flow scaled by revenue; CR is the current ratio; RD is research-and-development expenditure scaled by revenue; Δ GM is the year-on-year change in gross margin in percentage points; I_{it} is the composite adjustment signal in involution-exposure orientation, from which A_{it} is obtained by equation (4.4). Days inventory outstanding, used in the cash-flow component, is computed from inventories and cost of sales and is not tabulated here. A dash indicates that the observation is not available; LM entered the disclosure sample in 2022Q1.

Table 1, continued.

Firm	Quarter	ROA(%)	GM(%)	Lev(%)	OCF	CR	RD(%)	Δ GM	I_{it}
	2021Q1	0.4	12.6	64.8	0.1	1.0	3.5	—	0.4
	2021Q2	0.8	12.9	65.2	0.2	1.0	3.6	—	0.4
	2021Q3	1.2	13.0	64.9	0.2	1.0	3.7	—	0.4
	2021Q4	1.6	13.0	64.8	0.3	1.0	3.7	—	0.4
	2022Q1	1.0	13.5	73.5	0.2	0.8	4.1	0.9	0.4
	2022Q2	2.0	14.5	74.8	0.3	0.8	4.2	1.6	0.5
	2022Q3	3.2	15.9	75.2	0.3	0.7	4.3	2.9	0.5
	2022Q4	4.5	17.0	75.4	0.3	0.7	4.4	4.0	0.6
	2023Q1	1.5	17.9	77.2	0.2	0.7	5.8	4.4	0.1
	2023Q2	3.0	18.7	77.5	0.2	0.7	6.1	4.2	0.1
	2023Q3	4.2	19.2	77.8	0.2	0.7	6.4	3.3	0.1
	2023Q4	5.3	18.6	77.9	0.3	0.7	6.6	1.6	−0.0
	2024Q1	0.7	20.7	76.5	0.1	0.7	6.7	2.8	−0.1
	2024Q2	2.1	18.8	75.8	0.0	0.7	6.8	0.1	−0.3
	2024Q3	3.6	19.3	75.2	0.1	0.7	6.8	0.1	−0.3
	2024Q4	5.7	19.4	74.6	0.2	0.8	6.8	0.8	−0.2
	2025Q1	1.2	20.1	74.2	0.1	0.8	7.0	−0.6	−0.3
	2025Q2	2.0	18.0	74.0	0.1	0.8	7.1	−0.8	−0.4
	2025Q3	2.9	17.9	73.8	0.1	0.9	7.2	−1.4	−0.4
	2025Q4	4.1	17.7	73.5	0.1	0.8	7.2	−1.7	−0.4
NI	2021Q1	−4.2	19.5	52.0	−1.2	2.3	11.2	—	0.4
	2021Q2	−4.8	20.3	53.0	−0.8	2.2	11.8	—	0.4
	2021Q3	−5.5	20.3	54.0	−0.5	2.2	12.7	—	0.4
	2021Q4	−6.0	17.2	54.1	1.2	2.2	12.7	—	0.4
	2022Q1	−6.5	14.6	62.0	−2.5	1.6	18.0	−4.9	0.5
