THE BETTER POLICY PROJECT

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When Cheap Credit Becomes Expensive

Corporate Balance Sheets and the Global Financial Accelerator

ASYA KOSTANYAN
The Better Policy Project

DOUGLAS LAXTON
The Better Policy Project

JARED LAXTON
The Better Policy Project

VAZGEN POGHOSYAN
Central Bank of Armenia

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Asya Kostanyan
The Better Policy Project

Douglas Laxton
The Better Policy Project

Jared Laxton
The Better Policy Project

Vazgen Poghosyan
Central Bank of Armenia

Abstract

Low credit spreads can coexist with vulnerable corporate balance sheets. We examine two conditional international stress scenarios in a seven-region nonlinear GIMF model, with Canada and the United States identified separately. The small scenario raises borrower risk. The severe scenario combines stronger repricing, lower bankruptcy recoveries and a temporary corporate operating loss. In the severe scenario, first-year US GDP falls by about 2 percent, investment by 10 percent and entrepreneurial net worth by 19 percent relative to baseline. The contraction persists after financing premiums begin to normalize. The model includes the harmonized nominal rigidities in every region. Historical US spreads are extended with the two model premium paths to illustrate scale. Regional results distinguish the direct financial disturbances from international transmission; the exercise does not identify a pure US spillover. The policy question is the resilience of balance sheets before financing conditions reverse.

Keywords: financial accelerator; credit spreads; corporate balance sheets; investment; prudent risk management.

JEL classification: E22, E32, E44, E47.

Acknowledgments. The authors thank Robert (Bob) Ford; a personal acknowledgment appears in the introduction.

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1. Begin with the equity cushion

Acknowledgments. The authors thank Robert (Bob) Ford. Douglas Laxton is especially grateful to Bob, who was his mentor at both the Bank of Canada and the International Monetary Fund. Doug is very happy to carry that tradition forward by mentoring his own students. He wishes he were as tough on them as Bob was on him—but worries they might all run away.

Suppose a firm owns productive assets worth 100. It has borrowed 80 and financed the remaining 20 with its own equity. Now the value of those assets falls by 10, while the debt remains 80. The firm still has positive equity, but its equity cushion has been cut in half.

The asset loss is ten percent. The equity loss is fifty percent. That arithmetic is the starting point for the financial accelerator. A modest movement in the value of productive capital can create a much larger movement in the financial resources that support borrowing and investment.

The interesting economics begins when we ask what happens next. Lenders may require a larger premium, firms may cut investment, and the weaker outlook may lower the value of capital again. The initial loss has changed the terms on which the firm can finance its future. Bernanke and Gertler (1989) and Bernanke, Gertler and Gilchrist (1999) explain how this interaction can amplify business fluctuations.

A credit shock can outlast the jump in credit spreads.

An investment project that is cancelled today does not reappear automatically when borrowing becomes cheaper. Lower investment leaves less productive capital, while weaker earnings slow the rebuilding of net worth. The real economy can therefore remain below its baseline after the financial premium has started to normalize.

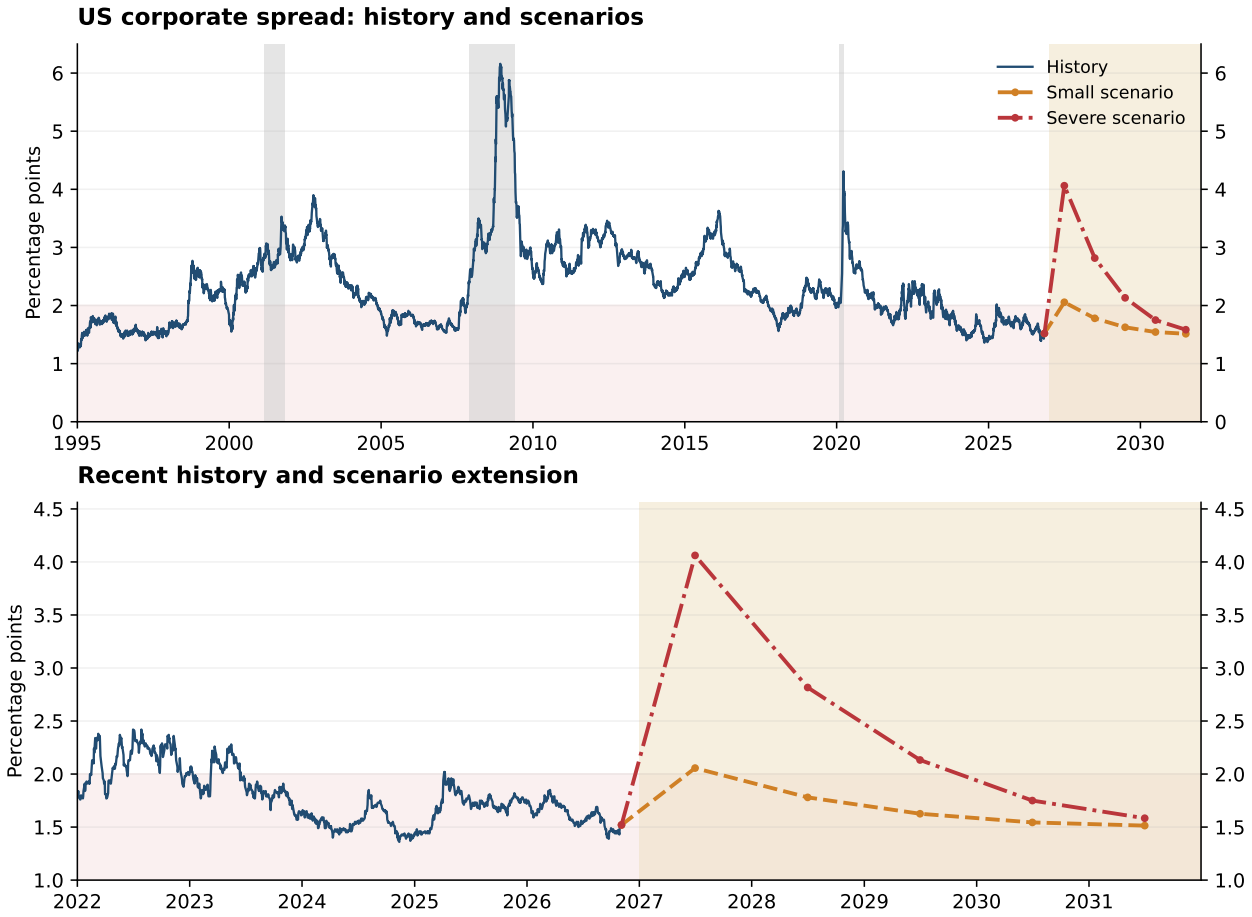
This paper follows that chain in a seven-region application of GIMF. We begin with the historical scale of US credit spreads, construct a small and a severe international stress scenario, and examine what happens to investment, output and entrepreneurial net worth. The aim is to make the transmission transparent and to support prudent risk management before a crisis narrows the available choices.

2. Cheap credit and the scale of the stress test

A narrow credit spread measures the current price of borrowing. It does not measure how much deterioration in asset values, recoveries or operating income a corporate balance sheet can absorb. Low spreads alone also do not establish that risk is mispriced.

The saved historical series ends on 4 November 2026. We retain that vintage to keep the historical comparison consistent. Annual model premium changes are added to the last observed Baa spread; the extension is a scale comparison, rather than a forecast of the market index.

Figure 1: From low spreads to conditional financial stress



Notes: Daily BAA10Y history through 4 November 2026; annual scenario points at midyear, 2027–2031. Red shading marks spreads below two percentage points; gray bands mark US recessions. The two vertical scales in each panel have identical units.

