

RISKIER BUSINESS

Easy financial conditions have extended the corporate credit cycle, with further financial risk-taking by firms and continued buildup of debt. Corporate sector vulnerabilities are already elevated in several systemically important economies, reflecting rising debt and often weak debt service capacity. Slowing growth and escalating trade disputes may further weaken firms' profitability in the baseline scenario, whereas in a material economic downturn debt-at-risk could rise to the levels seen in the aftermath of the global financial crisis. This could result in losses at bank and nonbank financial institutions with significant exposures to highly indebted nonfinancial firms—a development that could amplify shocks. The challenge facing policymakers is addressing corporate vulnerabilities before the next downturn.

High Corporate Leverage Can Exacerbate the Next Economic Downturn

During the global financial crisis, countries with high leverage in the banking and household sectors experienced more severe recessions.¹ But corporate leverage can also amplify shocks,² as corporate deleveraging could lead to depressed investment and higher unemployment, and corporate defaults could trigger losses and curb lending by banks. For example, corporate debt overhang aggravated the economic outcomes of the euro area debt crisis.³ Since then, corporate debt levels have risen globally—prompting the question of how risky and systemic global corporate debt has become.

This chapter was prepared by Sergei Antoshin (team leader), Thomas Piontek, Xingmi Zheng, Akihiko Yokoyama, Andrea Deghi, Kevin Chow, Piyusha Khot, and Martin Edmonds, with input from Shuyi Liu, Jerome Vandenbussche, and Peichu Xie, under the guidance of Fabio Natalucci and Anna Ilyina. Magally Bernal and Andre Vasquez provided editorial assistance.

¹See Aikman, Haldane, and Nelson 2013; Jorda, Shularick, and Taylor 2012; Mian, Sufi, and Verner 2016; Chapter 2 of the October 2017 *Global Financial Stability Report* (GFSR); Chapter 3 of the April 2012 *World Economic Outlook*.

²See Bernanke, Gertler, and Gilchrist 1996; Kaplan 2019.

³See Antoshin and others 2017; Bank of England 2019; Bridges, Jackson, and McGregor 2017; Jungherr and Schott 2018; Kalemli-Ozcan, Laeven, and Moreno 2019.

This chapter examines corporate vulnerabilities in several systemically important countries.⁴ It shows that the outlook for firms has weakened despite very low interest costs. Debt has risen and is increasingly used for financial risk-taking—to fund corporate payouts to investors, as well as mergers and acquisitions (M&A), especially in the United States. In addition, global credit is increasingly flowing to riskier borrowers. The April 2019 GFSR discussed the credit quality of large firms, BBB-rated bond issuers, and leveraged loan borrowers. This chapter presents a comprehensive assessment of the corporate sector credit quality using the broadest data coverage available.⁵ It concludes that debt-at-risk (debt owed by companies whose earnings are insufficient to cover interest payments) and speculative-grade debt⁶ are already elevated in several major economies and could approach or exceed crisis levels in an adverse scenario considered by the IMF staff. Banks and nonbank financial institutions with significant exposures to small and medium-sized enterprises (SMEs), syndicated leveraged loans, direct credit, and high-yield corporate bonds may be particularly susceptible to losses in such an adverse scenario and could amplify the shock by curtailing credit to the economy.

The Outlook for Firms Has Weakened but Funding Conditions Remain Favorable

Slowing global growth and escalating trade disputes have started to affect nonfinancial firms. In China, Europe, and the United States, expected corporate sales have decelerated this year (Figure 2.1, panel 1). In addition, profit margins—although still solid—have declined in the United States this year amid rising wages and elevated input costs

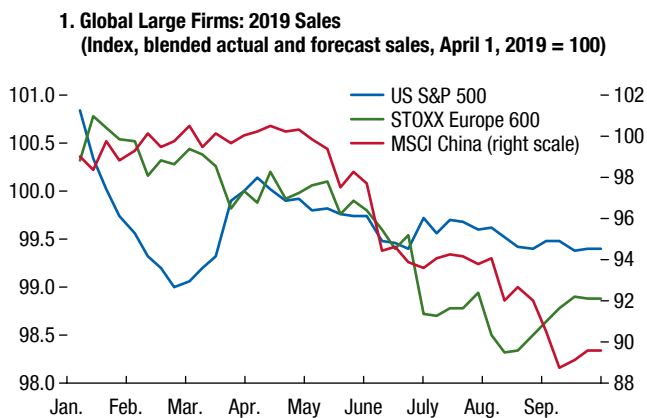
⁴These include China, France, Germany, Italy, Japan, Spain, the United Kingdom, and the United States.

⁵A firm-level analysis is carried out using full samples from Bureau van Dijk Orbis, S&P Capital IQ, and WIND Information Co., with data validation using Bloomberg Finance L.P. The firm-level analysis was extended to the system level using national data sources. See Section 2 of Online Annex 1.1 for details.

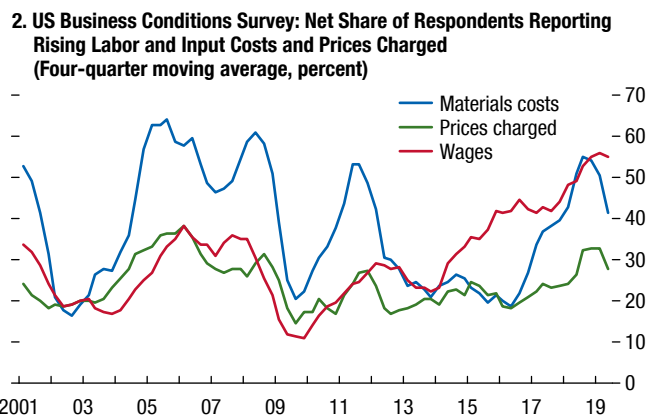
⁶Debt-at-risk is defined as debt at firms with an interest coverage ratio (ICR)—defined as the ratio of earnings before interest and taxes to interest—below 1. Speculative-grade debt is defined as debt at firms with implied speculative-grade ratings based on ICR and net debt to assets.

Figure 2.1. Corporate Performance and Outlook

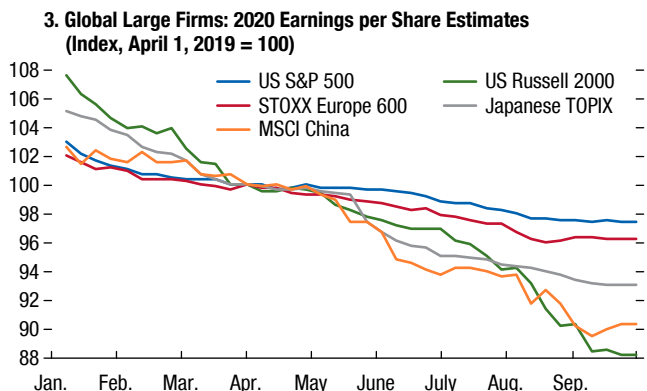
Slower global growth and escalating trade disputes have curbed expected sales growth, especially in China.



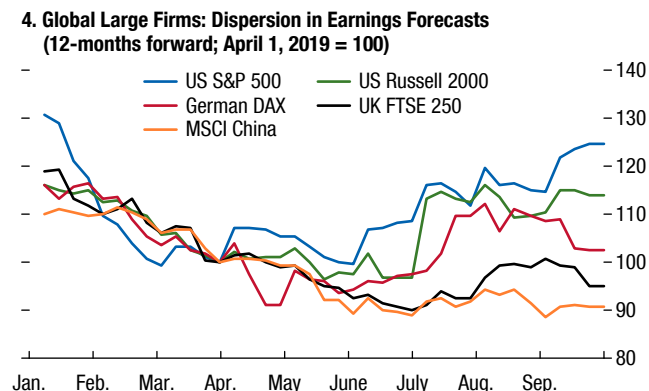
US firms reported elevated labor and input costs.