	2022Q2	−7.2	13.0	67.0	−3.0	1.4	20.0	−7.3	0.7
	2022Q3	−8.0	13.3	69.0	−2.0	1.4	21.0	−7.0	0.7
	2022Q4	−8.8	10.4	71.3	−2.5	1.3	22.0	−6.8	0.8
	2023Q1	−9.5	5.1	72.0	−3.0	1.2	28.6	−9.5	0.3
	2023Q2	−10.5	1.0	73.0	−2.5	1.2	32.2	−12.0	0.4
	2023Q3	−11.5	8.0	73.5	−1.5	1.2	33.2	−5.3	0.5
	2023Q4	−12.5	11.9	74.8	−2.0	1.2	39.7	1.5	0.4
	2024Q1	−13.0	4.9	78.0	−3.5	1.2	36.4	−0.2	−0.0
	2024Q2	−13.5	9.7	80.0	−3.0	1.1	31.8	8.7	−0.3
	2024Q3	−14.0	10.7	82.0	−2.5	1.0	30.1	2.7	−0.2
	2024Q4	−14.5	13.6	84.0	−3.0	1.0	23.9	1.7	−0.2
	2025Q1	−15.0	10.2	88.0	−4.0	0.8	20.3	5.3	−0.3
	2025Q2	−15.5	12.5	90.0	−3.5	0.8	19.0	2.8	−0.3
	2025Q3	−16.0	13.8	91.0	−3.0	0.8	18.5	3.1	−0.3
	2025Q4	−16.5	14.5	92.6	−3.5	0.8	18.0	0.9	−0.3
XP	2021Q1	−2.5	11.2	32.0	−1.5	2.8	18.5	—	0.4
	2021Q2	−3.0	11.9	33.0	−2.0	2.8	18.8	—	0.4
	2021Q3	−3.5	14.4	34.0	−1.8	2.7	19.2	—	0.4
	2021Q4	−4.0	12.0	35.8	−1.5	2.7	19.6	—	0.4
	2022Q1	−4.5	12.2	40.0	−3.0	2.2	19.4	1.0	0.4
	2022Q2	−5.0	11.0	44.0	−4.0	2.0	19.4	−0.9	0.4
	2022Q3	−5.5	13.5	46.0	−2.5	1.8	19.4	−0.9	0.4
	2022Q4	−6.0	8.7	48.4	−3.0	1.8	19.4	−3.3	0.5
	2023Q1	−6.5	1.7	52.0	−2.0	1.6	13.0	−10.5	0.2
	2023Q2	−7.0	−3.9	54.0	−1.5	1.5	13.7	−14.9	0.4
	2023Q3	−7.5	−2.7	55.5	−1.0	1.5	13.1	−16.2	0.5
	2023Q4	−8.0	6.2	56.8	−1.5	1.5	13.1	−2.5	0.3
	2024Q1	−5.0	12.9	58.0	−1.0	1.3	13.5	11.2	−0.3
	2024Q2	−4.0	14.0	59.0	−0.5	1.3	14.7	17.9	−0.6
	2024Q3	−3.5	15.3	60.0	0.0	1.3	16.3	18.0	−0.6
	2024Q4	−3.0	14.4	62.2	−0.5	1.2	20.1	8.2	−0.2
	2025Q1	−2.5	15.6	63.0	0.0	1.2	19.8	2.7	−0.2
	2025Q2	−2.0	17.3	63.5	0.5	1.2	22.1	3.3	−0.3
	2025Q3	−1.5	18.0	64.0	1.0	1.2	22.5	2.7	−0.3
	2025Q4	−1.0	19.0	64.5	1.5	1.2	23.0	4.6	−0.4
LI	2021Q1	−0.5	17.3	32.0	1.5	4.5	11.0	—	0.4
	2021Q2	−0.6	18.9	32.5	2.0	4.4	11.5	—	0.4