3. Two scenarios with a clear economic meaning

3.1 Small scenario: lending becomes more expensive

Borrower project returns become more uncertain in tradable and nontradable corporate sectors. The financial contract adjusts, financing premiums rise and investment falls. The same persistence, three fifths, is used for the financial processes in every region.

3.2 Severe scenario: weaker recoveries and operating income

The severe path doubles the borrower-risk innovations and adds higher bankruptcy costs and a temporary corporate operating loss. Lower recoveries raise the cost of lending conditional on default. The operating loss also reduces real resources and entrepreneurial net worth. It is not a pure equity-price shock, and it is not a productivity-news experiment.

The US spread proxy initially reaches 2.06 percentage points in the small scenario and 4.06 points in the severe scenario. The extensions share the saved historical anchor.

Table 1: First-year US responses

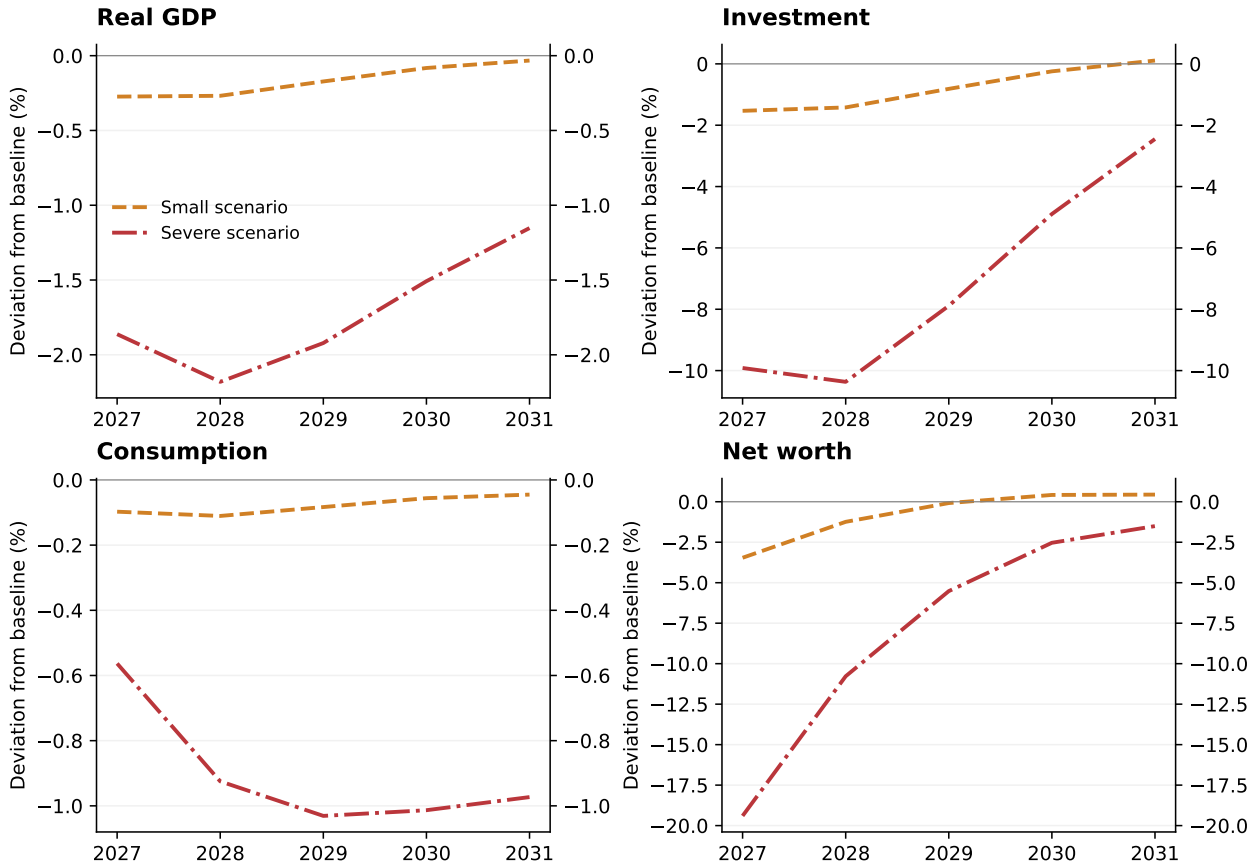
Variable	Small	Severe
Real GDP (%)	-0.27	-1.86
Investment (%)	-1.53	-9.92
Consumption (%)	-0.10	-0.56
Net worth (%)	-3.46	-19.40
Financing premium (bp)	54	254

Notes: 2027 deviations from baseline. The finance premium is a change, rather than the illustrative spread level.

4. Investment and the rebuilding of net worth

In the severe scenario, first-year US output falls by about 2 percent, investment by 10 percent and entrepreneurial net worth by 19 percent. Within the first five years, the largest US output shortfall is about 2 percent in 2028. The decline in investment reduces the capital stock, while weaker earnings slow the recovery of the equity cushion.

Figure 2: US investment, output and the equity cushion



Notes: Percentage deviations from baseline. Orange dashed: small scenario. Red dash-dot: severe scenario. Entrepreneurial net worth is corporate net worth in the model, rather than household wealth.

The capital price is the model valuation of productive capital. Investment and consumption responses also reflect expenditure shares, trade, prices and endogenous monetary policy.

5. Canada and the international transmission

The seven non-overlapping regions are Canada, the United States, the euro area, Japan, China, an emerging-market group and the residual world excluding Canada. Each region receives a direct financial disturbance. Foreign responses combine those disturbances with trade, exchange-rate and financial transmission.

Canada inherits the US primitive shock innovations. The euro area uses an explicit illustrative blend of the previous France and remaining-euro-area innovations, with one quarter and three quarters weights. Japan, China, the emerging-market group and the residual world inherit the previous residual-world innovations. This mapping is a scenario assumption, not an estimate of regional exposure.

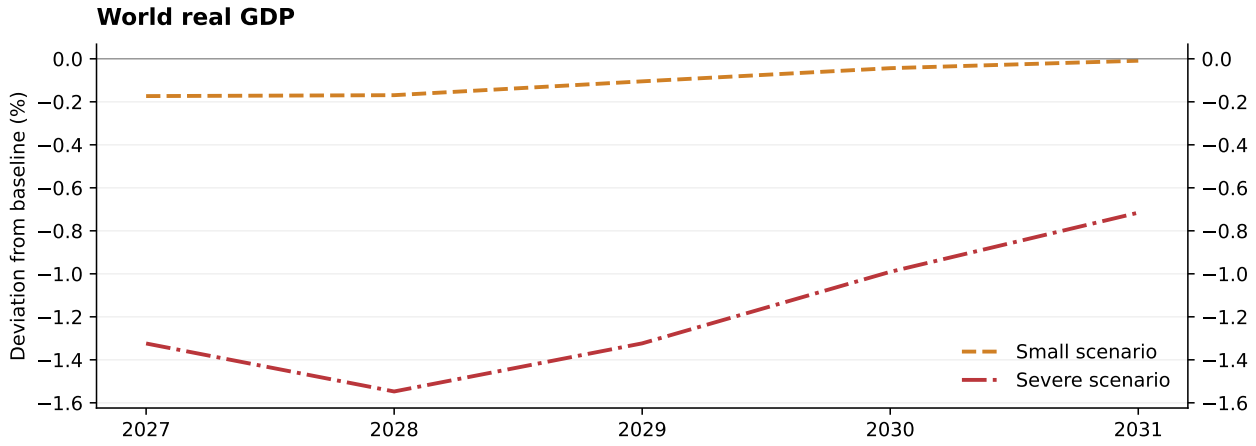
Table 2: First-year GDP responses across all seven regions

Region	Small (%)	Severe (%)
Canada	-0.27	-1.97
United States	-0.27	-1.86
Euro area	-0.17	-1.30
Japan	-0.12	-1.04
China	-0.12	-1.06
Emerging market group	-0.12	-1.06
Rest of world	-0.12	-1.05
World	-0.17	-1.32

Notes: 2027 level deviations. The world aggregate uses the seven-region calibration GDP shares at fixed weights. These are not the four-region PPP weights in the previous paper.