Expected earnings growth has decelerated, particularly at Chinese, Japanese, and US small firms ...



... and uncertainty about future earnings has risen in recent months in the United States and Europe.



Sources: National Association for Business Economics; Thomson Reuters I/B/E/S; and IMF staff calculations.

(Figure 2.1, panel 2), and managers have become more concerned about tariffs. As a result, corporate earnings forecasts have been revised down since April (Figure 2.1, panel 3). In addition, uncertainty about future earnings—measured as the dispersion in analysts’ forecasts—has recently increased further (Figure 2.1, panel 4).

Corporate bond spreads are very low by historical standards and appear to be compressed relative to fundamentals, reflecting primarily strong investor risk appetite. According to an IMF staff model,⁷ rising

⁷The corporate bond valuation model uses three groups of explanatory variables—economic factors, measures of uncertainty, and leverage—similarly to Collin-Dufresne, Goldstein, and Martin (2001) and Ericsson, Jacobs, and Oviedo (2009)—based on the theoretical underpinnings in Black and Scholes (1973) and Merton (1974). See Section 1 of Online Annex 1.1.

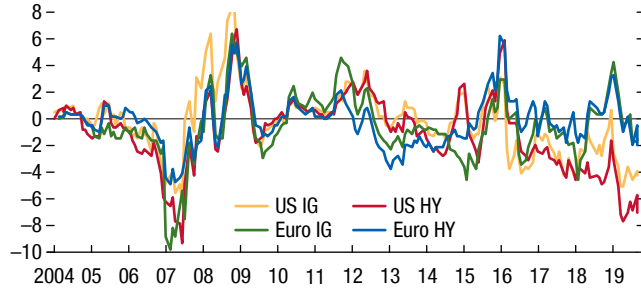
corporate debt, weaker economic fundamentals, and higher economic uncertainty all imply that spreads should be wider. Misalignments are relatively large in the United States and moderate in Europe (Figure 2.2, panel 1). Declining interest rates have led to outflows from loan mutual funds and inflows into bond funds, further suppressing bond yields (Figure 2.2, panel 2). Stretched valuations often precede economic downturns and can be an additional source of vulnerability (see Chapter 1). Bank lending standards have broadly eased since 2016 in both the United States (Figure 2.2, panel 3) and the euro area and remain favorable, though with a modest tightening for small firms in Europe (Figure 2.2, panel 4).

Global issuance of corporate bonds and syndicated loans has remained robust this year, still dwarfing

Figure 2.2. Funding Conditions and Debt Accumulation

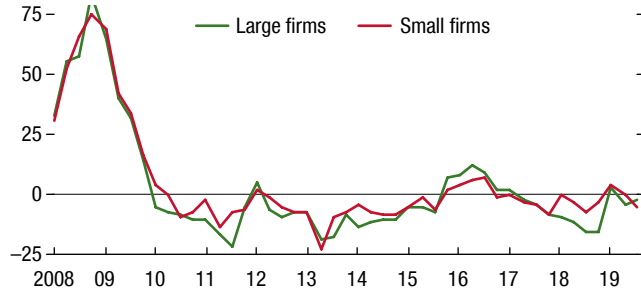
Corporate bond spread misalignments are relatively large in the United States and moderate in the European market.

1. Corporate Bond Spread Misalignments
(Misalignments in percent of actual prices divided by historical price volatility)



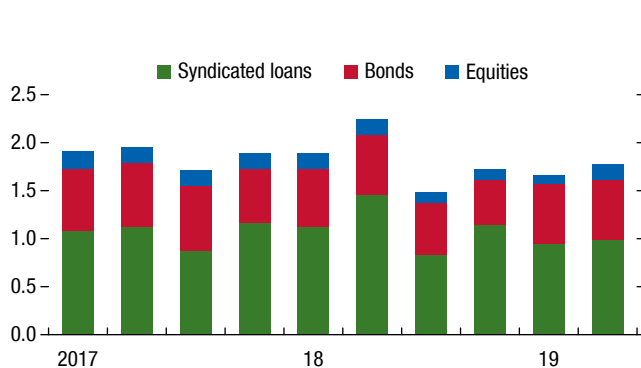
Bank lending standards in the United States have eased considerably since the crisis ...

3. US Bank Lending Standards
(Survey net balances, percent of responses)



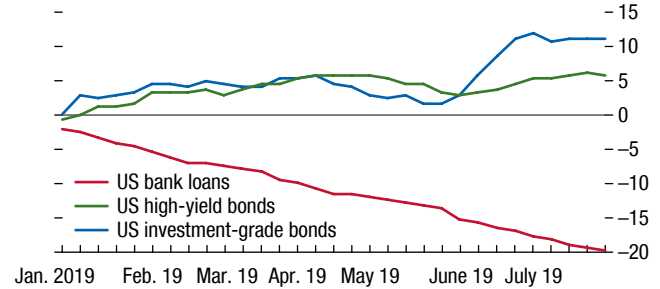
Market-based debt issuance has remained robust this year, dwarfing equity issuance ...

5. Gross Issuance of Corporate Bonds, Syndicated Loans, and Equities
(Trillions of US dollars)



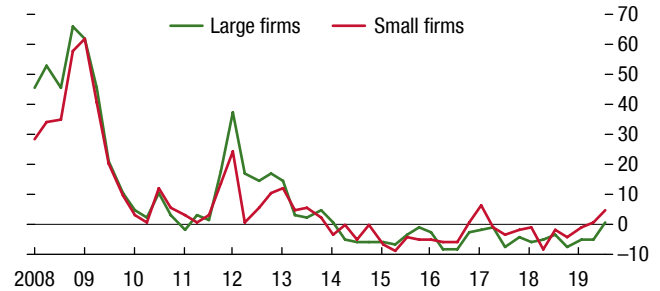
Bond funds have recently benefited from allocations away from loan funds, as falling interest rates have made floating-rate loans relatively less attractive.

2. Cumulative Fund Flows to US Corporate Bond and Loan Mutual Funds and Exchange-Traded Funds
(Percent of assets under management)



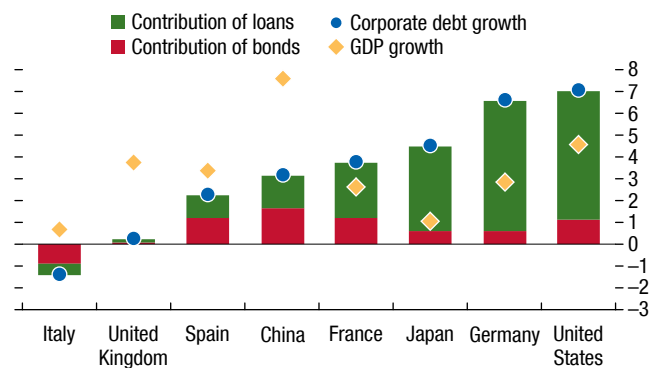
... whereas the easing has been less pronounced in the euro area.

4. Euro Area Bank Lending Standards
(Survey net balances, percent of responses)



... and corporate debt has risen faster than GDP in several major economies.

6. Corporate Debt Growth, Contributions from Bonds and Loans, and GDP Growth
(Percent, growth from 2018:Q1 to 2019:Q1)



Sources: Bank for International Settlements; Bloomberg Finance L.P.; Consensus Economics Inc.; Dealogic; EPFR Global; European Central Bank; Federal Reserve; Haver Analytics; national statistics on bonds and loans; S&P Global Markets Intelligence; Thomson Reuters I/B/E/S; and IMF staff calculations. Note: Panel 1 shows results from a corporate bond valuation model. Negative values indicate overvaluation in the bond markets. See Section 1 of Online Annex 1.1. In panels 3 and 4, positive values indicate a net tightening since a prior quarter. HY = high-yield; IG = investment-grade.

equity issuance (Figure 2.2, panel 5). Relative to GDP, corporate debt has continued to rise in several major economies, particularly the United States, Germany (though from low levels), and Japan (Figure 2.2, panel 6). The bulk of the recent increase in US corporate debt was funded by leveraged loans and private lending.

