

Global Debt Leverage: Spreads, Costs Shocks May Double Rate Of Loss-Making

June 22, 2021

(Authors' note: We emphasize that the sample of corporates covered in this article is not our rated pool. Rather we are stress-testing a broader and largely unrated sample to assess how global corporates would fare in higher interest spreads and cost-inflation scenarios.)

Key Takeaways

- **Inflation spike and interest rate shock could double loss-making corporates.** Our stress test of more than 10,000 global corporates (equivalent to about 31% of estimated global corporate debt) indicates that a twin shock of 1970s-style cost inflation and GFC-level spreads could almost double potential defaulters, to 12%, by 2023. The share of "highly indebted" companies could reach almost 40%.
- **But for most, their debt-maturity profiles cushion them against short-term liquidity risks.** Corporates' pushing out of debt maturities in recent years has cushioned them against interest-cost rises—at least for the next few years. Over time, such interest rate rises would increasingly weigh on debt sustainability as more debt comes to maturity.
- **Cost inflation is more worrying for most.** Given the uneven recovery of sectors, corporates may not be able to pass on all input-cost increases to customers. With a substantial portion of cost-of-goods-sold affected, the impact of even moderate inflation can exceed the effect of even our "high" interest scenario.

Chart 1

Loss-Making Corporates Could Almost Double In Our Stress Scenario

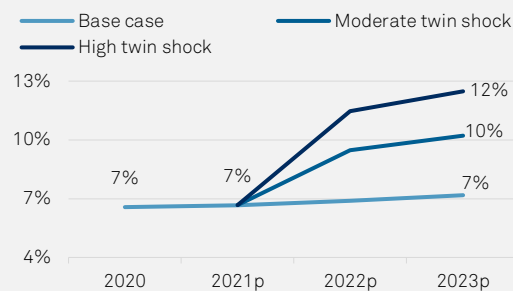


Chart 2

Debt Maturity Distribution Helps Cushion Interest Spread Shock

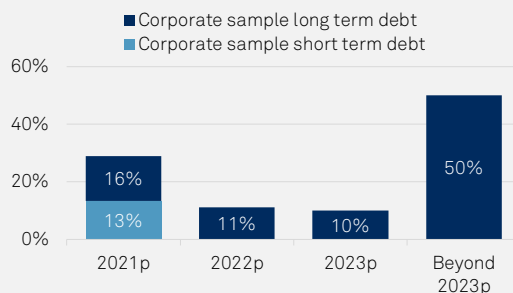
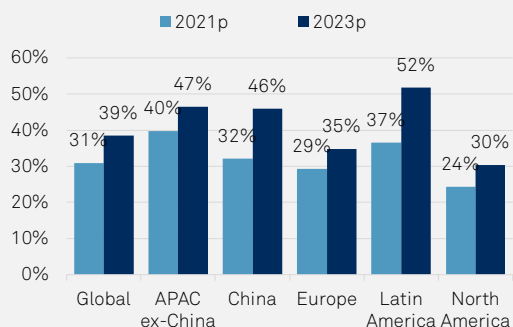


Chart 3

'High' Twin Shocks Would Make More Firms 'Highly Indebted' (Debt-Weighted)



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Global Debt Leverage: Spreads, Costs Shocks May Double Rate Of Loss-Making

A tale of two cohorts. As governments spend trillions to bolster weakened economies, and with supply-chain bottlenecks still prevalent, the post-COVID world presents two risks: rising inflation and higher interest spreads. Today's conditions have their roots in the 2008-2009 financial crisis. The event ushered in a prolonged era of low interest rates and yield-hungry investors, encouraging firms to ramp up debt. The pandemic compounded this situation. Companies borrowed to offset cashflow shortfalls. In the event firms need to pay more for their inputs and debt costs escalate, S&P Global Ratings believes more corporates will incur losses and that default rates will spike.

To understand the effects of such strains, we conducted a stress test involving 10,008 global companies. This reveals that firms' ability to push out debt maturities has cushioned them against an increase in financing costs--at least for the next few years. However, cost inflation brings rising downside risk. This is especially true given the uneven recovery playing out among sectors, which can make it difficult to pass on all input-price increases to customers. For the lowest-quality borrowers with immediate refinancing needs, a jump in interest spreads may be just as damaging as cost inflation.

About 83% of the global nonfinancial firms in our sample are unrated. We drew our sample from the S&P Global Market Intelligence's Capital IQ database. The sample's total debt of US\$26.3 trillion is equivalent to about 31% of estimated global corporate debt at end-2020.

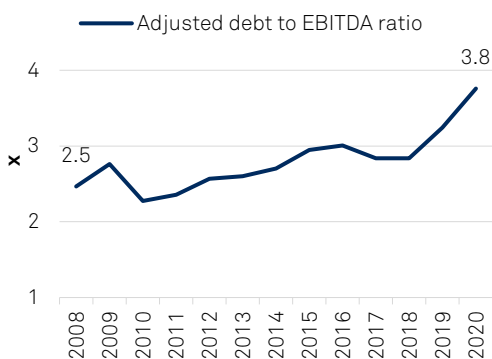
Our twin-stress scenario projects the effect of cost inflation levels similar to that of the 1970s and an interest spread shock similar to that of the global financial crisis. The scenario suggests the debt-weighted ratio of what we define as highly indebted borrowers would rise close to 40% by 2023. Meanwhile the debt-weighted ratio of loss-makers could almost double, to 12%, under such a scenario.

First, a clarification of terms. We define "highly indebted" as a ratio of debt to EBITDA of more than four times, or a ratio of funds from operations (FFO) to debt of less than 20%. "Loss-makers" are just that--entities that are losing money, either on an EBITDA or an FFO basis. More significantly, for our analytical purposes, we view the entities as having a high potential for default, and as a proxy measure for credit strains within the corporate universe.

Lower for longer no more? Over the past decade, corporates globally have taken advantage of low interest rates and low inflation to increase debt to EBITDA ratios (see chart 4). While such leverage did immediately ease after the 2008-2009 financial crisis, as one might expect, corporate indebtedness reverted to its rising trend in the many years that followed. Earnings growth has generally been below that of debt gains (see chart 5). Indeed, we highlighted this trend in 2015 (see "[Global Corporate Credit: Twin Debt Booms Pose Risks As Companies Seek US\\$57 Trillion Through 2019](#)," published July 16, 2015). A reversal of the inflation or interest rate trends could pose significant challenges for increasingly leveraged corporates. Inflation expectations could drive up interest rates--either through central bank policy action or through investors seeking higher spreads.

Chart 4

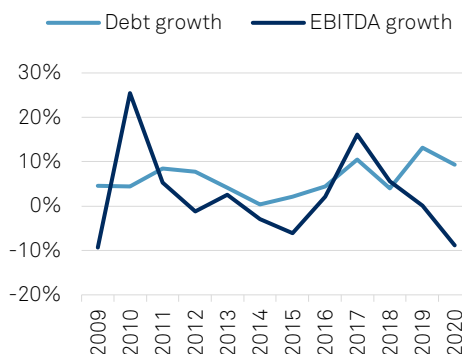
Global Corporate Debt Load Rising Since 2008...



Adjusted debt--gross debt less 75% of cash. Sample source: S&P Global Market Intelligence.