Canada's severe first-year GDP loss is about 2 percent. Equal primitive innovations in Canada and the United States do not imply equal GDP or investment responses: expenditure shares, openness, balance sheets and general-equilibrium adjustment differ.

Figure 3: The international output path



Notes: Fixed calibration-GDP-share aggregation of the seven non-overlapping regions. These are deviations of output levels from baseline, rather than annual growth rates.

6. The policy question is resilience before the reversal

The useful policy question is how much room households, firms, lenders and governments have to absorb losses if financing conditions turn. A market spread is one part of that assessment. The strength of balance sheets, the quality of investment and the costs of restructuring distressed projects are also relevant.

A prudent risk management approach considers more than one possible path and asks which policy choices preserve room to respond. In these experiments monetary policy follows the inherited rules; no new rescue program is assumed. The paper therefore does not rank financial interventions or quantify the benefits of a specific support package.

If a policy response is subsequently studied, it should identify the instrument, the recipient of support, its financing and the risk transferred to the public balance sheet. The fiscal Three Cs—Comprehensive, Consistent and Coordinated—provide a discipline for that exercise. Supporting viable activity, preserving incentives and protecting fiscal credibility would need to be assessed together.

Cheap credit can conceal a thin cushion. The stress test asks what happens when that cushion is tested.

The main finding is an economically meaningful conditional possibility: a deterioration in financing terms and corporate income can turn a modest initial tightening into a deeper and more persistent investment-led downturn. The magnitude depends on the assumed disturbances and the model's structure. The two scenarios illustrate that interaction; their difference does not isolate a pure nonlinearity effect.

7. Model calibration and numerical verification

The nominal adjustment-cost coefficients are 216 for wages, 108 for tradable, nontradable and investment prices, 3.6 for consumption prices, and 0.72 for imported retail prices. All forty-nine coefficients follow this profile. They are parameter levels, not percentages, Calvo probabilities or contract durations.

Every region follows the same monetary rule:

$$\log(i_{r,t}/i_{r,t-1}) = \tfrac{1}{2}\left[\tfrac{3}{4}\log(\pi_{r,t}/\pi_r^*) + \tfrac{1}{4}\log(\pi_{r,t+1}/\pi_r^*)\right]. \tag{1}$$

The model is annual; the next-year term therefore corresponds to a longer forecast horizon than the current annual term. Inflation in this rule is the model's core price index; headline CPI inflation is reported separately. The euro area is a single monetary region. All seven regions float; there is no separate oil block. Seven fiscal instruments are held at baseline for ten years before the inherited fiscal closure resumes.

Both scenarios solve the full nonlinear equations at sixty- and eighty-year terminal horizons. The largest accepted raw equation residual is $7.3e-09$. The largest first-ten-year GDP difference across horizons is 0.000043 percentage points. Selected quantity, capital, net-worth and gross-rate levels remain positive, while checked probability and bankruptcy-cost fractions remain between zero and one. Financial indicators are retained in the diagnostics.

The seven-region calibration includes disclosed proxies: non-Canada-US bilateral trade uses GDP and import-share priors; euro-area fiscal targets use Austria as a proxy; China and the emerging-market

group use Korean fiscal proxies; the residual world uses Switzerland. Several external-asset anchors are working assumptions. Numerical convergence establishes consistency with the equations and terminal conditions; it does not validate these assumptions empirically.

The two scenarios differ in both magnitude and composition. Their difference does not isolate the contribution of nonlinear amplification. The earlier four-region numerical results are replaced throughout; the model change also alters regional aggregation, trade structure and monetary closure, so it cannot be interpreted as the effect of nominal rigidities alone.

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A. Regional results

The tables report five annual observations for each scenario. All regional charts use common scales for each variable. Headline CPI inflation is in percentage points; finance premiums and policy rates are in basis points in tables.

A.1 Canada

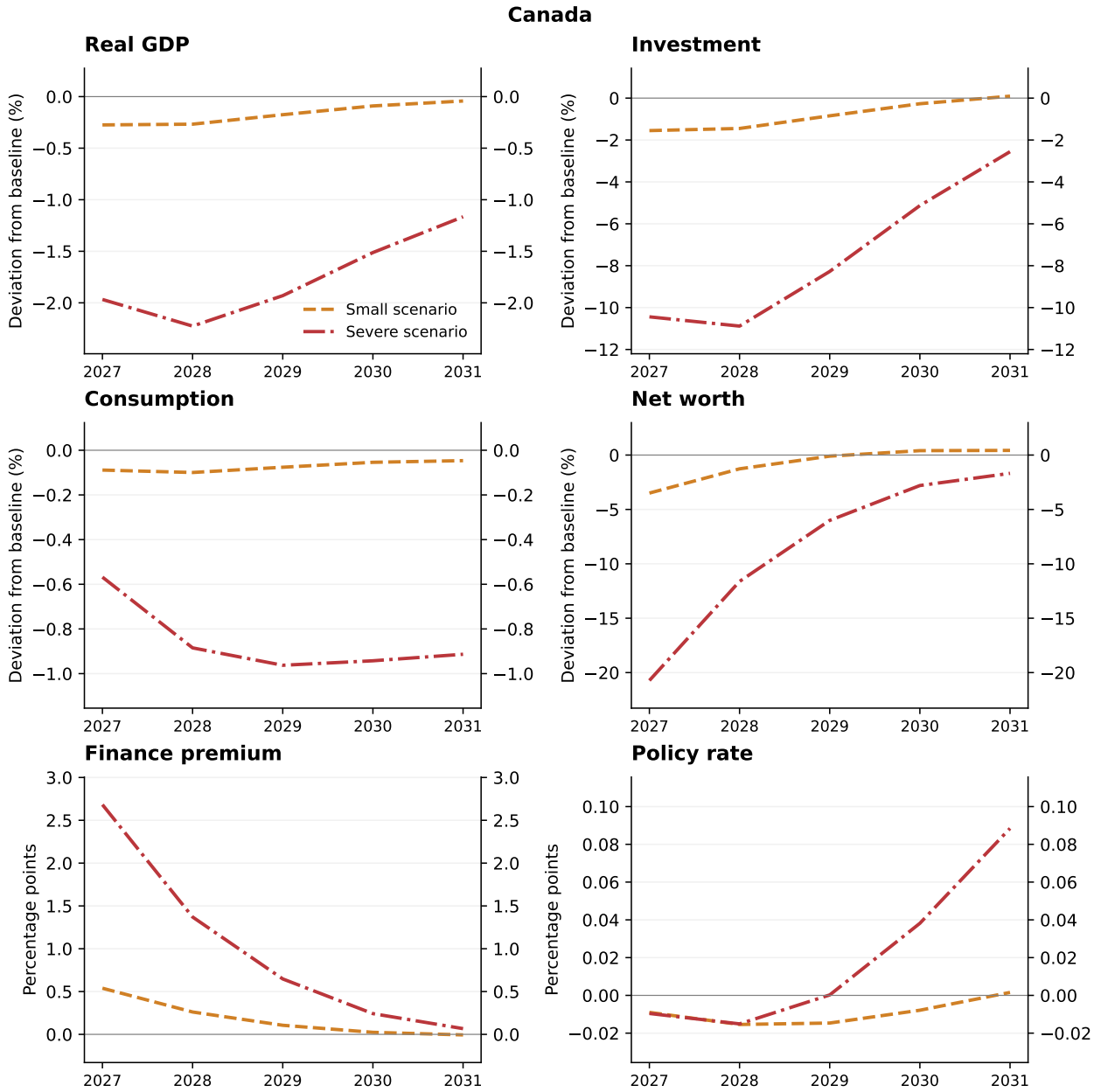
Table 3: Canada: small scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-0.27	-0.27	-0.18	-0.09	-0.04
Investment (%)	-1.55	-1.45	-0.85	-0.27	0.09
Consumption (%)	-0.09	-0.10	-0.08	-0.05	-0.05
Net worth (%)	-3.50	-1.27	-0.10	0.40	0.43
Capital price (%)	-1.61	-0.46	0.08	0.24	0.21
Finance premium (bp)	53.89	26.13	10.61	2.38	-0.63
Policy rate (bp)	-0.90	-1.54	-1.46	-0.79	0.16
Headline CPI inflation (pp)	-0.02	-0.02	-0.00	0.01	0.02