Financial Risk-Taking and Riskiness of Lending Have Risen

Financial risk-taking by US companies in the form of payouts and M&A has increased—in contrast with subdued capital expenditures.⁸ Surges in financial risk-taking usually precede economic downturns. Payouts—dividends and share buybacks—at US large firms have grown to record high levels in recent quarters (Figure 2.3, panel 1), whereas debt-funded payouts have increased since 2017. Smaller firms have increasingly used leveraged loans and high-yield bonds to fund payouts to boost investors' returns this year (Figure 2.3, panel 2). Debt-funded payouts can considerably weaken a firm's credit quality.

M&A volume has surged to record levels in the United States, partly because of the tax reform, dominating the global M&A landscape (Figure 2.3, panel 3). The markups on intangibles⁹ associated with debt-funded M&A by US large firms have risen significantly in recent quarters (Figure 2.3, panel 4), signaling increased bets on future gains despite a weakening outlook. As M&A activity becomes riskier, potential impairments could ensue, weakening corporate credit quality.

In the leveraged loan market, the volume of debt-funded M&A and leveraged buyout (LBO) transactions remains high (Figure 2.3, panel 5). Over the first half of 2019, highly leveraged deals accounted for close to 60 percent of LBO activity. Firms increasingly use earnings projections incorporating so-called add-backs¹⁰ based on their expectations of cost savings and synergies in M&A deals to boost the amount they can borrow. Earnings add-backs in M&A and LBO deals have reached record highs and could considerably

⁸See the October 2017 GFSR.

⁹See Crouzet and Eberly 2018.

¹⁰Earnings or EBITDA (earnings before interest, taxes, depreciation, and amortization) add-backs are positive adjustments to earnings related to expenses that are expected to be eliminated after an M&A or LBO deal. These could include expected cost savings (synergies) and some of compensation, transaction costs, and legal fees.

understate the extent of leverage in the market (Figure 2.3, panel 6) by overstating future earnings.

The riskiness of credit allocation rose significantly in major advanced economies from 2016 to 2018 (Figure 2.4, panel 1), in particular because of nonbank lenders.¹¹ In Europe, the nonbank segment of the leveraged loan market (so-called institutional loans) has expanded rapidly in recent years, whereas investor covenant protections have weakened (Figure 2.4, panel 2). Similar trends are evident in the United States: provision of credit, especially to risky firms, has shifted further to nonbanks (Figure 2.4, panel 3), whereas the credit quality of new loans continues to deteriorate¹² (Figure 2.4, panel 4). The share of highly leveraged deals has grown and now surpasses precrisis highs (Figure 2.4, panel 5). In addition, significant growth has occurred in the nonbank private lending market, which has reached nearly \$1 trillion.¹³ Private debt funds¹⁴ currently hold the largest exposure and capital available for deployment (so-called dry powder) across loans to SMEs (Figure 2.4, panel 6). In this segment, search for yield and heightened competition have led to weaker underwriting standards and rising leverage.

Corporate Debt Vulnerabilities Are Already Elevated

To assess the credit quality of global corporate debt, IMF staff analysis¹⁵ employs the broadest database coverage available and focuses on (1) *debt-at-risk*—defined as the debt at firms with an interest coverage ratio (ICR—ratio of earnings before interest and taxes to interest) below 1; and (2) *speculative-grade debt*—debt at firms with speculative-grade credit quality based on the ICR and the net debt-to-assets ratio.¹⁶ Although firms with ICRs below 1 are at a more imminent risk of distress, the rising share of speculative-grade bonds

¹¹See Chapter 2 in the April 2018 GFSR; Bank of Japan 2019.

¹²See Gluckman and others 2019.

¹³See Muthukrishnan, Hu, and Webster 2019.

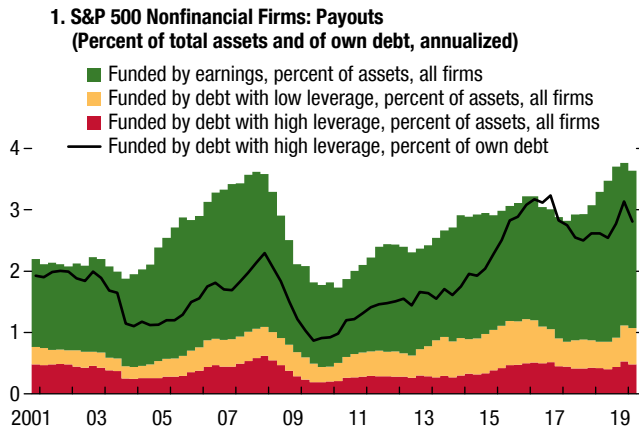
¹⁴See Prequin 2019.

¹⁵The analysis is conducted for China, France, Germany, Italy, Japan, Spain, the United Kingdom, and the United States. See Section 2 of Online Annex 1.1.

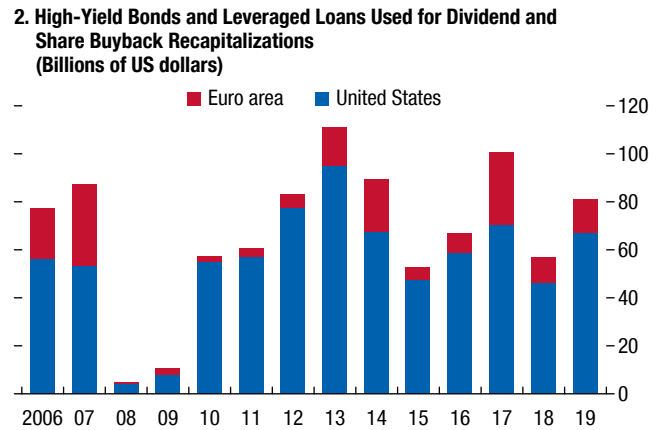
¹⁶This includes debt of all firms in the data set with an ICR less than 4.1 and a net debt-to-assets ratio greater than 0.25. Net debt is gross debt minus cash. Net debt is used because many firms have increased their buffers, as shown in recent GFSRs. The thresholds are empirically established based on constituents of the global investment-grade and speculative-grade bond indices.

Figure 2.3. Financial Risk-Taking

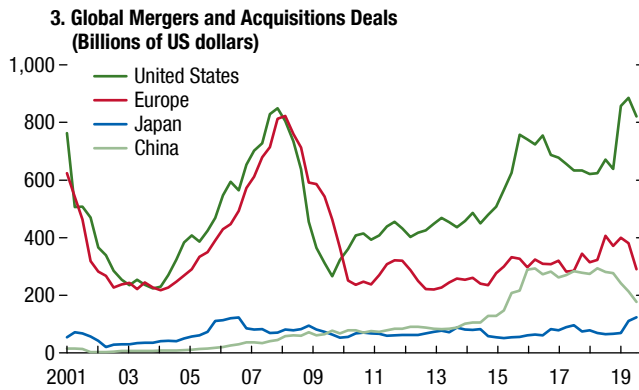
Debt-funded payouts at large firms have risen further ...



