S&P Global
Ratings

Global Debt Leverage

Japan Corporates Can Tolerate Higher Rates And Inflation

Stress test of 1,772 Japanese nonfinancial corporates finds post-COVID revenue growth could offset the challenges of higher interest rates and persistent inflation

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This report does not constitute a rating action

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(Editor's note: In this report, fiscal years are Japanese, ending March 31 of the following year. For example, fiscal 2023 ends March 31, 2024.)

Key Takeaways

- We project revenue growth of 4.4% and debt growth of 1.4% in fiscal 2023 for our test sample of 1,772 Japanese nonfinancial corporations (mostly unrated).
- Revenue growth should cushion the impact of higher interest rates and persistent inflation for Japanese corporates.
- The utilities industry has the worst ratio of companies with negative cash flow among the sectors.

The era of interest rates that are "lower for longer" has ended globally. This is also likely to be the case in Japan.

S&P Global Ratings therefore stress-tested a sample of Japanese corporates for higher interest rates and higher producer price inflation. By global comparison, we found corporate Japan has higher resilience to inflationary conditions and rising Interest rates.

Japan's low-cost debt era. Japan's nonfinancial corporates have enjoyed an ultralow interest rate environment domestically for over two decades. Our research indicates the Japan corporate sample paid an average interest rate on gross debt of 1.2% in the first half of fiscal 2023 (full year ending March 31, 2024), compared with 3.2% for a global sample.

Two-fifths of total corporate debt sampled. We drew a sample of 1,772 Japanese corporates from S&P Global Market Intelligence's CapitalIQ database of corporate financial information. This sample of mostly unrated corporates had US$2 trillion in debt in the first half of fiscal 2023. This is equivalent to 44% of the total US$4.6 trillion of corporate debt in Japan, based on data, denominated in yen, from Japan's Ministry of Finance.

Putting companies to the test. We projected base-case revenue and debt growth, and cost pass-through rates by industry, and policy interest rates for fiscal 2023 and fiscal 2024. We then applied stress tests of higher interest rates and producer price inflation of 100 basis points (bps) each in our intermediate stress scenario and 300 bps each in our severe stress scenario.

Test Results: Cash Flow Negative Companies Could Rise Marginally

Table 1

Debt-weighted percentage of cash flow negative corporations in Japan sample

	Sample debt $ Tril.	Sample count	Average risk tier	Actual 2021	Base case 2022p	Base case 2023p	Intermediate stress, 2023p	Severe stress, 2023p
Japan, including Tepco	2.01	1,772	4.2	5.1%	5.4%	3.5%	3.7%	6.1%
Japan, excluding Tepco	1.97	1,771	4.1	3.2%	3.6%	3.5%	3.7%	4.2%

Average risk tier is shown as a numeric equivalent where 1.5 = "low," 3 = "moderately low," 4 = "moderately high," 5.5 = "high," 7 = "cash flow negative." This calculation is a rough ranking of credit risk that references an entity's debt-to-EBITDA and ratio of funds from operations to debt. Ratios are debt weighted. p--Projection. Tril.--Trillion. Tepco--Tokyo Electric Power Co. Holdings Inc. All years are fiscal, ending March 31 of the following year. Original data source: S&P Global Market Intelligence. Source: S&P Global Ratings.

Cash flow negative ratio rises marginally. Our base-case projection shows the debt-weighted percentage of cash flow negative corporates in the sample to be 3.5% by the end of fiscal 2023, down from 5.4% in fiscal 2022. If we exclude Tokyo Electric Power Co. Holdings Inc. (Tepco), the proportion is 3.6% (see table 1). In our base case, Tepco, one of the largest debtors in the sample, remains cash flow negative in fiscal 2022 but is cash flow positive in fiscal 2023. In our severe stress scenario, Tepco reverts to cash flow negative in fiscal 2023. This pushes up the cash flow negative portion of the sample to 6.1%. For a general picture of Japanese corporates, Tepco could be treated as a special case. Excluding Tepco, the cash flow negative portion of the sample would rise only marginally, to 4.2%, in our severe stress scenario for fiscal 2023, up from 3.6% in base-case fiscal 2022. We define cash flow negative corporates as those that log negative funds from operations (FFO).