Table 4: Canada: severe scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-1.97	-2.23	-1.93	-1.51	-1.17
Investment (%)	-10.44	-10.88	-8.28	-5.13	-2.56
Consumption (%)	-0.57	-0.88	-0.96	-0.94	-0.91
Net worth (%)	-20.73	-11.62	-6.01	-2.80	-1.68
Capital price (%)	-8.89	-3.41	-0.46	0.77	0.95
Finance premium (bp)	268.27	137.07	64.75	24.22	6.68
Policy rate (bp)	-0.96	-1.51	0.02	3.82	8.84
Headline CPI inflation (pp)	-0.02	-0.02	0.02	0.07	0.10

Figure 4: Canada: dynamic paths



Notes: Common scales across regions. Orange dashed: small scenario. Red dash-dot: severe scenario. Left and right axes use identical units.

A.2 United States

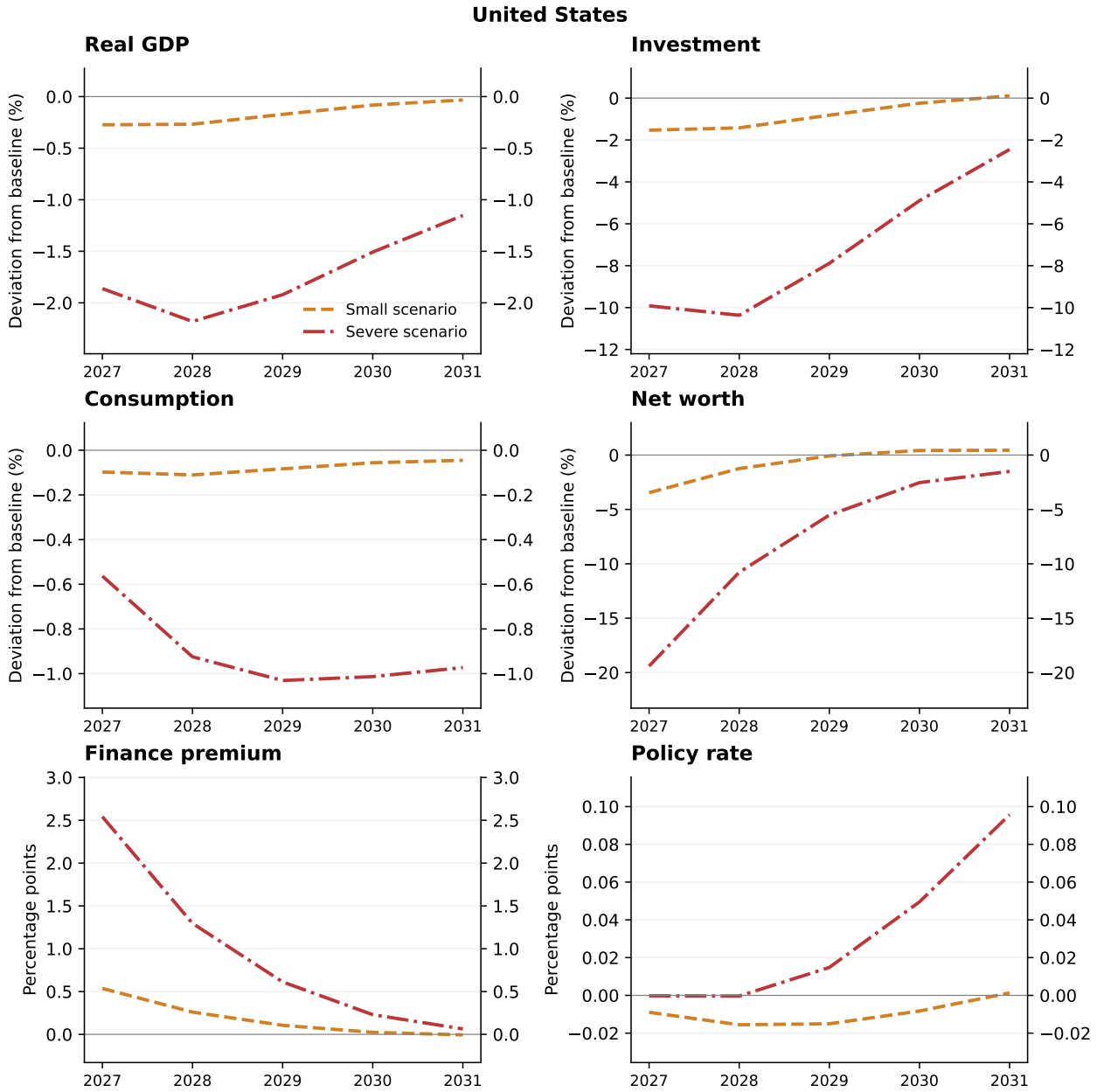
Table 5: United States: small scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-0.27	-0.27	-0.17	-0.08	-0.03
Investment (%)	-1.53	-1.42	-0.82	-0.24	0.11
Consumption (%)	-0.10	-0.11	-0.08	-0.06	-0.05
Net worth (%)	-3.46	-1.24	-0.08	0.42	0.44
Capital price (%)	-1.60	-0.45	0.08	0.25	0.21
Finance premium (bp)	53.64	26.00	10.58	2.39	-0.62
Policy rate (bp)	-0.90	-1.56	-1.50	-0.83	0.13
Headline CPI inflation (pp)	-0.02	-0.02	-0.00	0.01	0.02

Table 6: United States: severe scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-1.86	-2.18	-1.92	-1.51	-1.15
Investment (%)	-9.92	-10.37	-7.89	-4.90	-2.45
Consumption (%)	-0.56	-0.92	-1.03	-1.01	-0.97
Net worth (%)	-19.40	-10.78	-5.52	-2.53	-1.50
Capital price (%)	-8.47	-3.25	-0.44	0.74	0.93
Finance premium (bp)	254.16	129.63	61.26	23.00	6.36
Policy rate (bp)	-0.02	-0.03	1.48	4.95	9.56
Headline CPI inflation (pp)	0.00	-0.01	0.02	0.06	0.09

Figure 5: United States: dynamic paths



Notes: Common scales across regions. Orange dashed: small scenario. Red dash-dot: severe scenario. Left and right axes use identical units.