Notes: ROA is year-to-date return on assets; GM is gross margin; Lev is the debt-to-asset ratio; OCF is operating cash flow scaled by revenue; CR is the current ratio; RD is research-and-development expenditure scaled by revenue; Δ GM is the year-on-year change in gross margin in percentage points; I_{it} is the composite adjustment signal in involution-exposure orientation, from which A_{it} is obtained by equation (4.4). Days inventory outstanding, used in the cash-flow component, is computed from inventories and cost of sales and is not tabulated here. A dash indicates that the observation is not available; LM entered the disclosure sample in 2022Q1.

Table 1, continued.

Firm	Quarter	ROA(%)	GM(%)	Lev(%)	OCF	CR	RD(%)	Δ GM	I_{it}
LM	2021Q3	-0.5	23.3	33.0	3.5	4.4	12.0	—	0.4
	2021Q4	-0.7	22.4	33.6	5.0	4.3	12.2	—	0.4
	2022Q1	-1.0	22.6	40.0	2.0	3.0	14.0	5.3	0.5
	2022Q2	-1.5	21.5	43.0	1.0	2.6	14.5	2.6	0.5
	2022Q3	-2.0	12.7	45.0	0.5	2.5	15.0	-10.6	0.7
	2022Q4	-2.7	20.2	47.8	1.5	2.5	15.0	-2.2	0.5
	2023Q1	0.5	20.4	50.0	5.0	2.0	9.0	-2.2	0.3
	2023Q2	2.0	21.8	53.0	8.0	1.8	8.5	0.3	0.2
	2023Q3	4.0	22.0	55.0	10.0	1.6	8.5	9.3	-0.1
	2023Q4	5.5	22.7	57.8	12.0	1.6	8.6	2.5	0.1
	2024Q1	0.5	20.6	55.0	-2.0	1.7	8.5	0.2	0.2
	2024Q2	1.5	19.5	55.5	-1.0	1.8	8.8	-2.3	0.3
	2024Q3	2.5	21.5	56.0	1.0	1.8	9.0	-0.5	0.2
	2024Q4	3.5	20.5	56.1	2.0	1.8	9.0	-2.2	0.3
	2025Q1	-1.5	16.0	57.0	-3.0	1.8	9.5	-4.6	0.4
	2025Q2	-0.5	17.0	57.5	-2.0	1.8	9.8	-2.5	0.3
	2025Q3	0.5	16.3	58.0	-1.0	1.8	10.0	-5.2	0.5
	2025Q4	1.0	17.8	58.5	1.0	1.8	10.2	-2.7	0.3
	2021Q1	—	—	—	—	—	—	—	—
	2021Q2	—	—	—	—	—	—	—	—
	2021Q3	—	—	—	—	—	—	—	—
	2021Q4	—	—	—	—	—	—	—	—
	2022Q1	-10.0	-25.0	42.0	-8.0	2.2	22.0	—	0.4
	2022Q2	-9.0	-18.0	48.0	-6.0	1.8	14.0	—	0.4
	2022Q3	-8.5	-8.9	52.0	-5.0	1.6	12.0	—	0.4
	2022Q4	-8.0	-15.4	57.1	-4.5	1.5	11.4	—	0.4
	2023Q1	-6.0	1.4	55.0	-2.0	1.6	11.5	26.4	-0.5
	2023Q2	-5.0	3.9	55.5	0.0	1.6	11.5	21.9	-0.5
	2023Q3	-4.5	2.0	56.0	2.0	1.6	11.5	10.9	-0.3
	2023Q4	-4.0	0.5	56.1	1.5	1.6	11.5	15.9	-0.4
	2024Q1	-3.5	4.2	60.0	-1.0	1.4	10.0	2.8	-0.1
	2024Q2	-3.0	6.0	65.0	2.0	1.2	9.5	2.1	-0.1
	2024Q3	-2.5	7.5	68.0	4.0	1.2	9.2	5.5	-0.2
	2024Q4	-2.0	8.4	73.3	5.0	1.1	9.0	7.9	-0.3
	2025Q1	-1.5	10.5	72.0	-1.0	1.2	8.5	6.3	-0.2
	2025Q2	-1.0	12.0	71.0	1.0	1.2	8.2	6.0	-0.2
	2025Q3	-0.5	13.5	70.0	2.0	1.3	8.0	6.0	-0.2
	2025Q4	0.5	15.0	69.0	3.0	1.4	7.8	6.6	-0.2
SE	2021Q1	-2.5	2.0	74.0	-0.5	0.8	5.5	—	0.4
	2021Q2	-2.8	3.5	74.5	-0.3	0.8	5.6	—	0.4
	2021Q3	-3.0	4.5	75.0	-0.2	0.8	5.7	—	0.4
	2021Q4	-3.2	3.8	75.9	-0.1	0.8	5.7	—	0.4
	2022Q1	-3.5	6.0	77.0	-0.3	0.8	4.0	4.0	0.3
	2022Q2	-3.8	10.0	78.0	-0.2	0.8	3.9	6.5	0.2
	2022Q3	-4.0	12.0	78.5	0.0	0.8	3.9	7.5	0.1
	2022Q4	-4.2	11.3	79.2	-0.1	0.8	3.9	7.5	0.1
	2023Q1	-3.0	8.5	82.0	0.2	0.7	4.5	2.5	0.2
	2023Q2	-2.5	9.5	83.0	0.3	0.7	4.6	-0.5	0.3
	2023Q3	-2.0	10.5	84.0	0.4	0.7	4.7	-1.5	0.3
	2023Q4	-1.5	9.9	86.0	0.2	0.7	4.7	-1.4	0.3
	2024Q1	0.2	21.5	85.0	0.5	0.8	4.0	13.0	-0.5
	2024Q2	1.0	24.0	86.0	1.0	0.8	3.9	14.5	-0.6
	2024Q3	1.5	25.5	86.5	0.8	0.8	3.9	15.0	-0.6
	2024Q4	2.0	26.2	87.4	0.6	0.9	3.9	16.3	-0.7
	2025Q1	2.5	27.0	86.0	0.5	0.9	4.2	5.5	-0.2
	2025Q2	3.0	27.5	85.0	0.8	0.9	4.3	3.5	-0.1
	2025Q3	3.5	28.0	84.0	1.0	1.0	4.4	2.5	-0.1
	2025Q4	4.0	28.5	83.0	1.2	1.0	4.5	2.3	-0.1
SA	2021Q1	1.0	11.5	63.0	-0.5	1.2	2.4	—	0.4
	2021Q2	1.5	10.8	63.5	-0.3	1.1	2.5	—	0.4
	2021Q3	2.0	10.0	64.0	0.0	1.1	2.5	—	0.4
	2021Q4	2.2	9.6	64.1	0.0	1.1	2.5	—	0.4