Chart 5

...While Earnings Growth Has Fallen Behind



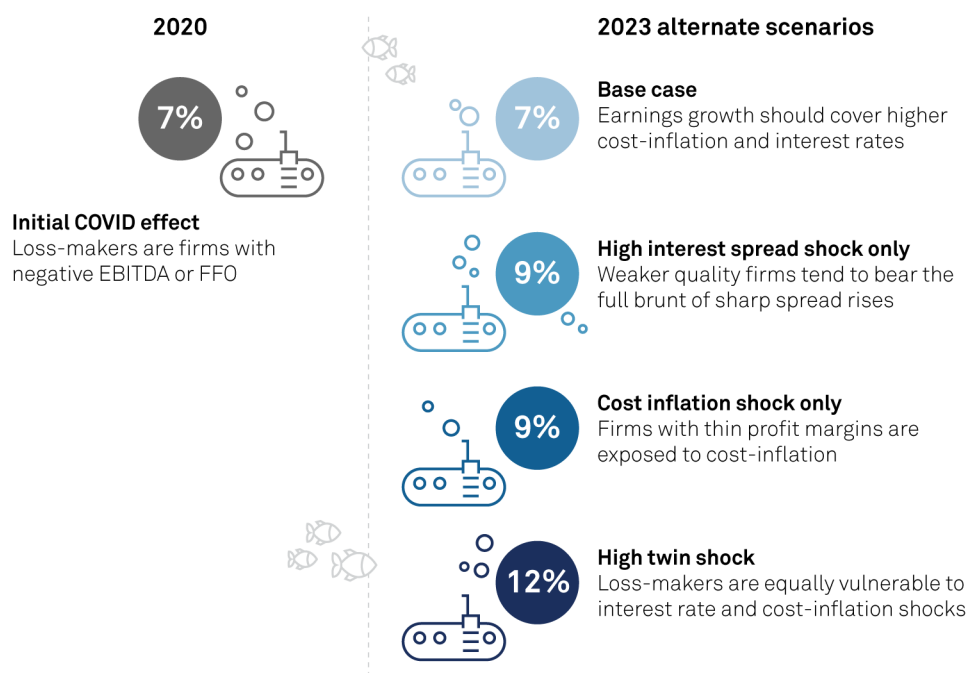
Sample source: S&P Global Market Intelligence.

Our base case is no crisis. Our base-case is that a near-term debt crisis is unlikely given the current economic recovery, vaccine rollouts, favorable financing conditions, recovering demand, and a moderation in borrowing growth. That said, inflation and debt repricing are among our top global credit risks (see "[Global Credit Conditions Q2 2021: The Risks Of An Uneven Recovery](#)," published March 31, 2021). We also discussed cost inflation in "[U.S. Corporate Cost Pressures May Hit Profit Margins In The Near Term](#)," April 27, 2021, and leverage in "[Global Debt Leverage: Near-Term Crisis Unlikely, Even As More Defaults Loom](#)," March 10, 2021. Our sovereign ratings team also conducted an interest-stress analysis of the rated sovereign portfolio (see "[Take A Hike: Which Sovereigns Are Best And Worst Placed To Handle A Rise In Interest Rates](#)," May 24, 2021).

Loss-making corporates. Our survey indicates that the pandemic has raised the percentage of loss-making entities to about 7%. Shocking this group with interest spreads similar to those that prevailed during the 2008-2009 financial crisis, and input cost inflation similar to those that seen in the 1970s, raises the ratio of loss-makers by almost double, to 12% by 2023 (see chart 6).

Chart 6

Cost Inflation And Spread Shock Could Almost Double Loss-Making Corporates



FFO--Funds from operations (EBITDA less net interest expense less tax).
 Source: S&P Global Ratings.
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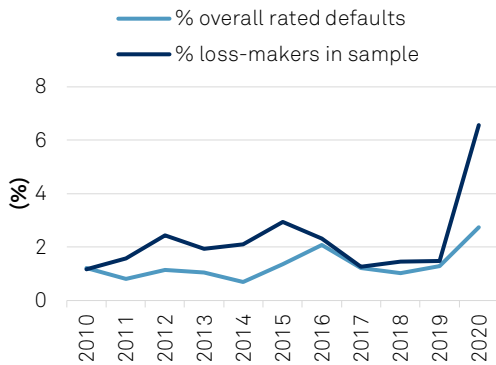
Loss-makers and defaults. There may be some relationship between default rates among our rated portfolio and the loss-maker ratio of the corporate sample (see charts 7 and 8). This is an apples-to-oranges comparison as the default rates are from the rated portfolio, whereas the sample is largely unrated. However, it suggests that our measure of loss-makers is an indication of an entity's possibility of default.

Pushing out of debt maturities cushions companies against rising spreads. Our examination of the sample shows that borrowers have generally pushed out their debt maturities, reducing the effects of rising interest costs. When we applied a "high" stress of additional interest spreads of roughly 200 basis points (bps) to 300 bps for the strongest end of the credit spectrum, and roughly 1,000 bps-1,400 bps for the weakest end for 2022-2023 (see table 2), the ratio of entities we deem highly indebted only rose to 32% from 31% in the base case for 2023 (see chart 9). Had the high interest spread stress been applied across all debt whether due to mature or not, the ratio would have risen to 35%, which is closer to the high cost inflation outcome of 37% (see table 6). We define "high cost inflation" as producer price index (PPI) changes similar to those of the 1970s.

Global Debt Leverage: Spreads, Costs Shocks May Double Rate Of Loss-Making

Chart 7

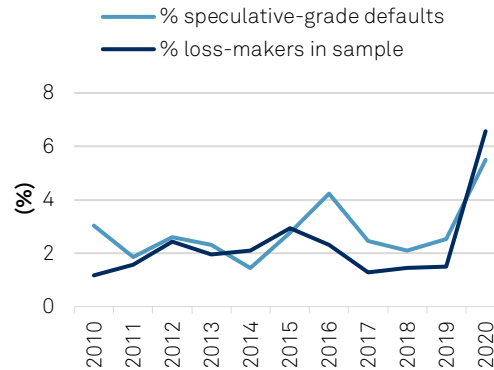
Some Directional Similarity In Overall Rated Defaults And Sample Ratios For Loss-Makers...



Sample source: S&P Global Market Intelligence.

Chart 8

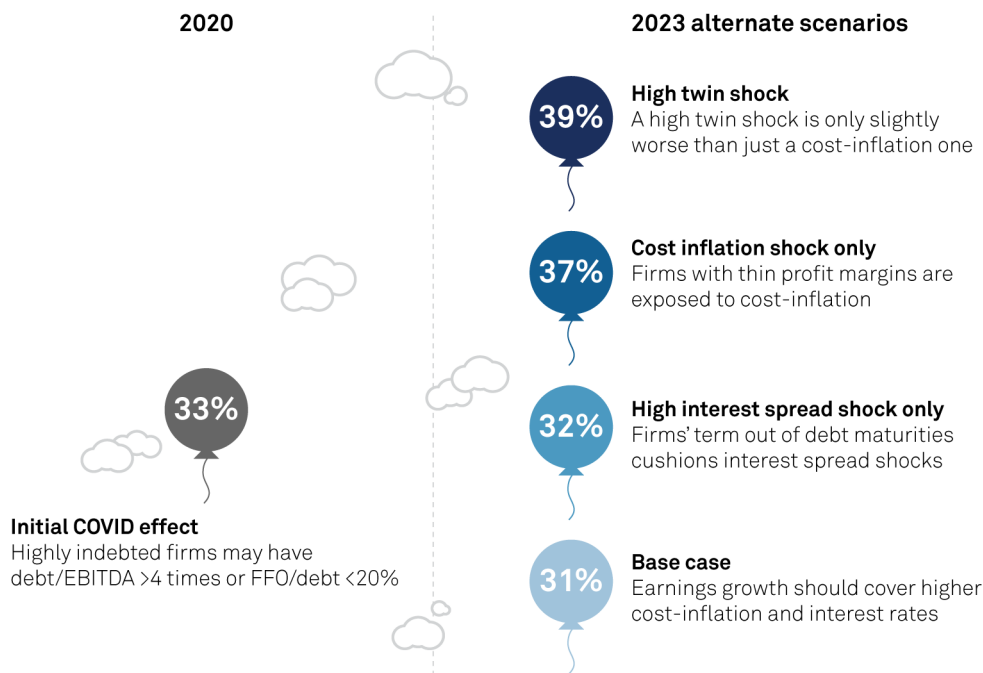
...And Speculative-Grade Defaults Are A Closer Match



Sample source: S&P Global Market Intelligence.