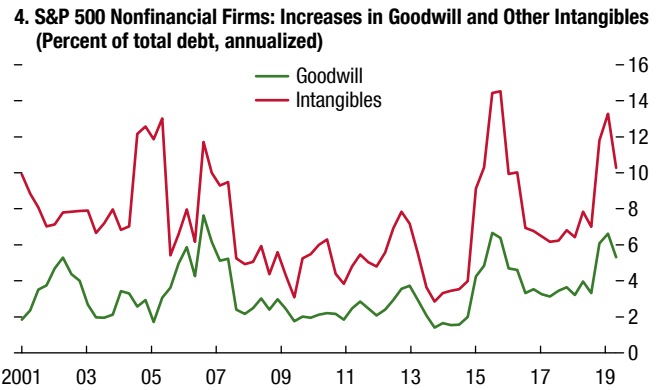
... and firms with speculative-grade credit quality have used more debt to carve out shareholder payments.



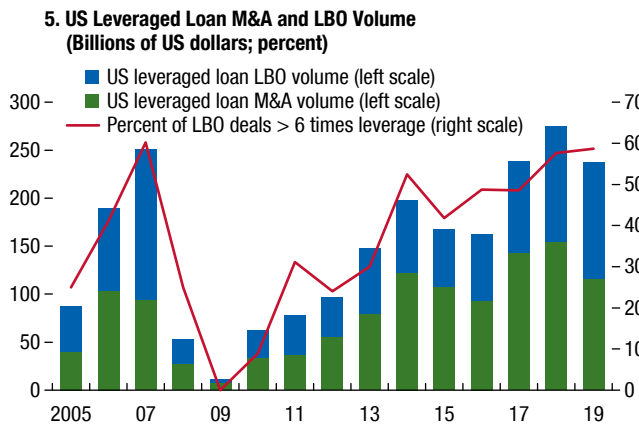
Mergers and acquisitions (M&A) activity has become rampant in the United States ...



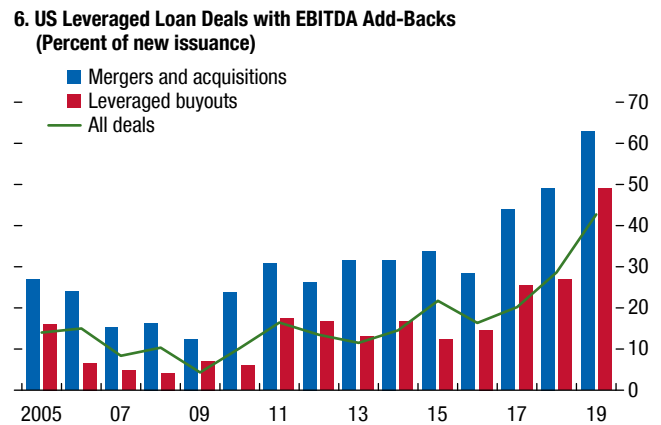
... and bets on future gains in debt-funded M&A have risen since last year.



In the United States, the volume of M&A and leveraged buyout (LBO) transactions funded by US leveraged loans remains high ...



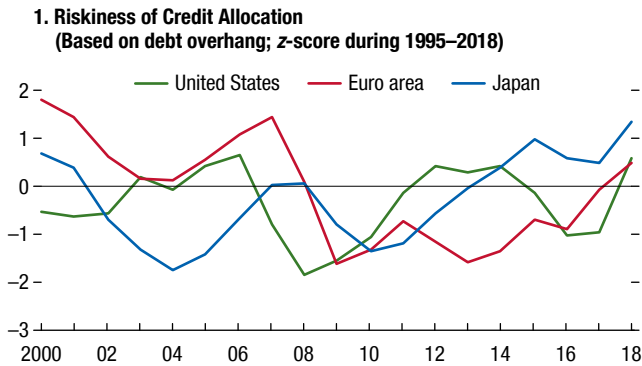
... and bets on cost savings and synergies have led to record high earnings adjustments.



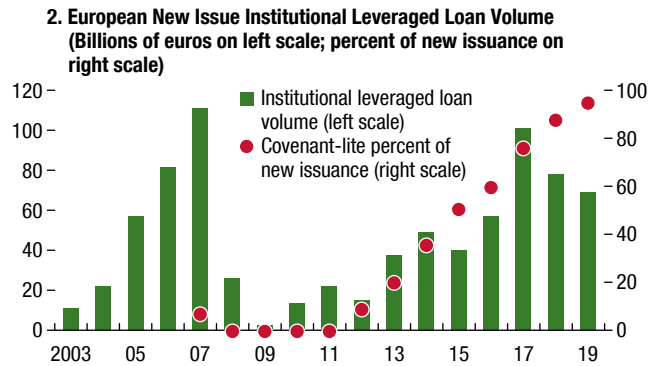
Sources: Bloomberg Finance L.P.; Dealogic; S&P Leveraged Commentary & Data; and IMF staff calculations.
Note: For panels 2 and 5, 2019 is estimated. EBITDA = earnings before interest, taxes, depreciation, and amortization; LBO = leveraged buyout; M&A = mergers and acquisitions.

Figure 2.4. Riskiness of Global Lending

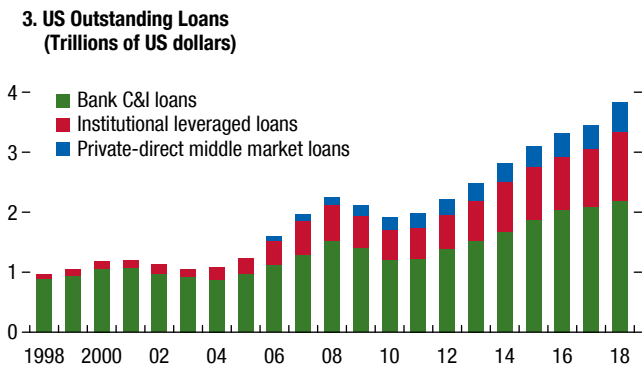
Riskiness of credit allocation has recently risen globally.



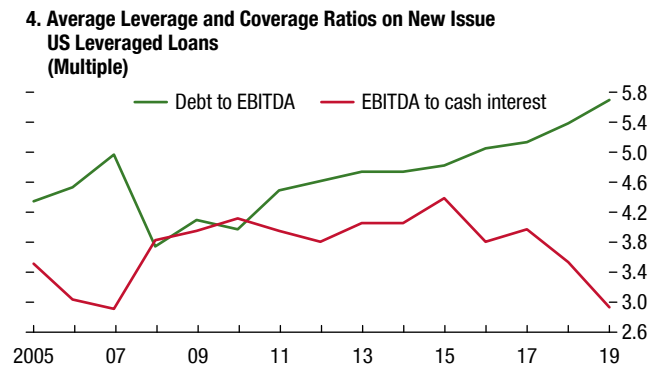
Leveraged lending in Europe has grown rapidly, whereas covenant protections have weakened.



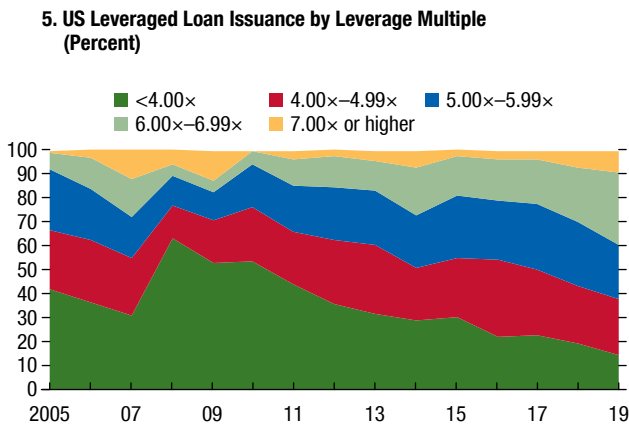
In the United States, nonbank lending has expanded faster than loans provided by banks ...