Faring well by global comparison. Relative to the global sample of corporates we stress-tested in December 2022 (see "Global Debt Leverage: Cash Flow Negative Corporates Could Double In 2023," published Dec. 12, 2022), the Japan sample had a lower percentage of cash flow negative companies under stress. In the global sample, the projected ratio nearly doubled from 9% in fiscal 2022 to 16% in fiscal 2023 in the severe stress scenario. In that test, the severe scenario tested for spreads and input inflation 300 bps higher than in the base case (see table 2). In contrast, the cash flow negative ratio in the Japan sample rose only marginally in our current exercise, to 6.1% under stress from 5.4%. Explaining this difference in outcome is Japanese corporates' stronger projected revenue growth in fiscal 2023, compared to the global average (4.4% vs -0.1%), and more subdued debt growth (1.4% vs 2.8%). Stronger revenue growth for companies in the Japan sample helped cushion the impact of their debt growth.

Table 2

Comparison of Japan and global samples

					Cash flow negatives as a percentage of debt	
	Sample debt $ Tril.	Sample count	Revenue growth, 2023p	Debt growth, fiscal 2023p	Base case fiscal 2022p	Severe stress, fiscal 2023p
Japan (March 2023)	2.0	1,772	4.4%	1.4%	5.4%	6.1%
Global (December 2022)	4.2	20,000	-0.1%	2.8%	9.0%	16.0%

Ratios are debt weighted. p--Projection. Tril.--Trillion. Fiscal years end March 31 of the following year for Japan and track calendar years in our global sample. Original data source: S&P Global Market Intelligence. Source: S&P Global Ratings.

Test Results: Among Sampled Sectors, Utilities Is Most Vulnerable

Most sectors would see marginal deterioration. As in the overall sample, cash flow negative ratios for the 10 industrial sectors increased marginally, if at all, in our tests (see table 3). We note that the utilities sector remains the most vulnerable, with a cash flow negative ratio of 40.3%, dwarfing those of the other sectors. However, the ratio for utilities is unchanged in our severe stress scenario, compared with our fiscal 2022 base case. This is primarily because we expect electric utilities' revenues to grow 20% in fiscal 2023. Driving growth, in our view, will be the Japanese government's likely approval of tariff increases. The pricing formula of electric utilities after approval would reflect increased fuel costs following a time lag.

Table 3

Debt-weighted percentage of companies with negative cash flow for our Japan corporate sample by GICS sector

				Distribution of risk tiers as a percentage of debt, fiscal 2022p					Stress test shock: Cash flow negatives, fiscal 2023p	
	Sample debt	Sample count	Average risk tier	Low	Moderately low	Moderately high	High	Cash flow negatives	Intermediate	Severe
Japan, including Tepco	**$2 tril.**	**1,772**	**4.2**	**5.0%**	**13.8%**	**43.2%**	**32.5%**	**5.4%**	**3.7%**	**6.1%**
Communication services	$261 bil.	62	4.2	5.5%	24.8%	16.3%	53.2%	0.2%	0.0%	0.2%
Consumer discretionary	$472 bil.	398	4.5	2.5%	17.0%	20.9%	58.6%	1.1%	1.1%	1.2%
Consumer staples	$82 bil.	161	3.7	13.9%	8.9%	67.8%	8.8%	0.7%	0.7%	0.7%
Energy	$45 bil.	14	4.0	0.0%	0.5%	98.7%	0.8%	0.0%	0.0%	0.0%
Health care	$55 bil.	68	3.0	16.2%	3.3%	68.6%	8.2%	3.7%	4.4%	4.4%
Industrials	$513 bil.	550	3.9	5.7%	9.9%	64.7%	18.5%	1.2%	1.9%	3.0%
Information technology	$48 bil.	218	3.3	9.2%	58.8%	15.5%	11.7%	4.9%	4.9%	5.2%
Materials	$155 bil.	203	4.0	3.4%	7.4%	72.0%	17.2%	0.1%	0.2%	0.7%
Real estate	$132 bil.	75	4.7	0.0%	9.2%	14.2%	75.7%	0.9%	1.4%	2.0%
Utilities	$224 bil.	23	5.0	4.9%	6.4%	48.3%	0.0%	40.3%	22.9%	40.3%

GICS = Global Industry Classification Standard (GICS®) was developed by S&P Dow Jones Indices. Average risk tier is shown as a numeric equivalent where 1.5 = "low," 3 = "moderately low," 4 = "moderately high," 5.5 = "high," 7 = "cash flow negative." This calculation is a rough ranking of credit risk that references an entity's debt to EBITDA and ratio of funds from operations to debt. Ratios are debt weighted. The industrials sector includes capital goods, commercial and professional services, and transportation entities. p--Projection. bil.--Billion. tril.--Trillion. Fiscal years end March 31 of the following year. Source: S&P Global Market Intelligence, S&P Global Ratings.

Stress Test Assumptions

Our stress test applies the following assumptions (see Appendix for details):

In our stress test, global inflation persists in fiscal 2023...