Chart 9

Cost Inflation Shock Sees Jump In Ratio Of 'Highly Indebted' Firms



FFO--Funds from operations (EBITDA less net interest expense less tax).
 Source: S&P Global Ratings.
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Tail cohort faces larger spread hike. For the sample as a whole, the higher interest rate shock affects only a small fraction of the borrowing of entities that need to refinance, or add new debt. However, at the weaker credit quality end of the sample, this generalization does not hold true. Such entities may experience a large spread hike during a crisis, impairing their ability to term out debt. Consequently, there is a one-third jump in loss-makers under the high interest spread shock scenario (see chart 6).

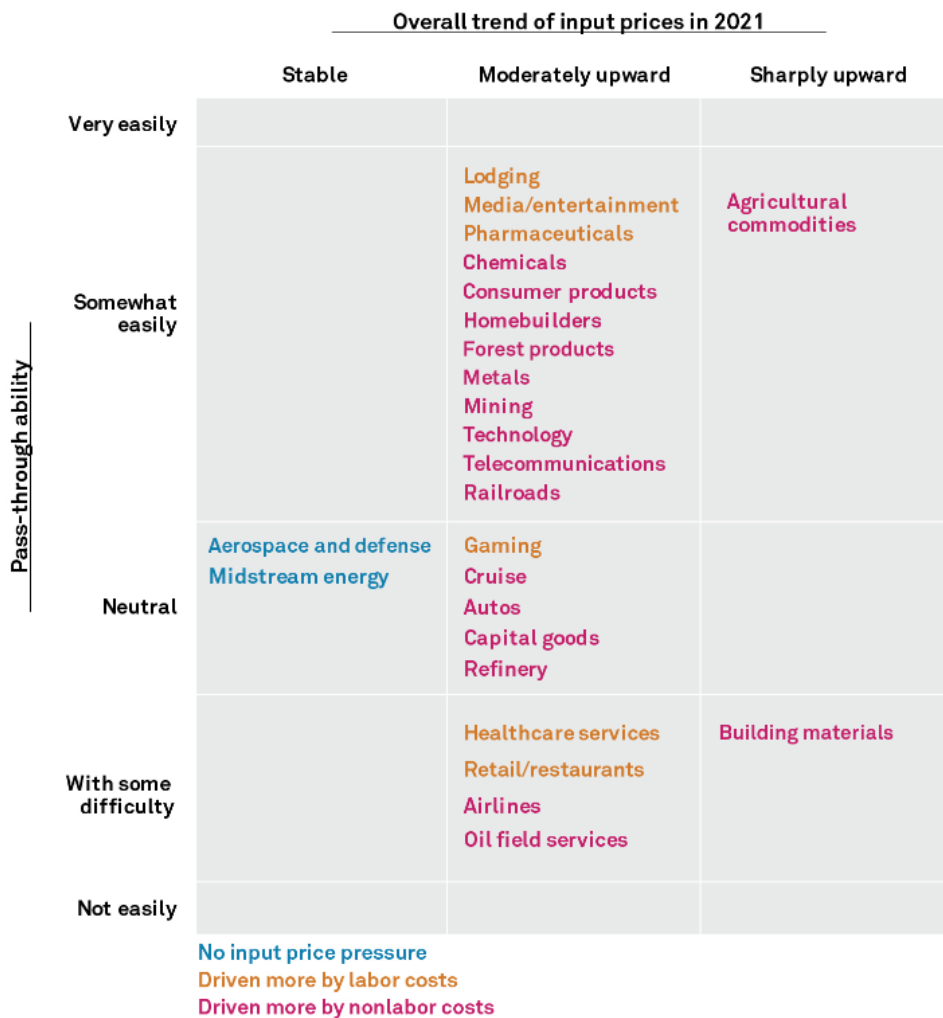
Cost inflation a sensitivity. The likely tepid recovery of some economies (see "[Global Economic Outlook Q2 2021: The Recovery Gains Traction As Unevenness Abounds](#)," published March 31, 2021) and some industry sectors, even by 2023, implies that firms may find it difficult to fully pass on cost inflation to their customers. This could include companies with moderate-to-strong credit quality.

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This would hurt earnings, compounding debt leverage. Such a situation could weigh on entities' ability to fund new investments and may lead to corporate belt-tightening. This year, upward pressures on input prices include rising costs for commodities and labor, supply-chain disruptions, potentially restrictive trade policies, and a need to meet COVID safety protocols.

Chart 10

Most U.S. Corporate Sectors Expect Rising Input Prices This Year, While The Pass-through Ability Varies



The assessment reflects an average view based on the U.S. rated entities in each sector. For sectors where the input price trend in 2021 is stable (including aerospace and defense, and midstream energy), the ability to pass through price pressure is denoted as "neutral". Source: S&P Global Ratings. Copyright © 2021 by Standard & Poor's Financial Services LLC. All rights reserved.

We see significant variation across and within U.S. sectors in their ability to pass higher prices along to consumers (see chart 10). Other regions may differ. Companies operating in highly competitive and fragmented markets (e.g., building materials), confronting pricing scrutiny (e.g., health care services), or still suffering from weak demand (e.g., airlines) may find it more difficult to pass on higher input prices. Conversely, homebuilders, supported by strong demand and historically low interest rates, have been able to pass through higher costs. Agricultural commodities and data centers also rely on pass-through pricing mechanisms.

Applying estimates on the pass-through percentages by sector, we stressed the financials of the sample with an average peak gross cost-inflation of 12% in 2022 (after pass-through, net 3%). This pushed the highly indebted ratio to 37%, which, after adding the spread-shock, resulted in the jump to 39% of firms becoming "highly indebted" (see chart 9).

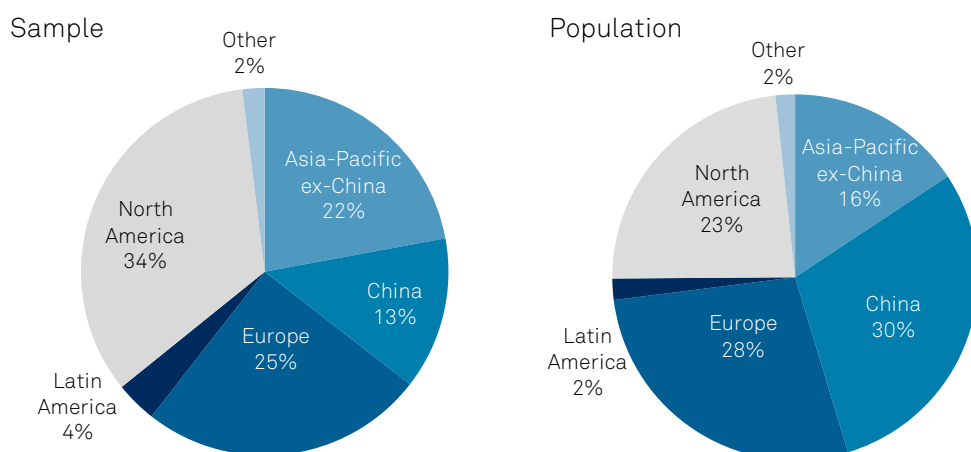
How We Drew Our Sample--The Mix Of Geographies And Notional Credit Risk

One-third of global corporate debt. We draw our global sample of nonfinancial corporate financial data for calendar years 2008-2020 from S&P Global Market Intelligence's Capital IQ database. The sample comprises 10,008 nonfinancial corporates, of which 83% are unrated and 82% are listed. The sample's total debt of US\$26.3 trillion is equivalent to about 31% of estimated global corporate debt at end-2020 (source of global corporate debt amount: Bank for International Settlements).