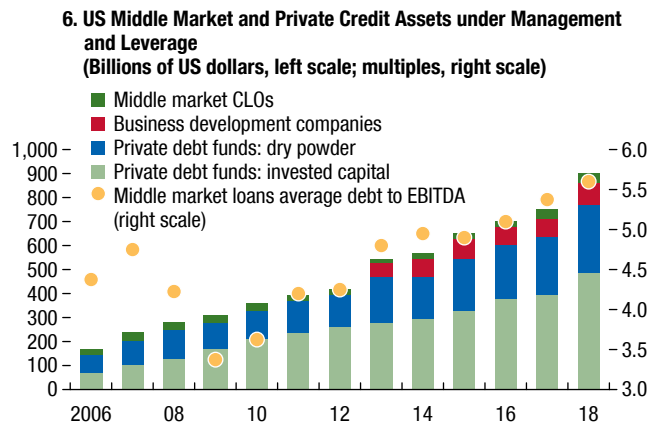
... and credit metrics in the leveraged loan market have continued to weaken ...



... with highly leveraged deals representing a growing portion of the new issue market.



The search for yield has driven rapid growth in private, small risky loans and rising leverage.



Sources: Preqin 2019; S&P Leveraged Commentary & Data; Worldscope; and IMF staff calculations.

Note: In panel 1, the riskiness of credit allocation based on debt overhang is the average vulnerability decile of top issuers minus average vulnerability decile of bottom issuers, where top issuers are firms in the top quintile of change in debt divided by lagged assets, bottom issuers are firms in the bottom quintile of change in debt divided by lagged assets, and debt overhang is debt-to-EBITDA (see Chapter 2 in the April 2018 *Global Financial Stability Report*). For panel 3, private-direct middle market loans do not include dry powder of private debt funds. The middle market, as defined by Standard & Poor's, is composed of firms that have \$50 million or less in earnings before interest, taxes, depreciation, and amortization (EBITDA). Private loans refer to financing that is directly negotiated between a lender (typically an asset manager) and a borrower (typically a small- to medium-sized company with speculative-grade debt), and for which a syndicate bank is not involved. For panel 6, dry powder refers to the amount of capital that has been committed to a private capital fund minus that amount that has been called by the general partner for investment. C&I = commercial and industrial; CLOs = collateralized loan obligations.

is generally considered a good leading indicator of future corporate sector distress.¹⁷

Since the global financial crisis, the global recovery and easy financial conditions have supported nonfinancial firms' profits, lowered their interest burden, and encouraged borrowing (see Figure 2.5):

- *Profitability* trends have varied across countries and types of firms since 2009. In China, SMEs remain highly profitable, but large firms, including state-owned enterprises, have relatively weak profitability. In Europe and Japan, profitability is now close to median global levels. In the United States, large firms remain highly profitable, but SMEs seem to have weak profitability.
- *Interest costs* have broadly declined over the past several years. In China and the United States, the wedges in interest costs between large firms and SMEs continue to be significant—in contrast with Europe.
- *Debt-to-assets ratios* have declined in Europe and Japan, and more recently, in China—reflecting deleveraging efforts—but remain elevated at large firms in several countries. Debt ratios have risen to record levels at US large firms. The increases in gross debt have been partly offset by larger cash holdings.
- *Debt-at-risk* (as a share of total debt) in the SME segment has risen to high levels in the United States and remains elevated in the United Kingdom and some euro area countries, notwithstanding significant improvements since 2009. Debt-at-risk at large firms has declined to relatively low levels in Japan and the United States but remains elevated in the United Kingdom and—to a lesser extent—in China.

Despite notable declines in Europe and Japan, corporate vulnerabilities remain significant in several countries (Figure 2.6). The estimated share of speculative-grade debt in total corporate sector debt is now nearly 50 percent in China and the United States and is even higher in Italy, Spain, and the United Kingdom, despite notable declines since the global financial crisis. Furthermore, the share of debt-at-risk in total corporate sector debt is above 25 percent in the United Kingdom and the United States.

¹⁷For example, Çelik, Demirtas, and Isaksson 2019 show that periods of significant increases in the share of speculative-grade bonds were regularly followed by significant increases in corporate default rates.

Corporate Debt-at-Risk May Increase Further in an Economic Downturn

An adverse scenario could be triggered by some of the risk factors discussed in Chapter 1, including escalating trade tensions. The same GDP shock is applied to all the countries—at half the average severity of the global financial crisis in terms of declines in GDP growth, whereas interest rates paid by firms rise to half the level in the global financial crisis.¹⁸ Based on the IMF staff corporate bonds valuation model, spreads are projected to widen significantly as corporate fundamentals deteriorate, economic uncertainty rises, and current misalignments disappear (Figure 2.7). Firms would face lower profits and—given heavy debt loads, valuation pressures, and likely limited market liquidity—would not be able to deleverage quickly.

In this adverse scenario, debt-at-risk rises quickly as weaker profits and higher interest costs lower the ICRs (Figure 2.8, panels 1 and 2). In France and Spain, debt-at-risk is approaching the levels seen during previous crises; while in China, the United Kingdom, and the United States, it exceeds these levels. This is worrisome given that the shock is calibrated to be only about half what it was during the global financial crisis. This increase in debt-at-risk can be explained by the growth in indebtedness after the global financial crisis.

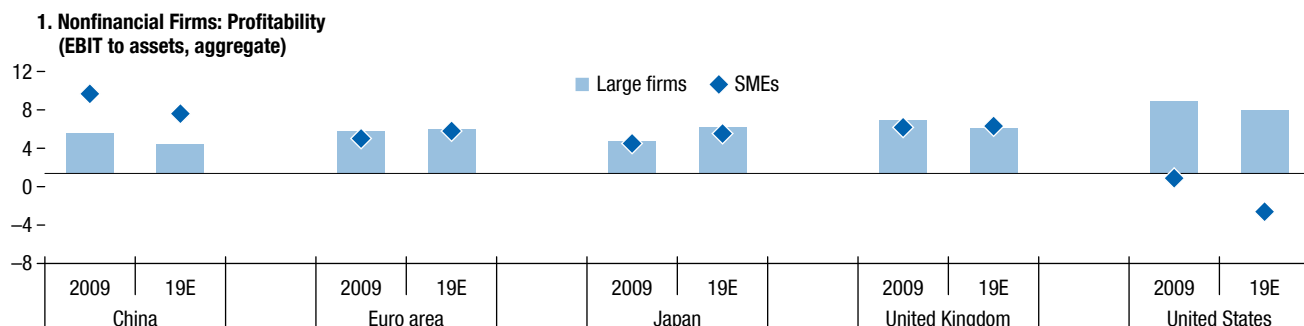
The speculative-grade debt and debt-at-risk are economically significant in several countries, given their high aggregate corporate debt levels (Figure 2.8, panel 3).¹⁹ In China, France, Spain, and the United Kingdom, the significant increase in the debt-at-risk in the adverse scenario can be partly explained by a large share of speculative-grade debt in these countries, some of which migrates to the debt-at-risk category in the adverse scenario. The deterioration of credit quality in China and the United Kingdom is driven mainly by large firms, while in France and Spain it is attributable to both large firms and SMEs. On aggregate, in these eight economies, the debt-at-risk would amount to \$19 trillion, or nearly 40 percent of total corporate debt, in the adverse scenario in 2021.

¹⁸See Section 2 of Online Annex 1.1.