A.3 Euro area

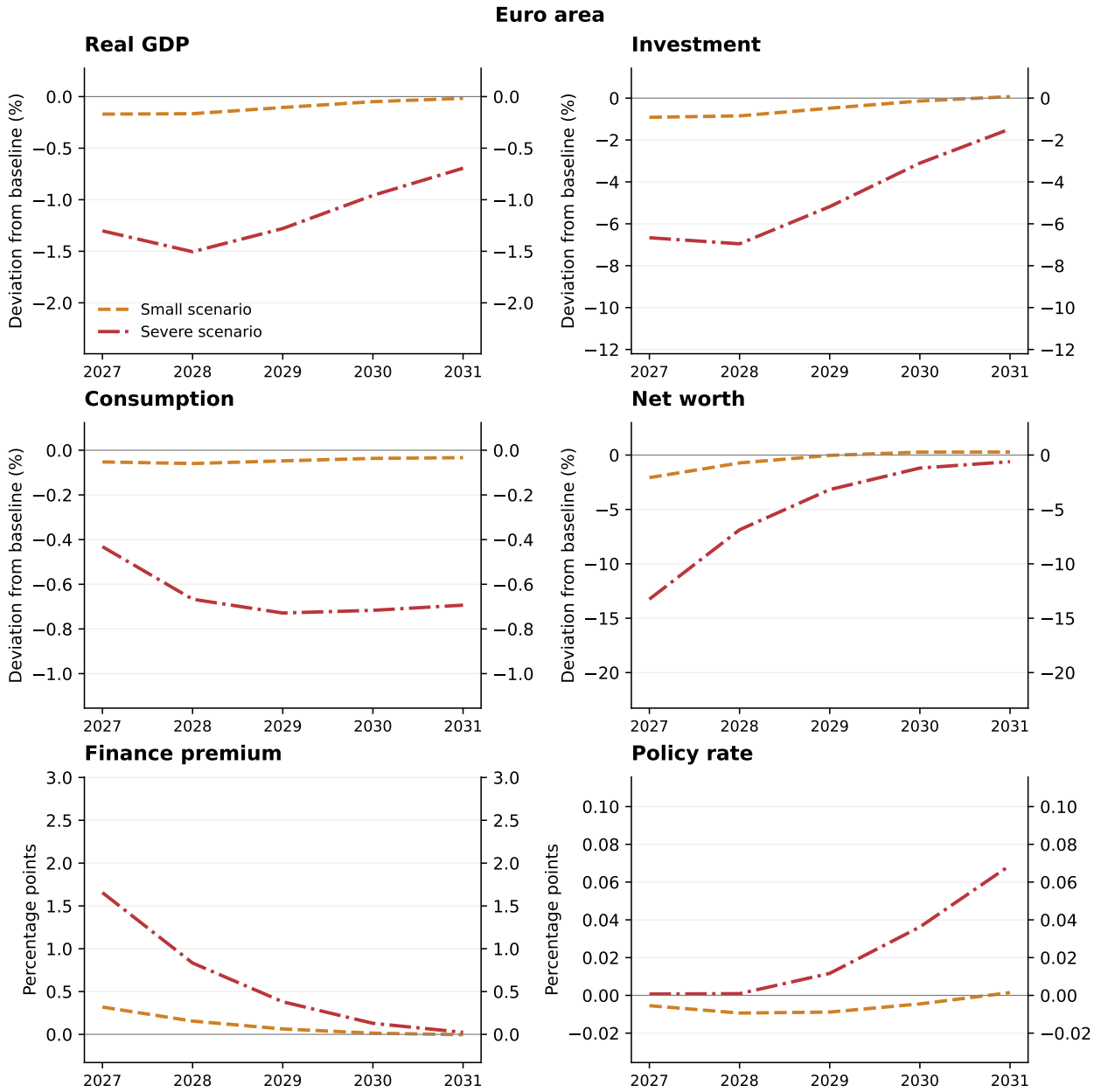
Table 7: Euro area: small scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-0.17	-0.17	-0.11	-0.05	-0.02
Investment (%)	-0.92	-0.85	-0.48	-0.14	0.07
Consumption (%)	-0.05	-0.06	-0.05	-0.04	-0.03
Net worth (%)	-2.08	-0.73	-0.03	0.27	0.28
Capital price (%)	-0.97	-0.27	0.05	0.15	0.13
Finance premium (bp)	31.89	15.54	6.32	1.40	-0.40
Policy rate (bp)	-0.55	-0.94	-0.88	-0.45	0.15
Headline CPI inflation (pp)	-0.01	-0.01	-0.00	0.01	0.01

Table 8: Euro area: severe scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-1.30	-1.50	-1.28	-0.96	-0.69
Investment (%)	-6.67	-6.96	-5.18	-3.10	-1.47
Consumption (%)	-0.43	-0.67	-0.73	-0.72	-0.69
Net worth (%)	-13.25	-6.87	-3.18	-1.20	-0.61
Capital price (%)	-5.93	-2.17	-0.21	0.58	0.68
Finance premium (bp)	165.54	83.35	38.07	12.91	2.36
Policy rate (bp)	0.07	0.09	1.16	3.62	6.89
Headline CPI inflation (pp)	0.00	-0.00	0.01	0.04	0.07

Figure 6: Euro area: dynamic paths



Notes: Common scales across regions. Orange dashed: small scenario. Red dash-dot: severe scenario. Left and right axes use identical units.

A.4 Japan

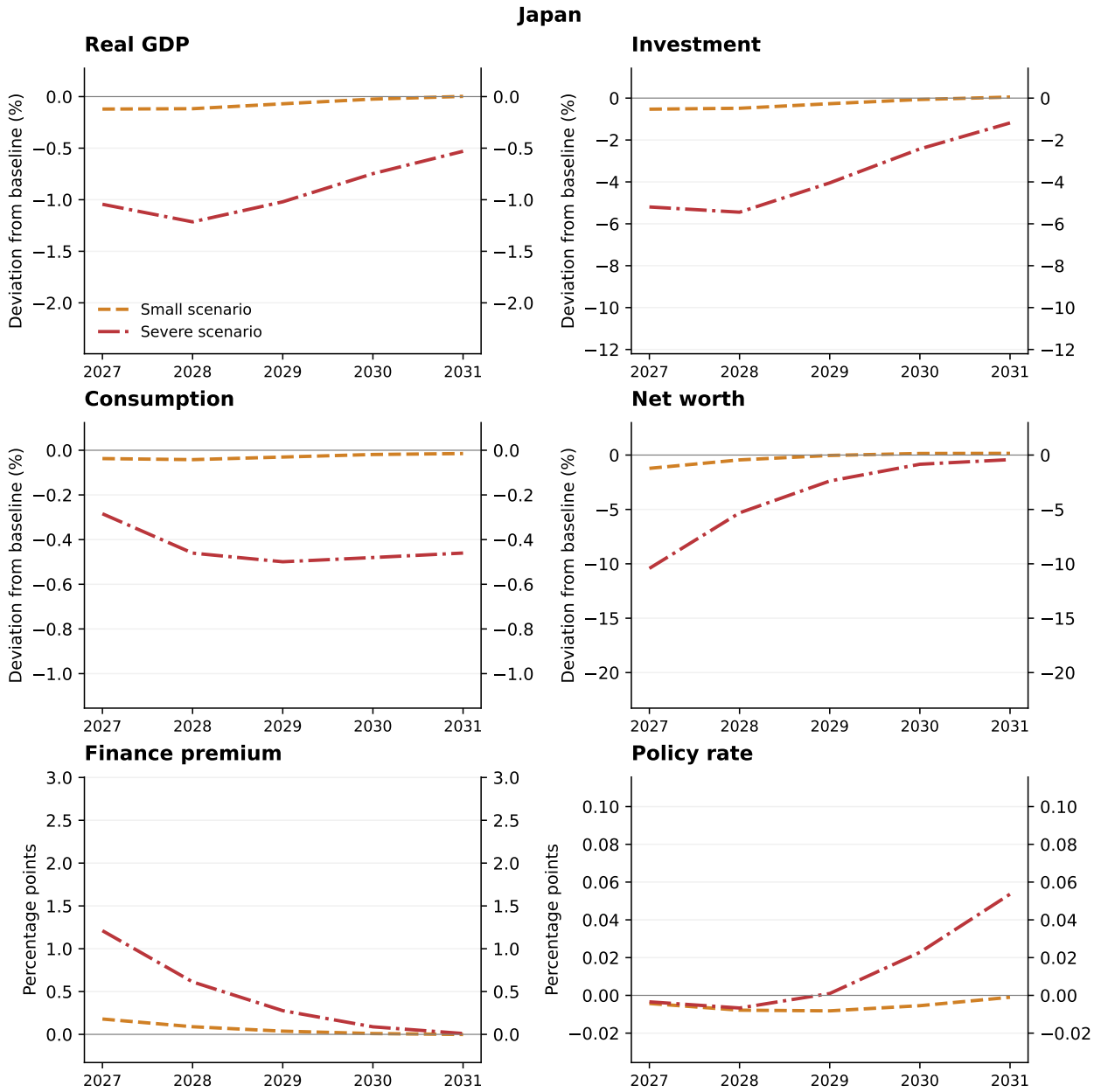
Table 9: Japan: small scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-0.12	-0.12	-0.07	-0.02	0.00
Investment (%)	-0.53	-0.49	-0.27	-0.07	0.05
Consumption (%)	-0.04	-0.04	-0.03	-0.02	-0.01
Net worth (%)	-1.22	-0.45	-0.04	0.14	0.15
Capital price (%)	-0.56	-0.15	0.04	0.10	0.08
Finance premium (bp)	17.92	8.92	3.74	0.93	-0.14
Policy rate (bp)	-0.43	-0.78	-0.82	-0.55	-0.10
Headline CPI inflation (pp)	-0.01	-0.01	-0.00	0.00	0.01