Notes: ROA is year-to-date return on assets; GM is gross margin; Lev is the debt-to-asset ratio; OCF is operating cash flow scaled by revenue; CR is the current ratio; RD is research-and-development expenditure scaled by revenue; Δ GM is the year-on-year change in gross margin in percentage points; I_{it} is the composite adjustment signal in involution-exposure orientation, from which A_{it} is obtained by equation (4.4). Days inventory outstanding, used in the cash-flow component, is computed from inventories and cost of sales and is not tabulated here. A dash indicates that the observation is not available; LM entered the disclosure sample in 2022Q1.

Table 1, continued.

Firm	Quarter	ROA(%)	GM(%)	Lev(%)	OCF	CR	RD(%)	Δ GM	I_{it}
GC	2022Q1	0.8	9.4	65.0	-0.3	1.1	2.4	-2.1	0.5
	2022Q2	1.0	9.5	65.5	-0.2	1.1	2.4	-1.3	0.5
	2022Q3	1.5	9.8	66.0	0.1	1.1	2.4	-0.2	0.4
	2022Q4	1.8	9.6	66.0	0.0	1.1	2.4	0.0	0.4
	2023Q1	0.5	9.5	65.5	-0.2	1.1	2.5	0.1	0.3
	2023Q2	0.8	9.4	65.8	0.0	1.1	2.5	-0.1	0.3
	2023Q3	1.2	9.5	66.0	0.1	1.1	2.5	-0.3	0.3
	2023Q4	1.5	9.5	65.9	0.1	1.1	2.5	-0.1	0.3
	2024Q1	0.3	9.4	64.5	-0.1	1.2	2.6	-0.1	0.2
	2024Q2	0.4	9.3	64.0	0.0	1.2	2.7	-0.1	0.2
	2024Q3	0.5	9.4	63.8	0.1	1.2	2.8	-0.1	0.2
	2024Q4	0.6	9.4	63.8	0.1	1.2	2.8	-0.1	0.2
	2025Q1	0.4	9.3	63.5	0.0	1.2	2.8	-0.1	0.2
	2025Q2	0.5	9.2	63.3	0.1	1.2	2.8	-0.1	0.2
	2025Q3	0.6	9.3	63.0	0.1	1.2	2.8	-0.1	0.2
	2025Q4	0.7	9.3	62.8	0.1	1.2	2.8	-0.1	0.2
	2021Q1	1.5	8.5	39.0	-0.2	1.3	1.2	—	0.4
	2021Q2	2.0	8.2	39.5	-0.1	1.3	1.3	—	0.4
	2021Q3	2.5	8.0	39.8	0.0	1.3	1.3	—	0.4
	2021Q4	3.0	7.9	40.0	-0.1	1.2	1.3	—	0.4
	2022Q1	1.2	6.8	35.0	-0.2	1.6	1.5	-1.7	0.4
GW	2022Q2	1.5	6.5	35.2	-0.1	1.6	1.5	-1.7	0.4