Geographies. The sample is drawn from 32 geographies, which we believe is a reasonable representation of the global nonfinancial corporate population. The geographies are grouped into six regions--namely, North America (U.S. and Canada); Asia-Pacific ex-mainland China (referred to as Asia-Pacific ex-China) (Australia, Hong Kong, India, Japan, New Zealand, Singapore, Southeast Asia, South Korea, and Taiwan); China; Europe (Austria, Belgium, Denmark, European emerging markets, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the U.K.); Latin America and Caribbean; and the Middle East and Africa.

Chart 11

Prompt Reporting Skews The Sample Toward The U.S.



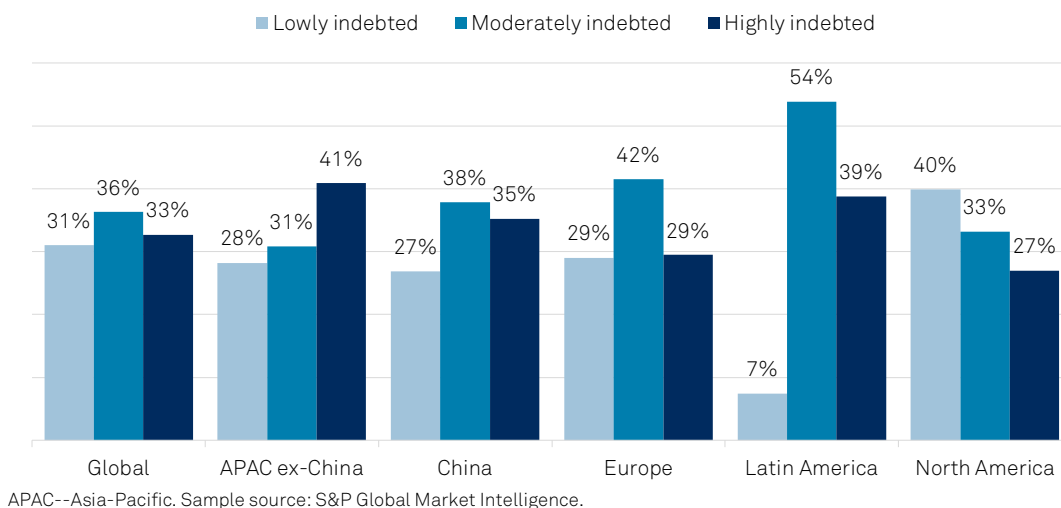
Sample source: S&P Global Market Intelligence. Global population source: International Institute of Finance.

We caveat that the sample has a built-in bias toward corporates that have reported their 2020 financials. Consequently, compared against the global population of corporates' regional debt mix (source: International Institute of Finance), the sample has an overrepresentation of North American firms. The sample is 34% North American, a region that accounts for 23% of the global population (see chart 11). There is also an overrepresentation of Asia-Pacific ex-China--22% of the sample, versus 16% of the population; and an underrepresentation of China--13%, versus 30% of the population. If we assume that the average stand-alone credit quality of corporates in China is weaker than that in North America, then the global highly indebted ratio could be understated.

Notional credit risk levels. For the purposes of this exercise, we determined notional credit risk levels for each corporate in the sample (see chart 12). In this respect, our evaluation of the country, industry, and financial risks of the sample is partially--and, crucially, incompletely--borrowed from our Corporate Ratings methodology (see "[Criteria/Corporates/General/Corporate Methodology](#)," Nov. 19, 2013). It's important to note that information limitations don't permit full application of such methodology. We then categorized the evaluations into three notional credit risk levels--"lowly indebted" (best), "moderately indebted" (intermediate) and "highly indebted" (worst), as a proxy for credit quality. The Latin America sub-sample is small, so conclusions may be less robust (see *Appendix 1: Sampling And Scenario Approach* for additional details about the sample.)

Chart 12

Emerging Markets Have Higher Credit Risk



Scenario Assumptions

Base Case. For this exercise, we assume the following for years 2021-2023 (see table 1).

Table 1
Base Case: Nominal GDP, EBITDA, Debt, And Borrowing Reference Rates

	2021	2022	2023
Nominal GDP growth	8.2%	6.0%	4.9%
EBITDA growth	12.4%	6.0%	4.9%
Debt growth	1.8%	2.9%	5.6%
Increase in borrowing reference rate (U.S. 10-year Treasury yield) compared with 2020 level	81 bps	128 bps	152 bps

bps--Basis points. Source: S&P Global Ratings.

Nominal GDP. The projected nominal GDP growth is a GDP-weighted average of growth rates drawn from our "[Sovereign Risk Indicators](#)," published April 12, 2021.

EBITDA. We project EBITDA to rise faster than nominal GDP growth in 2021 as it rebounds from the EBITDA decline in 2020, which was sharper than the drop in nominal GDP. Thereafter, we assume a one-to-one correspondence over time between EBITDA and nominal GDP growth.

Debt. We base the debt-growth projections on our qualitative views on the debt-raising strategies of corporates. Debt growth is likely to dip in 2021 following the 2020 surge, before resuming an upward trajectory. These assumptions align with those discussed in "[Global Debt Leverage: Near-Term Crisis Unlikely, Even As More Defaults Loom](#)," published March 10, 2021.

Borrowing reference rates. We assume a slow upward movement in borrowing reference rates as the global economy continues its recovery.

Stress scenarios. We elected to stress the projected financials for years 2022 and, in respect of just interest spreads, 2023. We developed two stress scenarios: "high" and "moderate" (see table 2). For high, in 2022, we calibrated incremental interest spreads as those seen during the global financial crisis of July 2008-June 2009 (data source: Ice Data Indices, LLC's ICE BofA U.S. Corporate Index Option-Adjusted Spreads from the Federal Reserve Bank of St. Louis (FRED) website) and incremental increase in gross cost of goods sold (COGS) at three standard deviations of the geographic producer price index (PPI) year-over-year changes during 1990-2020 (data source: Oxford Economics). This results in a gross PPI inflation rate similar to the 1970s global average.

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For moderate, we set the incremental interest spreads at two-thirds that of high, and the incremental increase in gross COGS at two standard deviations of PPI year-over-year changes during 1990-2020. Table 3 outlines the seven stress scenarios examined in this exercise.

Table 2
Stress Scenarios: Incremental Interest Spreads And Cost Of Goods Sold

Incremental increase in	Moderate stress			High stress		
	2021	2022	2023	2021	2022	2023
Spreads (excluding base case rise in reference rates)	As per base case	198 bps-960 bps	99 bps-480 bps	As per base case	297 bps-1,441 bps	198 bps-960 bps
COGS not passed on to customers (includes base case rise in PPI)	As per base case	2.1%	As per base case	As per base case	3.0%	As per base case

bps--Basis points. COGS--Cost of goods sold. PPI--Producer price index. Source: S&P Global Ratings.

Table 3
Types Of Stress Scenarios

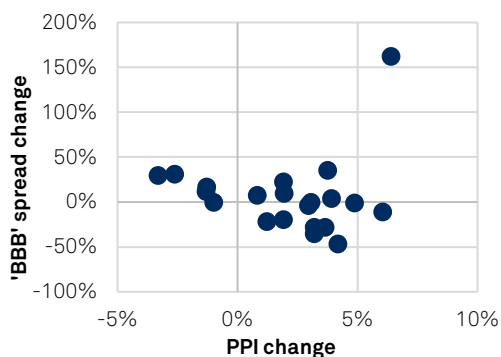
		Interest spread		
		Base case	Moderate stress	High stress
Cost inflation	Base case	Base case	Moderate interest	High interest
	Moderate stress	Moderate inflation	Moderate twin shock	-
	High stress	High inflation	-	High twin shock

Source: S&P Global Ratings.