Table 10: Japan: severe scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-1.04	-1.21	-1.02	-0.75	-0.53
Investment (%)	-5.20	-5.45	-4.05	-2.43	-1.18
Consumption (%)	-0.28	-0.46	-0.50	-0.48	-0.46
Net worth (%)	-10.42	-5.31	-2.39	-0.85	-0.42
Capital price (%)	-4.68	-1.68	-0.13	0.48	0.54
Finance premium (bp)	121.09	61.25	27.67	8.82	1.00
Policy rate (bp)	-0.34	-0.67	0.10	2.28	5.36
Headline CPI inflation (pp)	-0.01	-0.01	0.01	0.04	0.06

Figure 7: Japan: dynamic paths



Notes: Common scales across regions. Orange dashed: small scenario. Red dash-dot: severe scenario. Left and right axes use identical units.

A.5 China

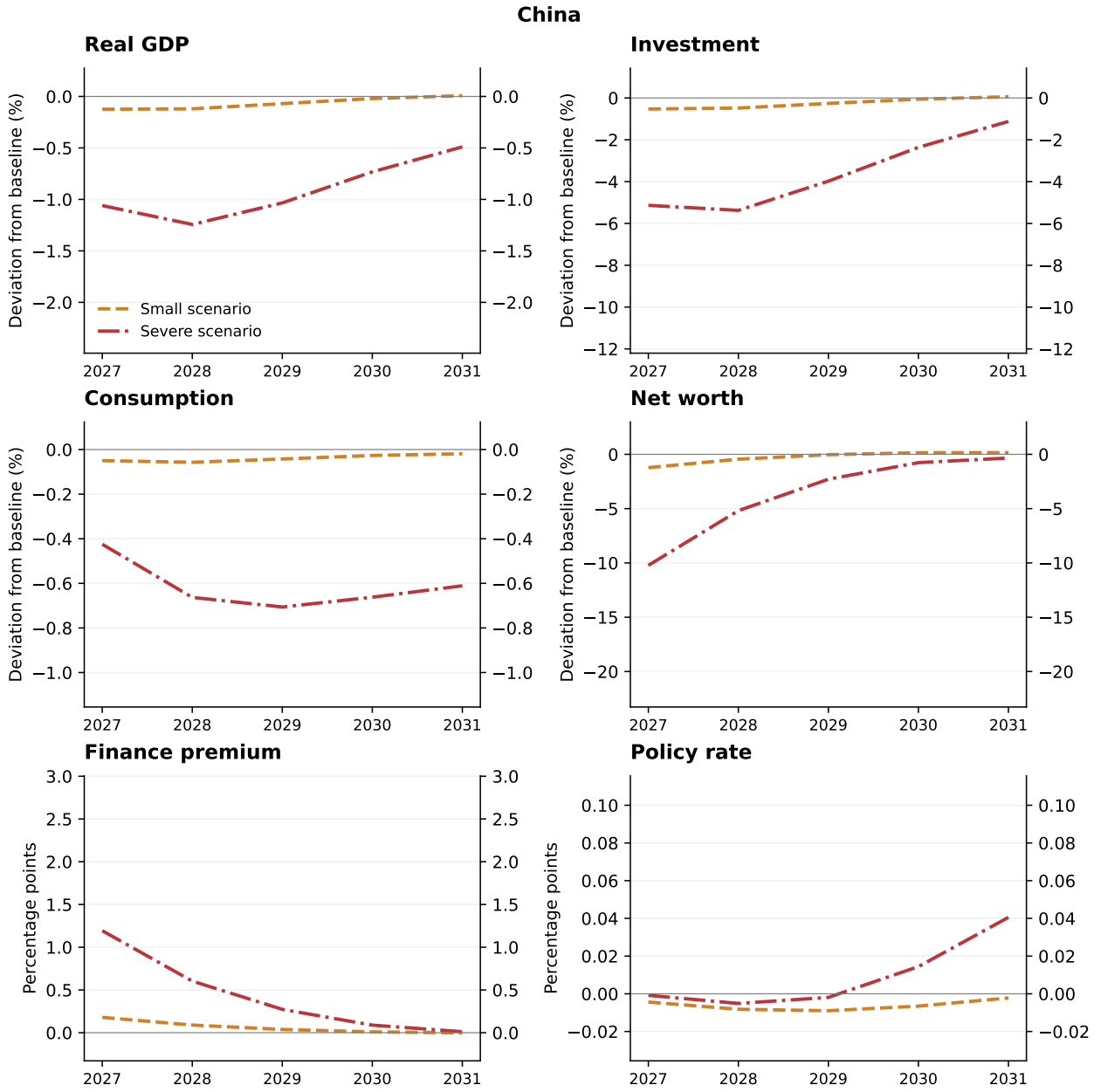
Table 11: China: small scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-0.12	-0.12	-0.07	-0.02	0.01
Investment (%)	-0.53	-0.48	-0.26	-0.06	0.06
Consumption (%)	-0.05	-0.06	-0.04	-0.03	-0.02
Net worth (%)	-1.23	-0.45	-0.04	0.15	0.16
Capital price (%)	-0.56	-0.15	0.04	0.10	0.09
Finance premium (bp)	17.95	8.95	3.78	0.96	-0.11
Policy rate (bp)	-0.44	-0.82	-0.90	-0.65	-0.22
Headline CPI inflation (pp)	-0.01	-0.01	-0.00	0.00	0.01

Table 12: China: severe scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-1.06	-1.24	-1.03	-0.73	-0.49
Investment (%)	-5.13	-5.38	-3.98	-2.36	-1.12
Consumption (%)	-0.42	-0.66	-0.71	-0.66	-0.61
Net worth (%)	-10.22	-5.19	-2.29	-0.77	-0.34
Capital price (%)	-4.63	-1.66	-0.10	0.53	0.61
Finance premium (bp)	119.30	60.34	27.34	8.85	1.18
Policy rate (bp)	-0.08	-0.51	-0.19	1.44	4.05
Headline CPI inflation (pp)	0.00	-0.01	-0.00	0.03	0.05

Figure 8: China: dynamic paths



Notes: Common scales across regions. Orange dashed: small scenario. Red dash-dot: severe scenario. Left and right axes use identical units.