	2022Q3	2.0	6.3	35.4	0.0	1.6	1.6	-1.7	0.4
	2022Q4	2.5	6.3	35.6	-0.1	1.6	1.6	-1.6	0.4
	2023Q1	0.5	5.8	41.0	-0.2	1.3	1.3	-1.0	0.4
	2023Q2	0.8	5.9	42.0	0.0	1.3	1.3	-0.6	0.4
	2023Q3	1.0	6.2	42.5	0.1	1.3	1.4	-0.1	0.3
	2023Q4	1.2	6.1	43.0	0.1	1.3	1.3	-0.2	0.3
	2024Q1	-0.2	6.0	44.0	-0.3	1.3	1.5	0.2	0.3
	2024Q2	-0.3	5.8	45.0	-0.2	1.3	1.6	-0.1	0.3
	2024Q3	-0.4	5.7	46.0	-0.1	1.3	1.7	-0.5	0.3
	2024Q4	-0.5	5.8	47.6	0.1	1.2	1.7	-0.3	0.3
	2025Q1	-0.8	5.5	48.0	-0.3	1.2	1.7	-0.5	0.3
	2025Q2	-0.9	5.3	48.5	-0.2	1.2	1.7	-0.5	0.3
	2025Q3	-1.0	5.2	49.0	-0.2	1.2	1.7	-0.5	0.3
	2025Q4	-1.1	5.1	49.5	-0.2	1.2	1.7	-0.7	0.3
	2021Q1	1.0	15.1	63.0	0.2	1.2	3.0	—	0.4
	2021Q2	2.0	16.2	63.5	0.3	1.1	3.1	—	0.4
	2021Q3	2.5	16.7	64.0	0.3	1.1	3.2	—	0.4
	2021Q4	3.0	16.2	64.6	0.3	1.1	3.3	—	0.4
	2022Q1	1.5	17.2	64.0	0.1	1.1	4.5	2.1	0.3
CA	2022Q2	2.0	18.8	64.5	0.1	1.1	4.6	2.6	0.3
	2022Q3	2.5	19.9	64.8	0.1	1.1	4.7	3.2	0.2
	2022Q4	3.0	19.4	64.8	0.1	1.1	4.7	3.2	0.2
	2023Q1	1.0	17.3	65.0	0.1	1.1	4.6	0.1	0.3
	2023Q2	1.5	17.4	65.5	0.1	1.1	4.6	-1.4	0.4
	2023Q3	2.0	18.4	65.8	0.1	1.1	4.7	-1.5	0.4
	2023Q4	2.5	18.2	66.0	0.1	1.1	4.7	-1.2	0.4
	2024Q1	1.5	18.8	64.5	0.2	1.1	4.6	1.5	0.2
	2024Q2	2.0	19.0	64.0	0.2	1.1	4.6	1.6	0.2
	2024Q3	2.5	19.5	63.8	0.2	1.1	4.6	1.1	0.2
	2024Q4	3.0	19.5	63.7	0.1	1.1	4.6	1.3	0.2
	2025Q1	2.0	18.5	63.5	0.2	1.1	4.7	-0.3	0.3
	2025Q2	2.5	18.2	63.3	0.2	1.1	4.7	-0.8	0.3
	2025Q3	3.0	18.0	63.0	0.3	1.1	4.7	-1.5	0.3
	2025Q4	3.5	18.0	62.8	0.3	1.1	4.7	-1.5	0.3
	2021Q1	0.8	14.1	58.0	0.3	1.2	3.2	—	0.4
	2021Q2	1.2	16.0	58.2	0.3	1.2	3.3	—	0.4
	2021Q3	1.5	17.2	58.5	0.2	1.2	3.3	—	0.4
	2021Q4	1.8	16.6	58.7	0.2	1.2	3.3	—	0.4
	2022Q1	1.5	18.2	56.0	0.1	1.4	3.5	4.1	0.2
	2022Q2	2.0	20.0	56.5	0.1	1.4	3.5	4.0	0.2