1. **Cost inflation shock.** Our base case is for producer price index (PPI) inflation to slow in fiscal 2023. In our stress test, however, some inflation persists in fiscal 2023 as raw material costs remain stubbornly high and supply chain problems return. Compounding this imported inflation could be a weaker yen, hiking input prices and prolonging cost strains. Subsequently, we applied stress to corporates' cost of goods sold (COGS).
   - **Intermediate stress:** We applied 100 bps of additional inflation over the fiscal 2023 base case.
   - **Severe stress:** We applied 300 bps of additional inflation over the fiscal 2023 base case (see chart 1).
   - **Corporates' ability to pass higher costs to customers:** We use our analytical teams' assumptions on Japanese corporates' sector-by-sector cost pass-through rates (see table 4).

Table 4

Most consumer-facing industries have difficulty passing on costs

Relative ability to pass on added costs to customers	Industry
Very high	Transportation infrastructure
High	Health care services; media and entertainment; pharmaceuticals; telecommunications and cable
Intermediate	Aerospace and defense; building materials; engineering and construction; homebuilders and developers; leisure and sports; metals and mining; oil and gas; real estate investment trusts; technology hardware and semiconductors
Moderate	Auto suppliers; business and consumer services; capital goods; commodity chemicals; consumer durables; containers and packaging; forest and paper products; regulated utilities; specialty chemicals; transportation cyclical
Low	Agribusiness and commodity foods; auto OEM; retail and restaurants; technology software and services

Industries listed here referred to those covered by S&P Global Ratings and may not be the same as those in GICS®. OEM--Original equipment manufacturer. Source: S&P Global Ratings.

2. **Base interest rates.** We factor a 20 bps rise in central bank policy rates in fiscal 2023 compared with fiscal 2022, as estimated by our economists.
3. **Interest spread shock.** The interest spread shock reflects our expectation that investors could demand higher returns to compensate for higher-than-expected inflation in fiscal 2023. We apply the following interest spreads:
   - 100 bps in fiscal 2023 for the intermediate stress scenario;
   - 300 bps in fiscal 2023 for the severe scenario (see chart 2).

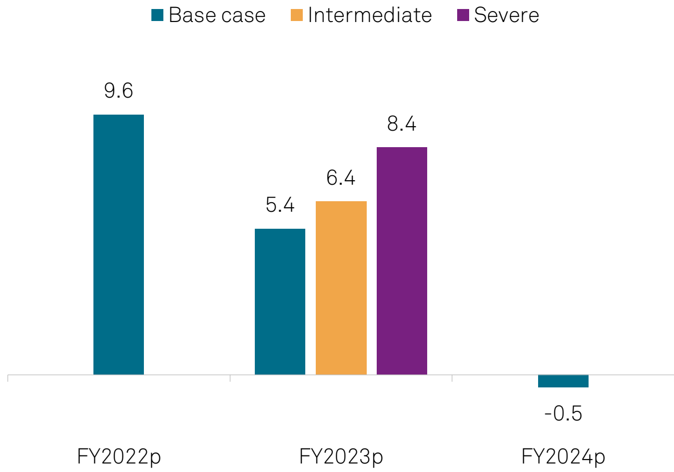
   The spread shock is applied only on floating rate, maturing debt (which presumably will be refinanced), and new borrowing.

...and investors could demand higher returns.

Chart 1

Stress test: Cost inflation remains sticky in fiscal 2023

Producer price index change from prior year (%)

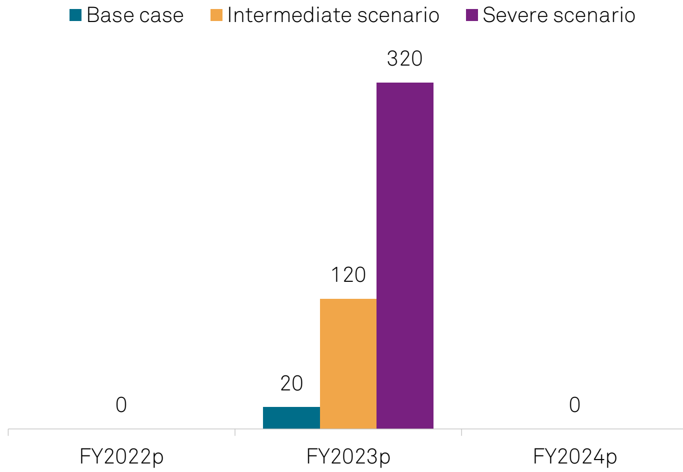


Projections are only for this stress test, not for rating assessments. p--Projected. Fiscal years end March 31 of the following year. Source: S&P Global Ratings.