Relationship between cost inflation and interest spreads. We acknowledge that the correlation between cost inflation and interest spreads isn't always evident. This is illustrated in chart 13, where we use U.S. PPI as a proxy for cost inflation, and U.S. 'BBB' rating category spreads for interest spreads. However, introducing a one-year lag for PPI and excluding the 2008-2009 financial crisis outlier jump in spreads (see chart 14), we can see that there are periods when directional changes in PPI and spreads coincide. Consequently, in this exercise, we have run scenarios of interest spread and cost-inflation shocks separately, and twin shock scenarios combining interest spread and cost-inflation shocks.

Chart 13

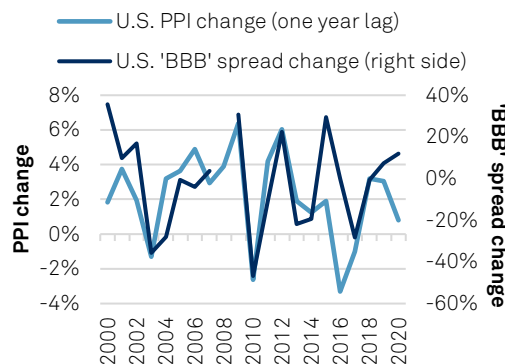
The Relationship Between Cost Inflation And Interest Spreads Is Not Obvious...



Note: Dots refer to years 2000 to 2020. PPI--Producer price index. Corporate spreads source: Federal Reserve Bank of St. Louis. Producer price index source: Oxford Economics.

Chart 14

... But Seen After A Lag, There Is Some Directional Coincidence



PPI--Producer price index. Corporate spreads source: Federal Reserve Bank of St. Louis. Producer price index source: Oxford Economics.

Market intervention. For the purposes of this exercise, we do not assume any intervention from authorities or regulators--for example, in managing market interest rates or setting price caps. Such actions could moderate the effect of the stress scenarios.

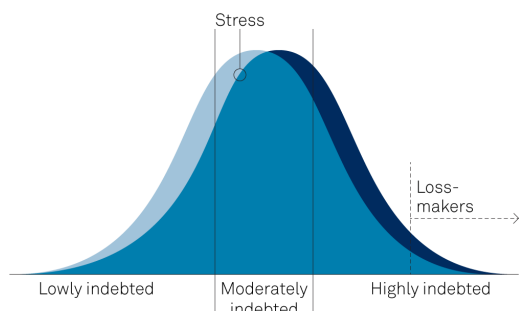
Price feedback loop. In this exercise, we do not address the potential feedback loop in prices. We assume that corporates can pass on some of the cost-inflation without adverse feedback to their own cost base. In reality, the portion of higher input costs that corporates pass on to customers is likely to lead eventually to consumer price inflation (CPI). Higher CPI could cause labor to demand higher wages, raising the cost base of corporates. Inflation expectations could thus become a self-fulfilling prophecy as suggested by the experiences of the 1970s.

Scenario Outcomes

Outcomes. Chart 15 illustrates the concept of how the stress shock moves the credit risk distribution, increasing the percentages of highly indebted and loss-maker ratios. Chart 16 shows the notional credit risk level mix, at 2023, of the sample after the high twin shock. Essentially, this chart shows us that the shock moves the distribution of corporate debt levels, resulting in a fatter tail for loss-making and highly indebted firms.

Chart 15

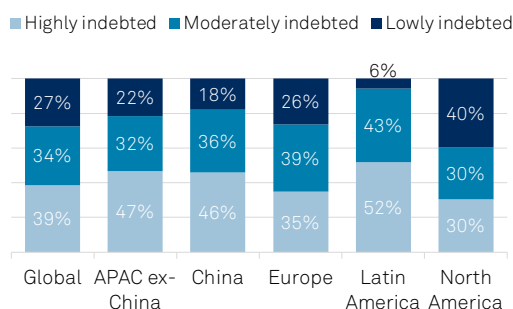
A Stress Shock 'Fattens' The Risk Tail...



Source: S&P Global Ratings.

Chart 16

...A High Twin Shock Fattens The Tail For 'Highly Indebted' Entities



APAC--Asia-Pacific. Sample source: S&P Global Market Intelligence.

Loss-makers. Table 4 summarizes and chart 17 shows the scenario outcomes of loss-maker ratios for the global sample and subsamples for Asia-Pacific ex-China, China, Europe, Latin America, and North America. We project a loss-maker ratio (debt-weighted) for the global sample of 6.7% in the base case for 2021 and 7.2% for 2023. Both Asia-Pacific ex-China (which includes Japan) and North America, have base cases slightly lower than global. Meanwhile Europe and relatively fast-growing China have base cases somewhat higher, and Latin America, substantially higher. The differing magnitude of the jumps in loss-maker ratios at the higher stress scenarios between geographies can be explained by the sharp end of the tail of the credit risk distribution. Those with fatter tails would see larger jumps as the count increases exponentially from the tail to the mode.

Table 4

Stress Scenario Outcomes: Loss-Maker Ratios

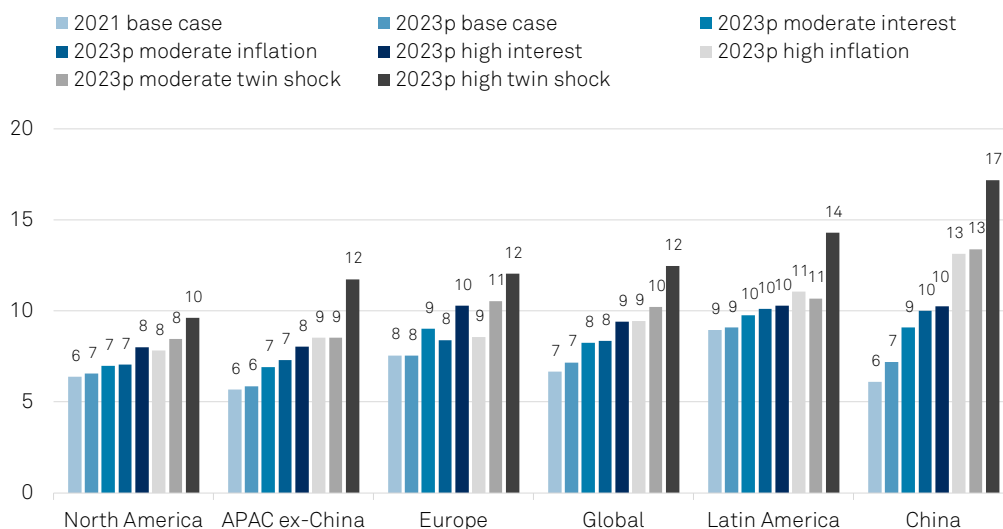
	Global	APAC ex-China	China	Europe	Latin America	North America
Base case 2021	6.7%	5.7%	6.1%	7.6%	9.0%	6.4%
2023						
- Base case	7.2%	5.9%	7.2%	7.5%	9.1%	6.6%
- Moderate interest	8.2%	6.9%	9.1%	9.0%	9.8%	7.0%
- Moderate inflation	8.4%	7.3%	10.0%	8.4%	10.1%	7.1%
- High interest	9.4%	8.0%	10.3%	10.3%	10.3%	8.0%
- High inflation	9.5%	8.5%	13.1%	8.6%	11.1%	7.8%
- Moderate twin shock	10.2%	8.5%	13.4%	10.5%	10.7%	8.5%
- High twin shock	12.5%	11.7%	17.2%	12.1%	14.3%	9.6%

APAC--Asia-Pacific. Source: S&P Global Ratings.