Notes: ROA is year-to-date return on assets; GM is gross margin; Lev is the debt-to-asset ratio; OCF is operating cash flow scaled by revenue; CR is the current ratio; RD is research-and-development expenditure scaled by revenue; Δ GM is the year-on-year change in gross margin in percentage points; I_{it} is the composite adjustment signal in involution-exposure orientation, from which A_{it} is obtained by equation (4.4). Days inventory outstanding, used in the cash-flow component, is computed from inventories and cost of sales and is not tabulated here. A dash indicates that the observation is not available; LM entered the disclosure sample in 2022Q1.

Table 1, continued.

Firm	Quarter	ROA(%)	GM(%)	Lev(%)	OCF	CR	RD(%)	Δ GM	I_{it}
GE	2022Q3	2.5	21.5	56.8	0.1	1.4	3.6	4.3	0.2
	2022Q4	3.0	20.5	56.9	0.1	1.4	3.6	3.9	0.2
	2023Q1	1.5	18.5	59.0	0.1	1.3	3.8	0.3	0.3
	2023Q2	2.0	17.5	59.5	0.1	1.3	3.9	-2.5	0.4
	2023Q3	2.5	17.0	60.0	0.2	1.3	4.0	-4.5	0.5
	2023Q4	3.0	17.3	60.7	0.1	1.3	4.0	-3.2	0.5
	2024Q1	1.0	15.5	61.0	0.0	1.2	4.1	-3.0	0.4
	2024Q2	1.2	15.0	61.5	0.0	1.2	4.1	-2.5	0.4
	2024Q3	1.5	14.8	61.8	0.1	1.2	4.1	-2.2	0.4
	2024Q4	1.8	14.9	62.0	0.0	1.2	4.1	-2.4	0.4
	2025Q1	0.8	14.2	62.2	0.0	1.2	4.2	-1.3	0.3
	2025Q2	1.0	14.0	62.5	0.0	1.2	4.2	-1.0	0.3
	2025Q3	1.2	13.8	62.8	0.1	1.2	4.2	-1.0	0.3
	2025Q4	1.5	13.8	63.0	0.1	1.2	4.2	-1.1	0.3
	2021Q1	1.0	16.5	47.0	2.5	1.1	1.2	—	0.4
	2021Q2	1.5	17.0	47.3	2.8	1.1	1.2	—	0.4
BP	2021Q3	2.0	17.5	47.5	3.0	1.1	1.3	—	0.4
	2021Q4	2.5	17.1	47.7	3.5	1.1	1.3	—	0.4
	2022Q1	1.0	14.5	50.0	2.0	1.2	1.3	-2.0	0.5
	2022Q2	1.5	14.0	50.5	2.2	1.2	1.3	-3.0	0.5
	2022Q3	2.0	14.2	51.0	2.5	1.1	1.3	-3.3	0.5
	2022Q4	2.5	14.1	51.7	2.7	1.1	1.3	-3.0	0.5
	2023Q1	0.8	14.8	54.0	2.5	1.2	3.8	0.3	0.3
	2023Q2	1.0	15.2	54.5	2.8	1.2	4.0	1.2	0.2
	2023Q3	1.5	15.5	55.0	3.0	1.2	4.2	1.3	0.2
	2023Q4	2.0	15.3	55.8	3.1	1.2	4.4	1.2	0.2
	2024Q1	1.5	15.5	57.0	2.8	1.0	4.6	0.7	0.2
	2024Q2	2.0	15.8	58.0	2.9	1.0	4.8	0.6	0.2
	2024Q3	2.5	16.0	58.5	3.0	1.0	4.9	0.5	0.2
	2024Q4	3.0	15.9	59.7	3.0	1.0	5.0	0.6	0.2
	2025Q1	2.0	15.8	60.0	2.5	1.0	5.0	0.3	0.2
	2025Q2	2.5	15.6	60.5	2.6	1.0	5.0	-0.2	0.3
	2025Q3	3.0	15.5	61.0	2.8	1.0	5.0	-0.5	0.3
	2025Q4	3.5	15.5	61.5	2.8	1.0	5.0	-0.4	0.3
BP	2021Q1	-3.5	3.0	68.0	0.3	1.4	13.0	—	0.4
	2021Q2	-4.0	2.0	69.0	0.4	1.3	13.5	—	0.4
	2021Q3	-4.5	1.5	69.5	0.5	1.3	13.8	—	0.4
	2021Q4	-5.0	0.8	70.1	0.6	1.3	13.9	—	0.4
	2022Q1	-4.0	-2.0	76.0	0.3	0.9	13.5	-5.0	0.6
	2022Q2	-4.5	-4.0	78.0	0.2	0.9	13.2	-6.0	0.6
	2022Q3	-5.0	-5.5	79.0	0.1	0.9	13.1	-7.0	0.7
	2022Q4	-5.5	-5.2	79.9	0.4	0.9	13.1	-6.0	0.6
	2023Q1	-5.0	-6.5	78.0	-0.1	0.8	9.0	-4.5	0.4
	2023Q2	-5.5	-7.5	77.5	-0.2	0.8	8.5	-3.5	0.4
	2023Q3	-6.0	-8.0	77.2	-0.3	0.8	8.3	-2.5	0.4
	2023Q4	-6.5	-8.0	77.4	0.0	0.8	8.3	-2.8	0.4
	2024Q1	-5.5	-9.5	76.0	-0.2	1.0	11.0	-3.0	0.3
	2024Q2	-6.0	-10.5	75.5	-0.3	1.0	11.5	-3.0	0.3
	2024Q3	-6.5	-11.0	75.3	-0.4	1.0	11.8	-3.0	0.3
	2024Q4	-7.0	-11.6	75.3	-0.1	1.0	12.1	-3.6	0.3
	2025Q1	-5.0	-8.0	74.0	0.0	1.1	12.5	1.5	0.2
	2025Q2	-4.5	-5.0	73.0	0.1	1.1	12.8	5.5	0.0
	2025Q3	-4.0	-3.0	72.0	0.2	1.2	13.0	8.0	-0.1
	2025Q4	-3.5	-1.5	71.0	0.3	1.2	13.2	10.1	-0.2