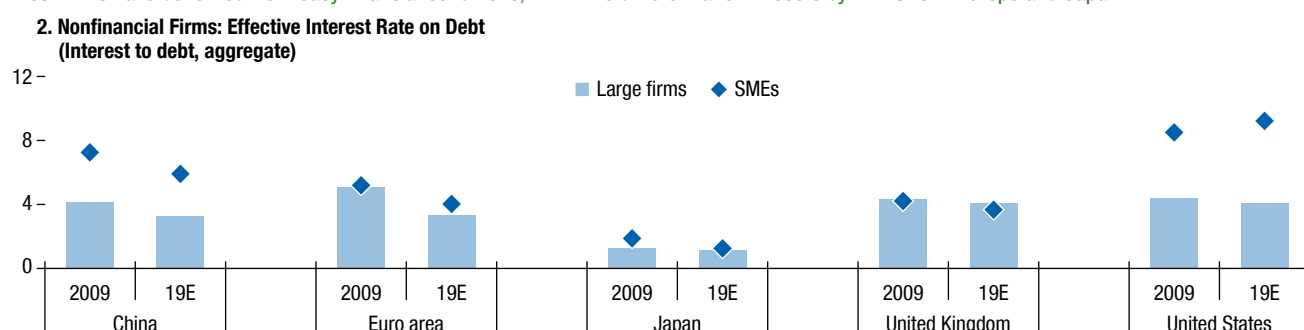
¹⁹The number for the debt-at-risk in France is higher than what was reported in France's 2019 Financial Sector Assessment Program (IMF 2019), mainly because the debt-at-risk in this report is calculated at the system level, whereas the Financial Sector Assessment Program uses the debt-at-risk in the sample.

Figure 2.5. Corporate Fundamentals: Ingredients of Firms' Debt Servicing Capacity

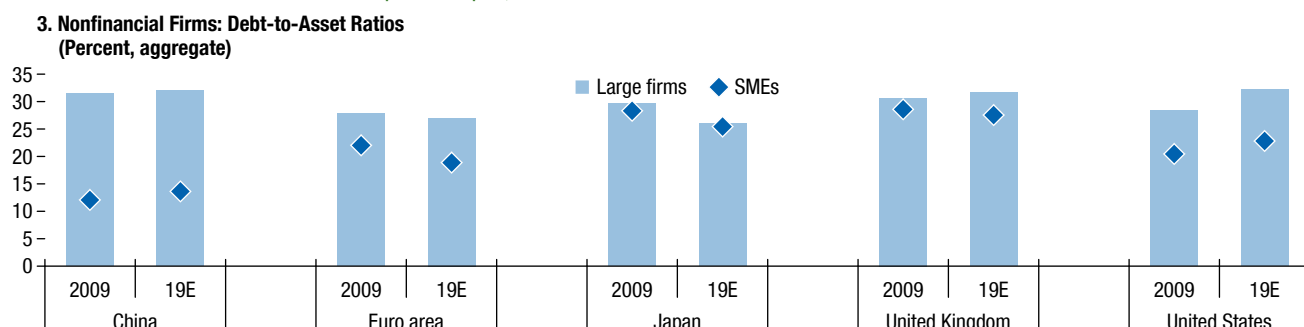
Since 2009, profitability has improved at European SMEs, Japanese firms, and US large firms.



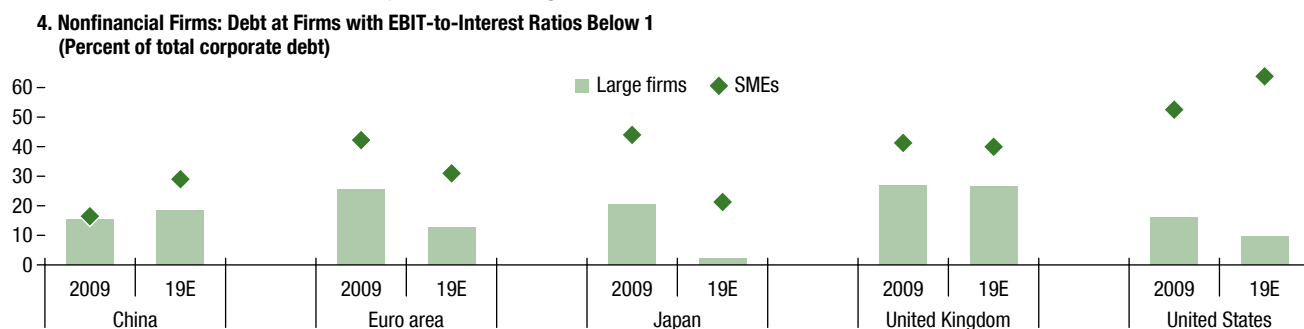
Most firms have benefited from easy financial conditions, with little differentiation in costs by firm size in Europe and Japan.



Debt-to-asset ratios have declined in Europe and Japan, but increased at US firms.



Debt-at-risk has fallen in the euro area, Japan, and at US large firms but has remained elevated at UK firms and has risen in China and at US SMEs.

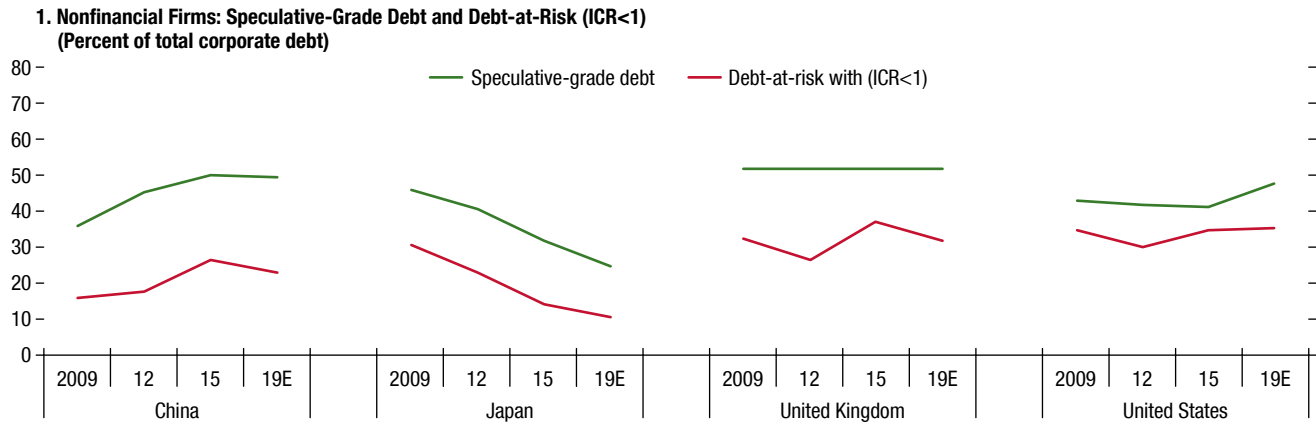


Sources: Bureau van Dijk Orbis; S&P Global Market Intelligence; WIND Information Co.; and IMF staff calculations.