Chart 17

For Loss-Makers, Interest Spreads And Cost Inflation Are Equally Stressful

Portion of debt (%) issued by loss-making entities under our scenarios, by region



p--projected. Ratios are debt-weighted. APAC--Asia-Pacific. Sample data source: S&P Global Market Intelligence.

Highly indebted. Table 5 summarizes and chart 18 shows the scenario outcomes (highly indebted ratios) for the global sample and subsamples for the regions. We project a highly indebted ratio (debt-weighted) for the global sample of 31% in the base case for 2021 and 2023 (see table 5). Heavily weighted by the U.S., the North America base case ratio is lower, at 24%. Meanwhile Europe--which comprises a mix of stronger northern countries, the GIPS (Greece, Italy, Portugal and Spain) and developing eastern countries--has a base-case figure slightly better than the global average. The largely emerging markets of Asia-Pacific ex-China, China, and Latin America have higher figures.

Interest shock outcomes. In this exercise, we apply a sharp interest-spread shock in 2022 and then step down that shock in 2023, mimicking what typically happens after financial crises. The shock is applied to only the amounts that need to be refinanced (i.e., short-term debt and long-term debt maturing that year) and new debt. Consequently, only a fraction of a corporate's total debt is subject to the interest-spread shock. Therefore, even in a high interest scenario, the highly indebted ratio climbs only by roughly a percentage point (see table 5). In this exercise, we do not factor in additional positive or negative changes in working capital needs or capital expenditure plans outside the norms assumed in our debt growth projections.

Table 5
Stress Scenario Outcomes: Highly Indebted Ratios

	Global	APAC ex-China	China	Europe	Latin America	North America
Base case 2021	31%	40%	32%	29%	37%	24%
2023						
- Base case	31%	40%	34%	28%	43%	24%
- Moderate interest	31%	40%	34%	28%	43%	24%
- Moderate inflation	35%	44%	42%	31%	45%	28%
- High interest	32%	41%	35%	28%	44%	25%
- High inflation	37%	46%	45%	34%	47%	29%
- Moderate twin shock	36%	44%	42%	32%	47%	28%
- High twin shock	39%	47%	46%	35%	52%	30%

APAC--Asia-Pacific. Source: S&P Global Ratings.

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Chart 18

For Overall Corporates, Cost Inflation Outweighs Interest Spreads Stress

Portion of debt (%) issued by highly indebted entities (debt-weighted) under our scenarios, by region

Chart 18a

Global

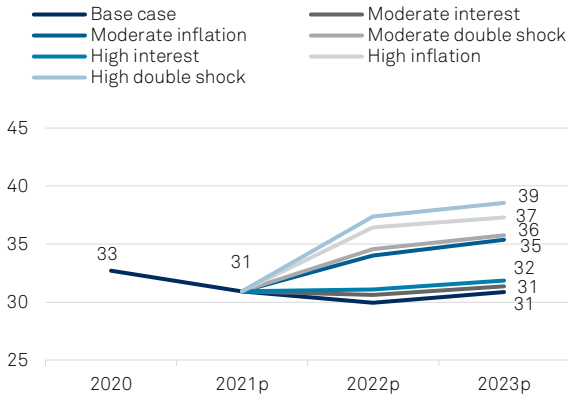


Chart 18b

Asia-Pacific ex-China

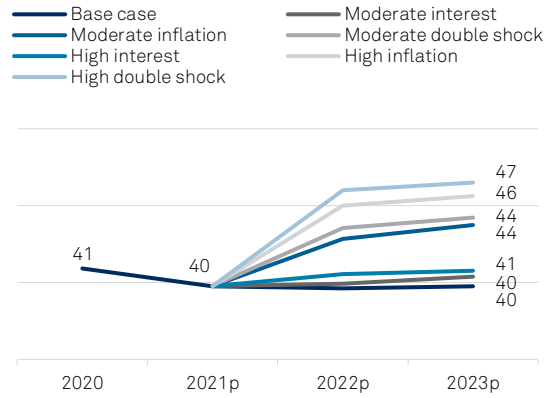


Chart 18c

China

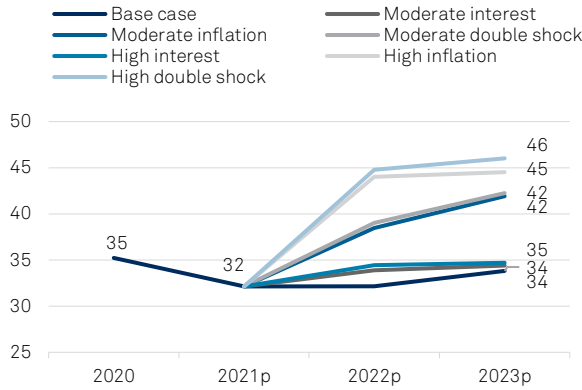


Chart 18d

Europe

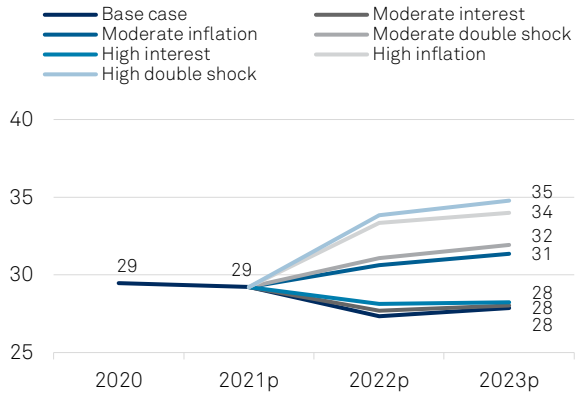


Chart 18e

Latin America

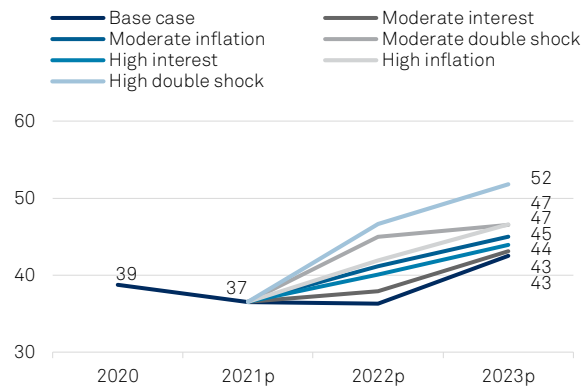
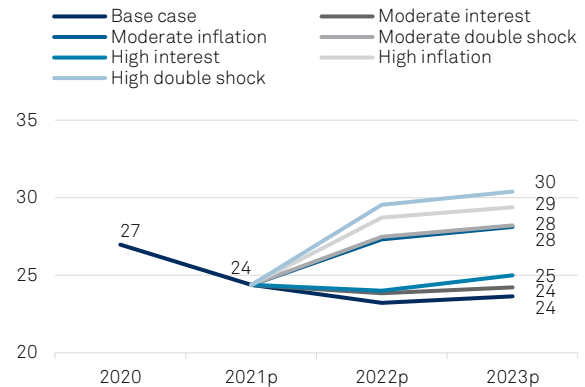


Chart 18f

North America



p--projected. Ratios are debt-weighted. Sample data source: S&P Global Market Intelligence.

Global Debt Leverage: Spreads, Costs Shocks May Double Rate Of Loss-Making

Full debt-shock sub-scenario. If we make the less-plausible assumption that a corporate's total debt is suddenly subject to an interest-spread shock, then in the high-interest-spread-only scenario, the highly indebted ratio outcome is closer or similar to the high cost-inflation-only scenario (see table 6).

Table 6
Stress Scenario Outcomes: Full Debt Shock--Highly Indebted Ratios

2023	Global	APAC ex-China	China	Europe	Latin America	North America
Base case	31%	40%	34%	28%	43%	24%
High interest (all debt)	35%	43%	36%	31%	47%	29%
High inflation	37%	46%	45%	34%	47%	29%
High twin shock	39%	47%	46%	35%	52%	30%

APAC--Asia-Pacific. Source: S&P Global Ratings.