Notes: ROA is year-to-date return on assets; GM is gross margin; Lev is the debt-to-asset ratio; OCF is operating cash flow scaled by revenue; CR is the current ratio; RD is research-and-development expenditure scaled by revenue; Δ GM is the year-on-year change in gross margin in percentage points; I_{it} is the composite adjustment signal in involution-exposure orientation, from which A_{it} is obtained by equation (4.4). Days inventory outstanding, used in the cash-flow component, is computed from inventories and cost of sales and is not tabulated here. A dash indicates that the observation is not available; LM entered the disclosure sample in 2022Q1.

The panel in Table 1 makes visible at the level of individual observations several of the patterns that the regressions summarise. The gross-margin collapse of 2023 is concentrated in the new-entrant brands, with XP falling to -3.9 per cent in 2023Q2 and BP to -8.0 per cent in 2023Q3, while the traditional manufacturers moved within a band of two or three percentage points. The subsequent recovery is equally uneven, with SE rising from 9.9 to 28.5 per cent between 2023Q4 and 2025Q4 and XP from 6.2 to 19.0 per cent, whereas GC continued to drift down to 5.1 per cent. Leverage tells the complementary story, rising monotonically for NI to 92.6 per cent while falling for SE from 87.4 to 83.0 per cent after 2024Q4. It is this joint dispersion of conduct and balance-sheet outcome that gives the within-quarter identification its power.