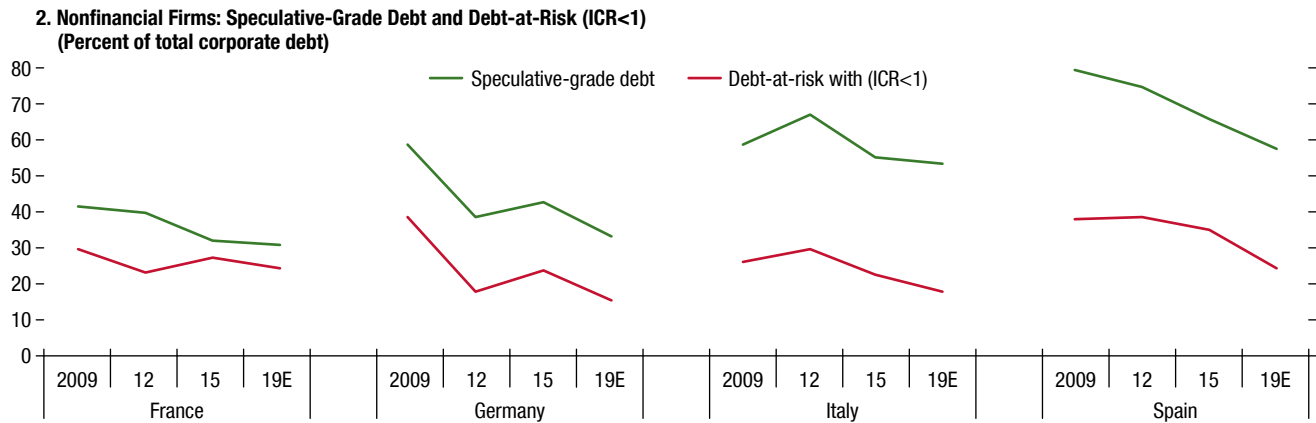
Note: The sample includes about 1.3 million firms from Orbis, 10,000 firms from Capital IQ, and 10,000 Chinese firms from WIND. The sample's coverage is based on aggregate corporate debt from the Bank for International Settlements and national sources and is at least 44 percent in China, 38 percent in France, 55 percent in Germany, 53 percent in Italy, 51 percent in Japan, 62 percent in Spain, close to 100 percent in the United Kingdom, and 39 percent in the United States. The data for 2019 are estimates. E = estimated; EBIT = earnings before interest and taxes; SME = small and medium-sized enterprise.

Figure 2.6. Speculative-Grade Debt and Debt-at-Risk

The shares of speculative-grade debt and debt-at-risk remain significant in China, the United Kingdom, and the United States, but have declined in Japan.



In the euro area, credit quality has improved, but the shares of speculative-grade debt are still sizable.



Sources: Bank for International Settlements (BIS); Bureau van Dijk Orbis; Haver Analytics; S&P Global Market Intelligence; WIND Information Co.; and IMF staff calculations.

Note: The sample includes about 1.3 million firms from Orbis, 10,000 firms from Capital IQ, and 10,000 Chinese firms from WIND. The sample's coverage is based on aggregate corporate debt from BIS and national sources and is at least 44 percent in China, 38 percent in France, 55 percent in Germany, 53 percent in Italy, 51 percent in Japan, 62 percent in Spain, close to 100 percent in the United Kingdom, and 39 percent in the United States. The panels show the outcomes for the overall corporate sector based on an extrapolation of the results for the sample of firms. The data for 2019 are estimates. Aggregate corporate debt in France includes intercompany debt. E = estimated; EBIT = earnings before interest and taxes; ICR = interest coverage ratio.

Some Financial Institutions Have Large Exposures to Corporate Credit Risks

High corporate debt-at-risk may translate into higher credit losses for financial institutions with significant exposures to corporate loans and bonds. Smaller and regional banks are more exposed to the SME segment, which is found to be relatively weak in several European countries and in the United States.²⁰ In the euro area and China, a large fraction of corporate loans comes from banks (Figure 2.9, panel 1), and thus, banks have

significant exposure to corporate risks. In the United States, bond and institutional leveraged loans holders face weakening credit quality, as discussed in the April 2019 GFSR. US regional banks are more exposed to SMEs and risky commercial real estate loans and increasingly buy tranches of syndicated leveraged loans originated by large banks.²¹ Nonbank lenders have a different risk profile from banks, and their behavior in a downturn, as well as their impact on credit markets and any implication for banks, have not been tested.

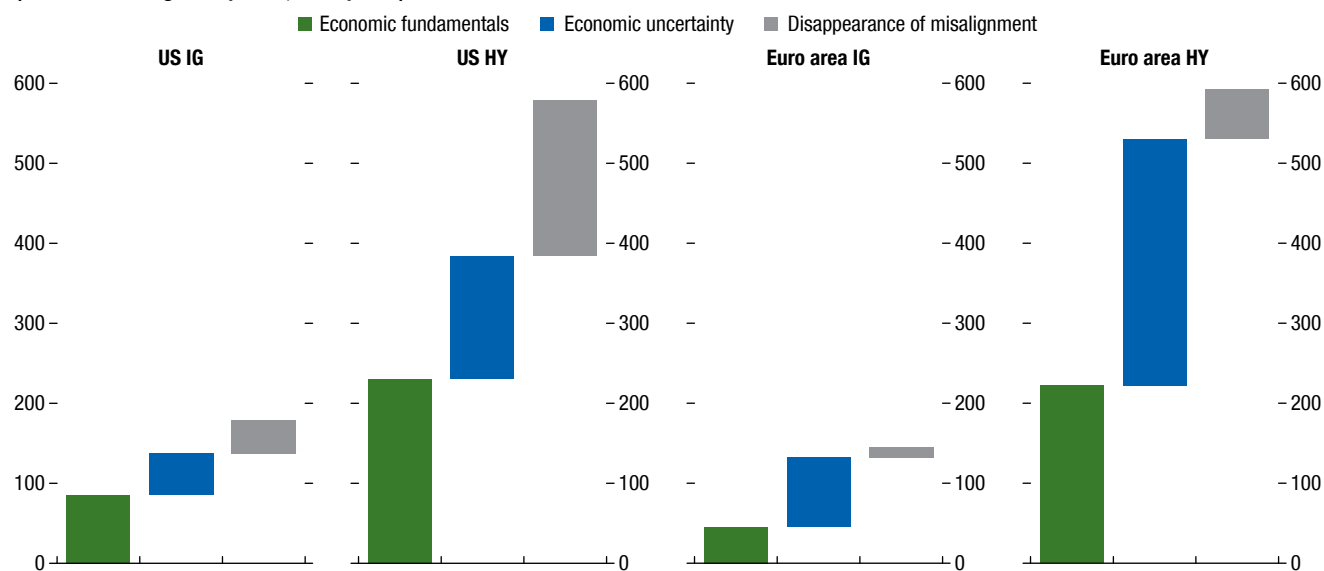
²⁰See European Central Bank 2019.

²¹See Usai and others 2019.

Figure 2.7. Corporate Bond Spreads: The Adverse Scenario

Corporate bond spreads could widen significantly in a stress scenario with weaker growth, higher economic uncertainty, and reduced investor risk appetite.

**Corporate Bond Spread Scenario: United States and Euro Area
(Cumulative changes in spreads, basis points)**



Sources: Bloomberg Finance L.P.; Consensus Economics Inc.; Haver Analytics; S&P Global Market Intelligence; Thomson Reuters I/B/E/S; and IMF staff calculations. Note: The scenario analysis is based on the corporate bond spread valuations model (see Figure 2.2). HY = high yield; IG = investment grade.

In addition to credit exposures, liquidity risks could be higher in a downturn, given that the shares of bonds held by mutual funds and exchange-traded funds, as well as by foreign investors, have risen (Figure 2.9, panels 2 and 3).