Inflation-shock outcomes. In our exercise, the gross cost-inflation hike is partly mitigated by assuming the increase applies only to the nonlabor component of cost of goods sold, and that corporates would be able to pass on some of the additional cost to customers. At this stage, it appears that nonlabor costs are more likely to go up than are labor costs--as in several countries at this stage unemployment is still higher than pre-pandemic, and we assume that the workers that won't return to sectors that are structurally declining are available for other sectors. Using our qualitative judgement, we assumed different pass-on rates for each sector broadly based on the industry findings displayed in chart 10.

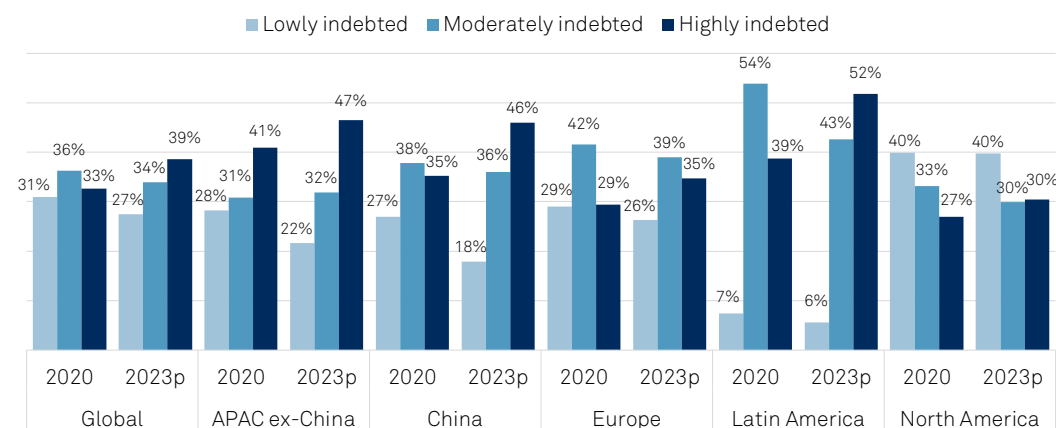
Such mitigation varies by sector depending on factors such as the labor-to-nonlabor cost mix, the sector's competitive landscape, and end-customers' willingness and/or capacity to pay more. That said, a substantial portion of COGS bears the brunt of the cost-inflation shock (in contrast to debt for the interest-spread shock). Accordingly, the scenario outcome of even moderate inflation can exceed that of the high interest scenario. For example, for the global sample, the highly indebted ratio is 35%, versus 32% (see table 5). Even more so for the high inflation scenario, where the global highly indebted ratio rises to 37%.

Geographic comparisons. Just looking at the highly indebted ratios between geographies without studying their risk distributions may be misleading. For example, the "high" twin-shock scenario impact on the "highly indebted" ratio (see chart 19) for the:

- Global pool: the ratio is up 6 percentage points (ppts), to 39%, by 2023, from 33% in 2020;
- Asia-Pacific ex-China: up 6 ppts, to 47%, from 41%;
- China: up 11 ppts, to 46%, from 35%;
- Europe: up 6 ppts, to 35%, from 29%;
- Latin America: up 13 ppts, to 52%, from 39%;
- North America: up 3 ppts, to 30%, from 27%.

Chart 19

Shape Of Risk Distribution Affects Tail Risk



p--Projected. Ratios are debt-weighted. APAC--Asia-Pacific. Sample data source: S&P Global Market Intelligence.

As discussed, the North America pool is largely the U.S., while the Europe pool contains both western and eastern European countries. Consequently, the Europe pool has a highly indebted ratio with a higher starting point and change under stress than the North America pool. While the Asia-Pacific ex-China pool has a starting point higher than the China or Latin America pools, the shapes of the latter two’s risk distributions indicate that it is easier for their tails to grow fatter faster (recall chart 15)--that is, their risk distributions imply a higher sensitivity to stress scenarios.

High Interest Shock Would Reduce Interest Coverage By A Third

As a supplemental exercise we also computed the EBITDA to gross interest ratios for the moderate and high interest-spread shock scenarios. Not surprisingly, there are significant effects on interest coverage ratios under both scenarios, with the ratio of the global sample falling to 4.7x for the moderate shock and 4.0x for the high shock by 2023, from the base case of 6.9x in 2021 (see chart 20a). The effects on the mostly developed economies of Europe and North America are similar to the global outcomes (see charts 20c and 20d). Asia-Pacific, with its emerging economies, is slightly worse off (see chart 20b).

Chart 20

In The Spread Shock-Only Scenario, Interest Coverage For Asia-Pacific Fares Worse

Mean EBITDA To Gross Interest Expense (Times)

Chart 20a

Global

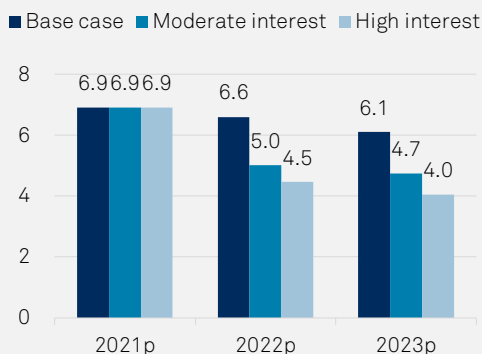


Chart 20b

Asia-Pacific

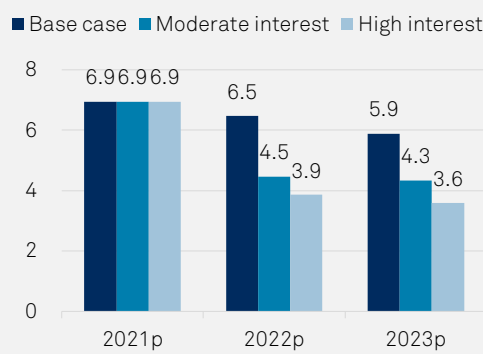


Chart 20c

Europe

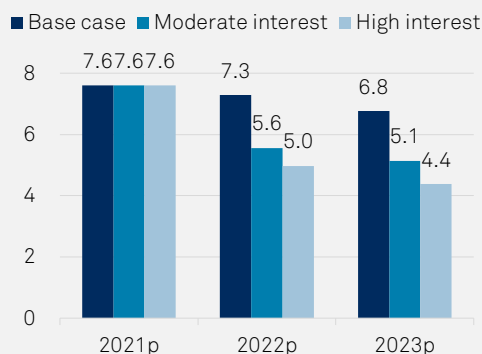
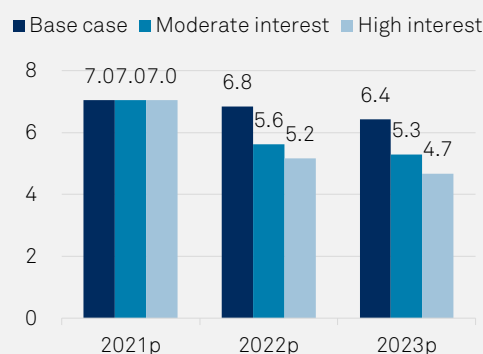


Chart 20d

North America



p--Projected. Mean ratios are sums of numerators divided by sums of denominators. Sample data source: S&P Global Market Intelligence. See appendix for additional sources and notes.