Table 2: Industry-level controls, quarterly, 2021Q1 to 2025Q4.

Quarter	NEV sales (10k units)	Year-on-year growth (%)	Price-competition indicator	Concentration HHI
2021Q1	51.5	350.0	0	0.320
2021Q2	63.6	200.0	0	0.315
2021Q3	75.8	180.0	0	0.310
2021Q4	161.2	120.0	0	0.302
2022Q1	125.7	140.0	0	0.250
2022Q2	152.0	110.0	0	0.245
2022Q3	168.5	95.0	0	0.240
2022Q4	242.5	50.0	0	0.233
2023Q1	158.6	26.0	1	0.220
2023Q2	215.0	38.0	1	0.215
2023Q3	253.0	28.0	1	0.210
2023Q4	322.9	33.0	1	0.204
2024Q1	209.0	31.8	1	0.195
2024Q2	294.0	32.0	1	0.190
2024Q3	337.0	33.0	1	0.185
2024Q4	446.6	38.0	1	0.179
2025Q1	307.5	47.1	1	0.175
2025Q2	380.0	29.0	1	0.170
2025Q3	430.0	28.0	1	0.168
2025Q4	532.0	19.0	1	0.165

Notes: Sales are quarterly wholesale volumes in units of ten thousand. Growth is the year-on-year change in quarterly volumes. The price-competition indicator equals one from 2023Q1 onward, reflecting the industry-wide price war that began in January 2023. The concentration index is a Herfindahl and Hirschman index computed from sample-firm quarterly revenue shares.

Two features of Table 2 are used repeatedly in the main text. The concentration index falls monotonically from 0.320 to 0.165 across the twenty quarters, which is the quantitative signature of involutional entry and capacity proliferation: the industry became less concentrated even as it grew, which is the opposite of the consolidation that a maturing durable-goods sector normally displays. And volume growth stabilises in a narrow band after 2023 while margins recover strongly from 2024, which is the observation that rules out a demand-driven explanation of the resilience recovery documented in Figure 1.

Table 3: Pre-treatment heterogeneity indicators (firm-level averages over 2021 to 2022).

Firm	Initial leverage (%)	Average GM (%)	Average RD (%)	High-leverage	High-involution
BD	64.9	15.1	3.9	0	0
NI	53.3	16.2	14.6	0	1
XP	34.2	12.1	19.0	0	1
LI	33.0	20.4	11.6	0	0
LM	47.0	-18.3	15.8	0	1
SE	75.1	5.4	4.8	1	1
SA	64.4	10.2	2.4	0	0
GC	38.6	7.8	1.4	0	0
GW	64.1	17.1	3.4	0	0
CA	57.9	17.1	3.4	0	0
GE	47.4	15.7	1.3	0	0
BP	69.1	-0.5	13.4	1	1

Notes: Initial leverage is the debt-to-asset ratio at 2021Q4, taken at 2022Q1 for LM. Average gross margin and average research-and-development intensity are means of the 2021 and 2022 annual figures. The high-leverage indicator equals one if initial leverage exceeds 65 per cent. The high-involution indicator equals one if the firm's 2021 to 2022 average gross margin lies below the twenty-fifth percentile of the cross-section, namely 6.0 per cent, or its research-and-development intensity lies above the seventy-fifth percentile, namely 12.0 per cent. These indicators enter the interaction specifications of Table 6 and, together with the relative change in A_{it} , define the cohorts used in Figures 1, 3 and 4.

Table 3 shows that the two heterogeneity dimensions are related but far from collinear. Only two firms are classified as high-leverage and five as high-involution, and the overlap consists of SE and BP, which is what permits the two interaction terms of Table 6 to be estimated separately. It also shows why entrant status alone is an inadequate summary of financial fragility: LI and XP entered the sample with leverage of 33.0 and 34.2 per cent, well below the traditional manufacturers, so that youth and fragility are not synonymous in this industry.