Chart 2

Stress Test: Interest rates hiked in fiscal 2023

Increment over fiscal 2021 levels (bps)



Projections are only for this stress test, not for rating assessments. p--Projected. Fiscal years end March 31 of the following year. Source: S&P Global Ratings.

Sampling and risk categorization. We drew a sample of financials for 1,772 Japanese nonfinancial corporates (97% unrated, 100% listed, total debt: $2 trillion) from S&P Global Market Intelligence's CapitalIQ database. This is equivalent to 44% of total Japanese nonfinancial corporate debt, based on yen-denominated figures from Japan's Ministry of Finance.

Five risk categories. For each corporate, we calculate ratios of debt to EBITDA and funds from operations (FFO) to debt. After adding in country and industry sector risks, we assign the corporate to a risk category: low, moderately low, moderately high, high, and cash flow negative (when FFO is negative). (FFO equals EBITDA minus net interest and tax expenses. Adjusted debt equals gross debt minus 75% of cash equivalents. See Appendix for details).

Not all cash flow negative entities will default. Naturally, not all cash flow negative corporates come to hold nonperforming loans (NPLs) or to default. Defaults are tied to the corporate's liquidity, which in turn is driven by the duration of losses, cash reserves, the ability to convert assets into cash, debt payments coming due, and willingness of financial and trade creditors to patiently wait for their money or a corporate turnaround.

Under Stress, Corporate Earnings Could Decline By Mid-Single Digits

Our analytical teams separately conducted a stress test on Japanese corporates (see "Japan's Credit Risks Could Rise With Costlier Financing If Growth Falters", published Feb. 23, 2023). Assuming all other conditions remain the same, a 1 percentage point rise in business borrowing rates could reduce profits of nonfinancial businesses by about 8%.

When we replicate the analytical team's study on our test sample of 1,772 nonfinancial corporates, by applying a 1 percentage point increase in interest rates on borrowings of each corporate, we arrive at similar findings whereby corporate earnings (as measured by net income) in our sample could decline almost 7%.

Related Research

- Credit Conditions Asia-Pacific Q2 2023: Still Steady, Banking Turmoil Risk Is Moderate Here, March 28, 2023
- Economic Research: Economic Outlook Asia-Pacific Q2 2023: China Rebound Supports Growth, March 27, 2023
- Japan's Credit Risks Could Rise With Costlier Financing If Growth Falters, Feb. 23, 2023
- Japan Banking Outlook 2023: The Impact Of Raising Interest Rates, Jan. 17, 2023
- Global Debt Leverage: Cash Flow Negative Corporates Could Double In 2023, Dec. 12, 2022
- Global Credit Outlook 2023: No Easy Way Out, Dec. 1, 2022
- Global Debt Leverage: How Heavy Is The World's Debt Burden? Nov. 21, 2022
- Global Debt Leverage: If Stagflation Strikes, Still-Recovering Corporate Sectors Hit Hardest, July 12, 2022
- Global Debt Leverage: If Stagflation Strikes, China Corporates Are Most Vulnerable, July 12, 2022
- Global Debt Leverage: If Stagflation Strikes, Loss-Making Corporates Will Double Globally, July 12, 2022
- Global Debt Leverage: How A 300bp Rise In Inflation And Interest Rates Could Hit Borrowers, Dec. 7, 2021
- Global Debt Leverage: Spreads, Costs Shocks May Double Rate Of Loss-Making, June 22, 2021

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Appendix: Data And Approach

This appendix discusses the assumptions, data sources, and approach adopted in the article.

Corporate financial data source and sample

We drew our Japan sample of nonfinancial corporate financial data from S&P Global Market Intelligence's Capital IQ database. Financials are for first fiscal half year 2023.

The sample comprises 1,772 corporates, of which 97% are unrated and 100% are listed. The sample total debt of US$2 trillion is equivalent to 44% of Japanese corporate debt as reported by Japan's Ministry of Finance (in yen).

Caveats

The data have a statistical bias toward nonfinancial corporates that had reported their latest financials at the date of sample extraction. Consequently, some industry sectors may be over- or underrepresented, on a debt-weighted basis, in the sample compared with the actual population.

As this exercise is in US$ equivalent, it does not account for foreign exchange rate changes, which may benefit entities whose debt is largely in domestic currency.

Parent companies and their subsidiaries are treated separately in this exercise.