A.6 Emerging market group

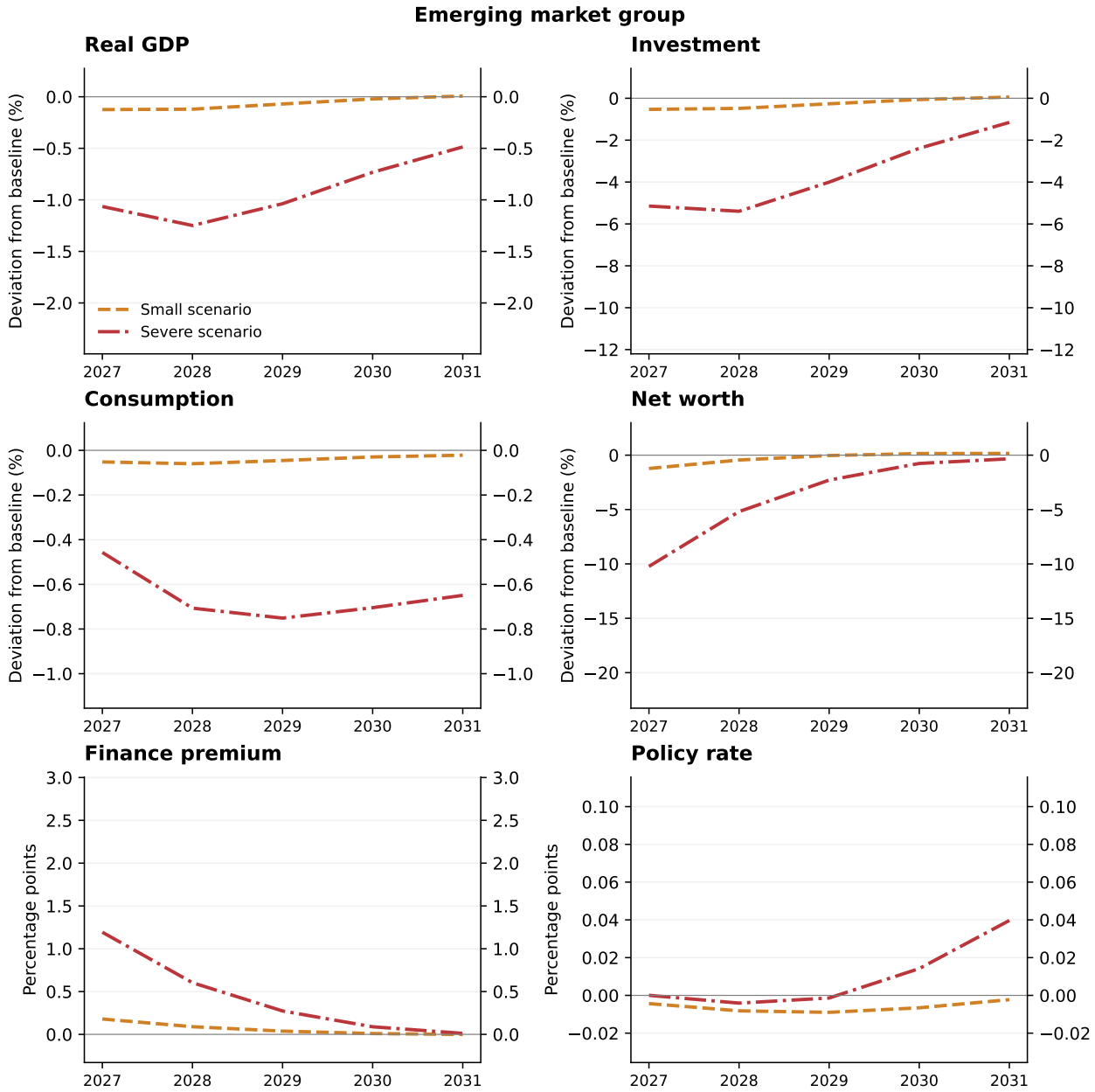
Table 13: Emerging market group: small scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-0.12	-0.12	-0.07	-0.02	0.01
Investment (%)	-0.53	-0.48	-0.26	-0.06	0.05
Consumption (%)	-0.05	-0.06	-0.05	-0.03	-0.02
Net worth (%)	-1.23	-0.45	-0.04	0.15	0.16
Capital price (%)	-0.56	-0.15	0.04	0.10	0.09
Finance premium (bp)	17.94	8.95	3.78	0.96	-0.11
Policy rate (bp)	-0.43	-0.82	-0.90	-0.66	-0.23
Headline CPI inflation (pp)	-0.01	-0.01	-0.00	0.00	0.01

Table 14: Emerging market group: severe scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-1.06	-1.25	-1.04	-0.73	-0.49
Investment (%)	-5.15	-5.40	-4.00	-2.39	-1.15
Consumption (%)	-0.46	-0.71	-0.75	-0.70	-0.65
Net worth (%)	-10.23	-5.19	-2.29	-0.76	-0.33
Capital price (%)	-4.63	-1.65	-0.09	0.55	0.63
Finance premium (bp)	119.32	60.35	27.35	8.85	1.19
Policy rate (bp)	0.00	-0.41	-0.14	1.42	3.97
Headline CPI inflation (pp)	0.00	-0.01	-0.00	0.03	0.05

Figure 9: Emerging market group: dynamic paths



Notes: Common scales across regions. Orange dashed: small scenario. Red dash-dot: severe scenario. Left and right axes use identical units.