Editing: Jasper Moiseiwitsch
 Digital design: Evy Cheung, Victoria Schumacher, and Jack Karonika

Related Research

- [Take A Hike: Which Sovereigns Are Best And Worst Placed To Handle A Rise In Interest Rates](#), May 24, 2021.
- [U.S. Corporate Cost Pressures May Hit Profit Margins In The Near Term](#), April 27, 2021.
- [Default, Transition, and Recovery: 2020 Annual Global Corporate Default And Rating Transition Study](#), April 7, 2021
- [Global Credit Conditions Q2 2021: The Risks Of An Uneven Recovery](#), March 31, 2021
- [Global Economic Outlook Q2 2021: The Recovery Gains Traction As Unevenness Abounds](#), March 31, 2021
- [Global Debt Leverage: Near-Term Crisis Unlikely, Even As More Defaults Loom](#), March 10, 2021.
- [Global Corporate Credit: Twin Debt Booms Pose Risks As Companies Seek US\\$57 Trillion Through 2019](#), July 16, 2015.

S&P Global Ratings believes there remains high, albeit moderating, uncertainty about the evolution of the coronavirus pandemic and its economic effects. Vaccine production is ramping up and rollouts are gathering pace around the world. Widespread immunization, which will help pave the way for a return to more normal levels of social and economic activity, looks to be achievable by most developed economies by the end of the third quarter. However, some emerging markets may only be able to achieve widespread immunization by year-end or later. We use these assumptions about vaccine timing in assessing the economic and credit implications associated with the pandemic (see our research here: www.spglobal.com/ratings). As the situation evolves, we will update our assumptions and estimates accordingly.

This report does not constitute a rating action.

Appendix: Sampling And Scenario Approach

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

Sample source of corporate financials	<p>We draw our global sample of nonfinancial corporate financial data from S&P Global Market Intelligence's Capital IQ database.</p> <p>The sample comprises 10,008 corporates, of which 82% are listed and 83% are unrated. The sample total debt of US\$26.3 trillion is equivalent to about 31% of estimated global corporate debt at end-2020 (source of global nonfinancial corporate debt amount: Bank for International Settlements).</p>
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Sample geographic scope	<p>The sample is drawn from 32 geographies, which we believe is a reasonable representation of the global nonfinancial corporate population.</p> <ul style="list-style-type: none"> – North America: U.S. and Canada. – Europe: Austria, Belgium, Denmark, European emerging markets, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the U.K. – Asia-Pacific: Australia, mainland China, Hong Kong, India, Japan, New Zealand, Singapore, Southeast Asia, Korea, and Taiwan. – Latin America: Latin America and the Caribbean. – Middle East, Africa: Africa/Middle East. <p>The data have a bias toward nonfinancial corporates that had reported their 2020 financials at the date of sample extraction. Consequently, it's not surprising to see some geographic regions overrepresented, on a debt-weighted basis, in the sample compared with the global population (source of global nonfinancial corporate population debt amount: International Institute of Finance).</p>
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	Sample	Population
Asia-Pacific ex-China	22%	16%
China	13%	30%
Europe	25%	28%
Latin America	4%	2%
North America	34%	23%
Other	2%	2%

Growth assumptions	<p>Debt growth projections</p> <p>For each corporate, we assume debt growth from 2021-2023 by geography as those assumed in "Global Debt Leverage: Near-Term Crisis Unlikely, Even As More Defaults Loom," published March 10, 2021.</p> <p>EBITDA growth projections</p> <p>For each corporate, we assume EBITDA growth from 2021-2023 as a multiple of nominal GDP growth across geographies, and where the latter is sourced from our "Sovereign Risk Indicators", published April 12, 2021.</p> <p>In 2021, we apply a multiple of 1.5 on nominal GDP growth to reach EBITDA growth, based on our expectation that EBITDA will rise faster than nominal GDP for the year, as it is a rebound of EBITDA's decline in 2020, which was sharper than the drop in nominal GDP. We then assume an exact one-to-one correspondence between EBITDA and nominal GDP growth rates for 2022-2023.</p>
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Stress scenario We shock the sample financials for rises in input cost-inflation and interest spreads for the years 2022-2023. We don't attempt to identify the catalyst ("black swan" event) of such shocks.

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

Shock calibration

Interest-spread shock

We assume that the additional risk premium demanded by investors for a given credit risk category is the same regardless of industry sector, geography, or currency of debt. Across credit risk categories, we introduce a non-parallel increase in interest spreads, applying proportionally larger increments in interest spreads for the lower end of the portfolio as the severity of the scenario increases.

A different shock scenario can be applied to each year from 2021-2023. We source historical U.S corporate option-adjusted spreads by rating category of Ice Data Indices, LLC's ICE BofA U.S. Corporate Index Option-Adjusted Spread from the Federal Reserve Bank of St. Louis (FRED) website.

Our spreads scenario is in two parts for the moderate stress scenario: (1) For 2022, we assume a crisis occurs and apply two-thirds of the incremental difference of median of corporate spreads as observed during the peak of the global financial crisis (July 2008-June 2009) less the median of 2020 corporate spreads to a corporate's prevailing interest expense rate onto its projected new, maturing long-term and short-term debt; (2), for 2023, we assume the crisis eases and apply one-third of the incremental difference.

Similarly, for the high stress scenario: (1) For 2022, we assume a crisis occurs and apply the full incremental difference of median of corporate spreads as observed during the peak of the global financial crisis (July 2008-June 2009) less the median of 2020 corporate spreads to a corporate's prevailing interest expense rate onto its projected new, maturing long-term and short-term debt; (2), for 2023, we assume the crisis eases and apply two-thirds of the incremental difference.

Input inflation shock

We use PPI as a proxy for input cost. We draw upon historical and projected PPI, sourced from Oxford Economics, for the geographies of the sample of corporates. We assume input cost pass-through rates to arrive at net inflation at both geography- and sector-level, and any increase in COGS absorbed by each corporate is the simple average of the two. For this exercise, we don't assume any changes with demand volumes in light of the input inflation shock.

Our cost-inflation scenario is in two parts for the moderate stress scenario: (1) for 2022, we assume a crisis occurs and the cost-inflation is our projected base case PPI year-over-year change for the year plus two standard deviations of 1990-2020 PPI year-over-year changes, applied to the corporate's gross COGS; (2) for 2023, we assume the crisis eases and apply our projected base case PPI year-over-year change for the year.

Similarly, for the high stress scenario: (1) for 2022, we assume a crisis occurs and the cost-inflation is our projected base case PPI year-over-year change for the year plus three standard deviations of 1990-2020 PPI year-over-year changes, applied to the corporate's gross COGS; (2) for 2023, we assume the crisis eases and apply our projected base case PPI year-over-year change for the year.

Global Debt Leverage: Spreads, Costs Shocks May Double Rate Of Loss-Making

Notional credit risk levels For purposes of this exercise, we determined notional credit risk levels 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 certainly incompletely, borrowed from our Corporate Ratings methodology (see "[Criteria/ Corporates/ General/ Corporate Methodology](#)," Nov. 19, 2013). It is important to note that information limitations do not permit full application of such methodology. We then categorized the evaluations into three notional credit risk levels--"lowly indebted" (best), "moderately indebted" (intermediate) and "highly indebted" (worst) as a proxy for credit quality.

Key ratios and thresholds

General

Category	FFO to debt (%)	Debt to EBITDA (x)
Lowly indebted	Greater than 30	Less than 4.0
Moderately indebted	20 - 30	3.0 - 4.0
Highly indebted	Less than 20	Greater than 4.0

Real Estate

Category	FFO to debt (%)	Debt to EBITDA (x)
Lowly indebted	Greater than 15	Less than 4.5
Moderately indebted	7.0 - 9.0	7.5 - 9.5
Highly indebted	Less than 7.0	Greater than 9.5

Utilities

Category	FFO to debt (%)	Debt to EBITDA (x)
Lowly indebted	Greater than 13	Less than 4.0
Moderately indebted	9.0 - 13	4.0 - 5.0
Highly indebted	Less than 9.0	Greater than 5.0

Global Debt Leverage: Spreads, Costs Shocks May Double Rate Of Loss-Making

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