Sample industry coverage

The sample contains 57 industry sectors: aerospace and defense; air freight and logistics; airlines; aluminum; auto components; automobiles; building products; commercial and professional services; commodity chemicals; construction and engineering; construction materials; consumer electronics; distributors; diversified chemicals; diversified consumer services; diversified metals and mining; diversified REITs; electric utilities; electrical equipment; fertilizers and agricultural chemicals; food and staples retailing; food, beverage and tobacco; gas utilities, gold; health care equipment and services; homebuilders; hotels, restaurants and leisure; household and personal products; household durables (ex-consumer electronics); independent power and renewable electricity producers; industrial conglomerates; industrial gases; internet and direct marketing retail; leisure products; machinery; marine; media and entertainment; metal and glass containers; multiline retail; oil and gas equipment and services; oil and gas refining and marketing; oil and gas storage and transportation; paper and forest products; paper packaging; pharmaceuticals, biotechnology, and life sciences; precious metals and minerals; road and rail; semiconductors and semiconductor equipment; software and services; specialty chemicals; specialty retail; steel; technology hardware and equipment; telecommunication services; textiles, apparel and luxury goods; trading companies and distributors; transportation infrastructure.

The construction and engineering sector includes commercial construction and engineering, construction support services, heavy construction, prefabricated buildings and components, and specialty contract work subsectors.

Growth assumptions

Debt growth projections

We applied Japan corporate debt growth rates estimated by our analytical teams for fiscal 2022 to fiscal 2024 by sector.

Revenue growth projections

We applied Japan corporate revenue growth rates estimated by our analytical teams for fiscal 2022 to fiscal 2024 by sector.

Notional credit risk tiers

For this exercise, we determined notional credit risk tiers for each corporate in the sample. In this respect, our evaluation of the country, industry, and financial risks of the corporate sample is partially, but incompletely, borrowed from our corporate ratings methodology (see "*Criteria/ Corporates/ General/ Corporate Methodology*," published Nov. 19, 2013). It is important to note that information limitations do not permit full application of such methodology.

We categorized the corporates into five notional credit risk tiers--"low indebtedness," "moderately low indebtedness," "moderately high indebtedness," "high indebtedness," and "cash flow negatives" as a proxy for credit risk.

The distribution of notional credit risk tiers at the aggregate level and by sector presented in this article are all debt weighted.

Key ratios and thresholds

In this exercise, we assess financial risk based on the following ratios: debt to EBITDA and FFO to debt.

- EBITDA is earnings before interest, tax and depreciation and amortization expenses.

- FFO is funds from operations, which is calculated by deducting net interest expense and tax expense from EBITDA.
- Debt here is adjusted debt, for which we deduct 75% of cash equivalents from gross debt.

All sectors except for real estate and utilities

Tier	FFO to debt (%)	Debt to EBITDA (x)
Low indebtedness	Greater than 45	Less than 2
Moderately low indebtedness	30-45	2-3
Moderately high indebtedness	20-30	3-4
High indebtedness	Less than 20	Greater than 4

Real estate

Tier	FFO to debt (%)	Debt to EBITDA (x)
Low indebtedness	Greater than 15	Less than 4.5
Moderately low indebtedness	> 9-15	> 4.5-7.5
Moderately high indebtedness	> 7-9	> 7.5-9.5
High indebtedness	Less than 7	Greater than 9.5

Utilities

Tier	FFO to debt (%)	Debt to EBITDA (x)
Low indebtedness	Greater than 23	Less than 3
Moderately low indebtedness	13-23	3-4
Moderately high indebtedness	9-13	4-5
High indebtedness	Less than 9	Greater than 5

Stress scenarios

We apply rises in input cost-inflation and interest rates (on floating rate, refinancing, and new debt) to the sample financials in fiscal 2023 only.

Our framework attempts to test the extent of the generalized presumption that input cost inflation and higher interest yields are detrimental to corporate credit quality. Essentially, this study considers the effects of such shocks on the financial risk profiles of corporates, taking account of their presumed debt-maturity profiles.

Input inflation shock

We use PPI as a proxy for input cost. Our intermediate stress is a 100 bps increase above base case in Japan's PPI inflation in fiscal 2023; for severe stress we use 300 bps.

We applied our analytical teams' assumptions on sector-by-sector Japanese input cost pass-through rates to arrive at net inflation.

Interest rate shock

Our severe interest rate stress in fiscal 2023 entails a 300-bps upward shift in the interest spread curve on top of the base case. For the intermediate stress, our interest spread shock entails a 100-bps increment.

The shock is applied on floating rate and maturing debt. We assume the additional risk premium investors demand for a given credit risk tier is the same regardless of industry sector or currency of debt.