A.7 Rest of world

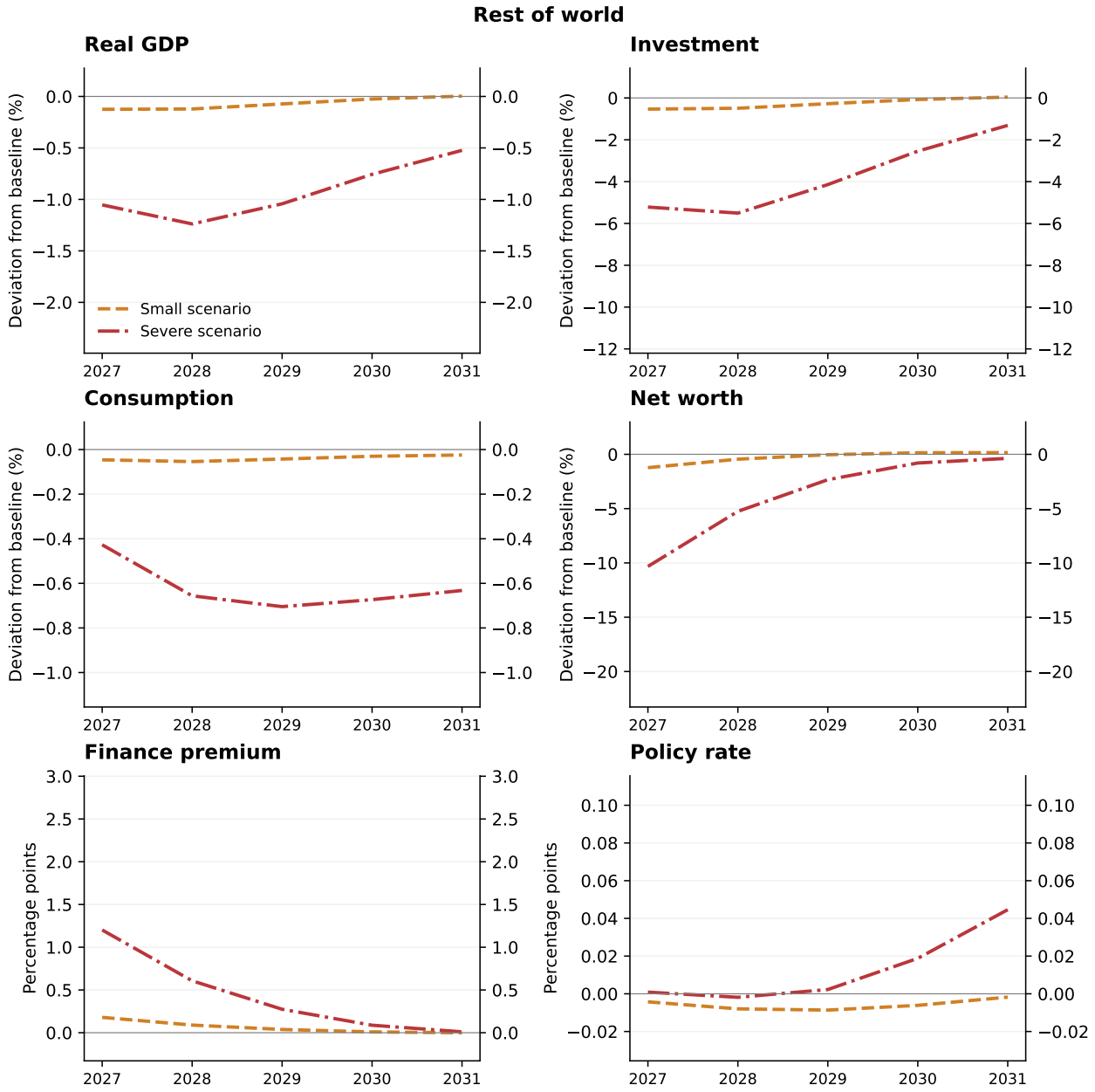
Table 15: Rest of world: small scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-0.12	-0.12	-0.07	-0.03	0.00
Investment (%)	-0.53	-0.49	-0.27	-0.07	0.04
Consumption (%)	-0.05	-0.05	-0.04	-0.03	-0.02
Net worth (%)	-1.23	-0.45	-0.04	0.14	0.16
Capital price (%)	-0.56	-0.15	0.04	0.10	0.09
Finance premium (bp)	17.95	8.95	3.77	0.95	-0.12
Policy rate (bp)	-0.43	-0.80	-0.86	-0.61	-0.18
Headline CPI inflation (pp)	-0.01	-0.01	-0.00	0.00	0.01

Table 16: Rest of world: severe scenario

Variable	2027	2028	2029	2030	2031
Real GDP (%)	-1.05	-1.24	-1.04	-0.76	-0.52
Investment (%)	-5.22	-5.51	-4.14	-2.54	-1.31
Consumption (%)	-0.43	-0.66	-0.70	-0.67	-0.63
Net worth (%)	-10.32	-5.25	-2.34	-0.80	-0.37
Capital price (%)	-4.65	-1.66	-0.09	0.55	0.64
Finance premium (bp)	120.17	60.74	27.43	8.76	1.04
Policy rate (bp)	0.09	-0.19	0.23	1.88	4.46
Headline CPI inflation (pp)	0.01	-0.01	0.00	0.03	0.05

Figure 10: Rest of world: dynamic paths



Notes: Common scales across regions. Orange dashed: small scenario. Red dash-dot: severe scenario. Left and right axes use identical units.

B. The financial contract and the operating loss

Entrepreneurs finance productive capital with their own net worth and borrowing. In simplified notation,

$$Q_t K_{t+1} = N_t + B_t, \qquad \lambda_t = \frac{Q_t K_{t+1}}{N_t}. \tag{2}$$

Here Q is the capital price, K capital, N entrepreneurial net worth, B debt and λ leverage. Lower net worth weakens the equity cushion supporting a given capital position. Financing conditions then depend on borrower financial health.

Project returns contain an idiosyncratic component with unit mean and lognormal dispersion σ. Default occurs below an endogenous threshold $\bar{\omega}$. The contract uses

$$z = \frac{\log \bar{\omega} + \sigma^2/2}{\sigma}, \quad F = \Phi(z), \quad G = \Phi(z - \sigma), \tag{3}$$

where Φ is the standard normal distribution function. With $\Gamma = G + \bar{\omega}(1 - F)$ and monitoring-cost parameter μ, a schematic lender break-even condition is

$$(\Gamma - \mu G) R^k Q K = R(QK - N). \tag{4}$$

Greater borrower risk changes expected losses and the contract. Investment and capital prices fall; lower valuations and earnings erode net worth and feed back into financing conditions. The executable equations include sector-specific timing, growth scaling and dividend conventions that are suppressed here.

Economic interpretation of the severe scenario's income shock

The additional shock is an exogenous loss of corporate output that also subtracts from entrepreneurial net worth. A simplified accumulation equation is

$$N_t = \mathcal{R}_t(N_{t-1}, Q_{t-1}K_t) - P_t D_t - P_t L_t, \tag{5}$$

where $\mathcal{R}_t$ summarizes returns after financing and monitoring costs, D_t is dividends and L_t is the output-loss term. The implemented loss enters the resource constraints as well as the balance sheet. It uses real resources rather than merely transferring income to another domestic agent.

Production disruption, spoilage or waste that creates an operating loss provides one possible interpretation. A decline in sales caused by weak demand would need a demand disturbance to represent that cause. A disappointment about future productivity would need an explicit productivity-news path. The present income shock does not independently represent either mechanism.

The operating loss is specified relative to sectoral average net worth. Its resource cost and the final GDP response differ because prices, production, expenditure and policy adjust jointly. Internal financial indicators are checked in the replication diagnostics.

C. Exact innovations and replication

Region	Small risk	Severe risk	Severe cost	Severe loss
Canada	0.03419181	0.06838362	0.10000000	0.03259849
United States	0.03419181	0.06838362	0.10000000	0.03259849
Euro area	0.02081583	0.04163167	0.10000000	0.02139276
Japan	0.01156811	0.02313622	0.10000000	0.01629925
China	0.01156811	0.02313622	0.10000000	0.01629925
Emerging market group	0.01156811	0.02313622	0.10000000	0.01629925
Rest of world	0.01156811	0.02313622	0.10000000	0.01629925

Each regional value applies to both corporate sectors. Risk innovations enter the ZIGGY processes, cost innovations enter the MU processes and operating-loss innovations enter the NWYSHK processes. Loss innovations are relative to sectoral average net worth, rather than percentages of GDP. All process persistence coefficients are three fifths. JSON files retain full precision.

The replication package includes the original seven-region equations and calibration, active nominal coefficients, regional mapping, exact innovations, nonlinear solver, solved states at both horizons, convergence diagnostics, all regional paths, the saved historical spread series, figure code and editable LaTeX. Run the solver once at each horizon, then run the paper builder and compile the LaTeX twice with XeLaTeX. The historical data are frozen at the saved vintage.