Conclusion

Corporate sector vulnerabilities are elevated across countries, albeit to different degrees. The key concerns in the three major economic regions are as follows:

- *In China*, overall corporate debt is very high, and the size of speculative-grade debt is economically significant. This is mainly because of large firms, including state-owned enterprises. In addition, the debt-at-risk in China is found to be very sensitive to deteriorations in growth and funding conditions (because of a large share of speculative-grade debt) and it surpasses postcrisis crests in the adverse scenario presented in this chapter. The assessment of the potential systemic impact of corporate vulnerabilities is complicated by the implicit government guarantees and the lack of granular data

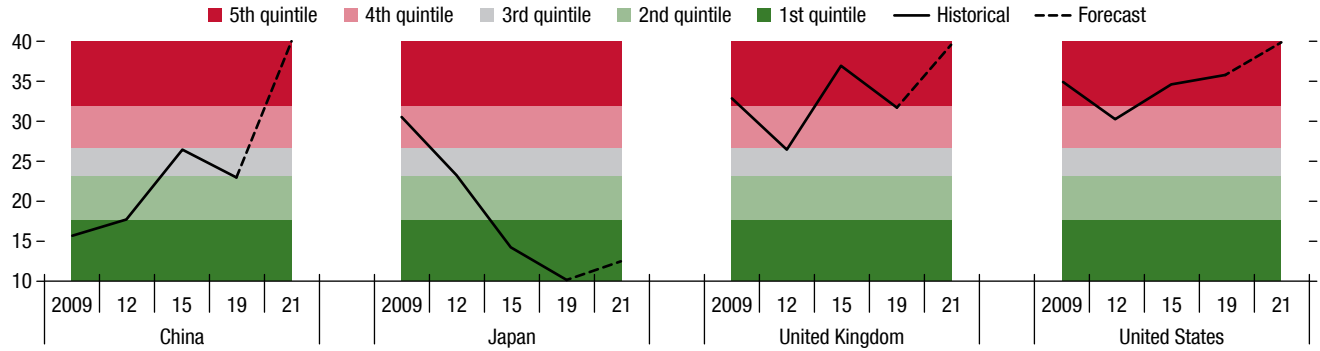
on corporate sector exposures of different segments of the large, opaque, and interconnected financial system in China.

- *In Europe*, progress in deleveraging since the euro area debt crisis has been significant. Both aggregate corporate debt and debt-at-risk have declined in major economies. However, the window of opportunity for an organic cyclical improvement in credit metrics has likely closed. Sales and profits at large firms in the euro area appear to have weakened more than at their US peers this year. Furthermore, the levels of speculative-grade debt and debt-at-risk are already high in several countries—mainly because of SMEs. In an adverse scenario, the debt-at-risk is estimated to approach crisis levels in France, Spain, and the United Kingdom. Small and medium banks—which are still numerous in several countries—have large exposures to SMEs.
- *In the United States*, a combination of solid fundamentals at large firms and easy financial conditions has shaped an exuberant environment and helped boost corporate valuations. Financial risk-taking by nonfinancial companies has increased, often

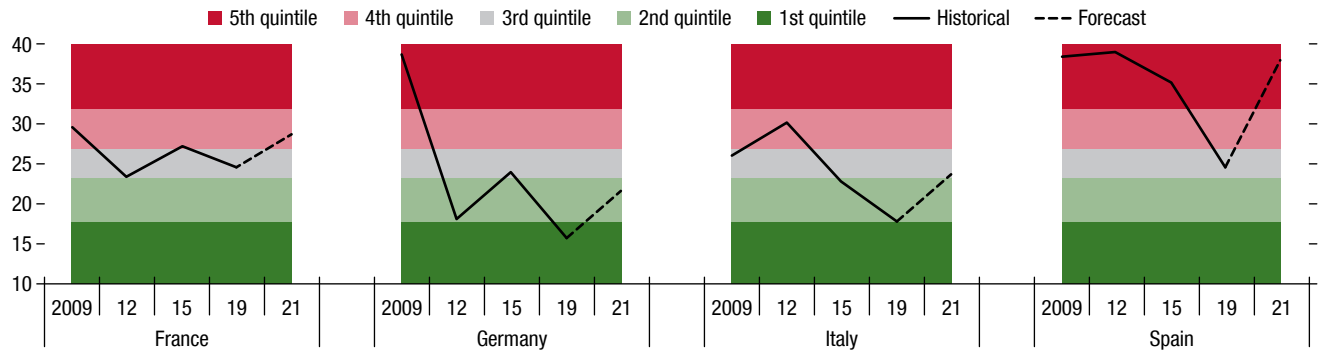
Figure 2.8. Corporate Debt-at-Risk: The Adverse Scenario

Corporate credit quality is projected to weaken in a stress scenario emulating half the severity of the global financial crisis.

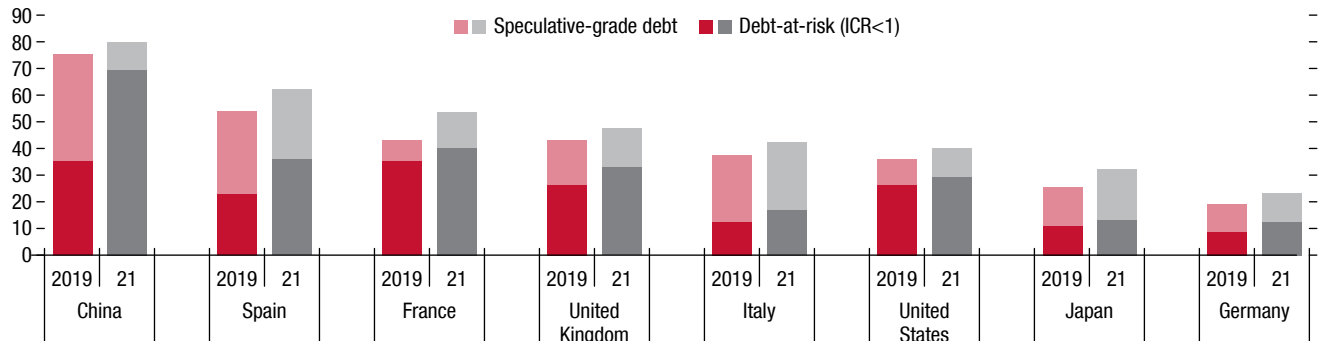
**1. Nonfinancial Firms: Debt-at-Risk (ICR<1)
(Percent of total corporate debt)**



**2. Nonfinancial Firms: Debt-at-Risk (ICR<1)
(Percent of total corporate debt)**



**3. Nonfinancial Firms: Speculative-Grade Debt and Debt-at-Risk (ICR<1)
(Percent of GDP)**



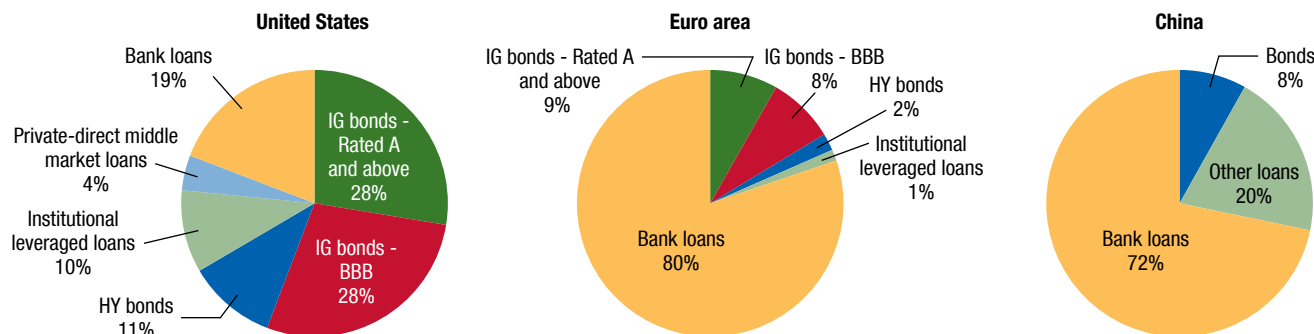
Sources: Bank for International Settlements (BIS); Bureau van Dijk Orbis; Haver Analytics; S&P Global Market Intelligence; WIND Information Co.; and IMF staff calculations.

Note: The sample comprises about 1.3 million firms from Orbis; 10,000 firms from Capital IQ; and 10,000 Chinese firms from WIND. The sample's coverage based on aggregate corporate debt from the BIS and national sources is at least 44 percent in China, 38 percent in France, 55 percent in Germany, 53 percent in Italy, 51 percent in Japan, 62 percent in Spain, close to 100 percent in the United Kingdom, and 39 percent in the United States. The panels show the outcomes for the overall corporate sector based on an extrapolation of the results for the sample of firms. The data for 2019 are estimates, and 2021 data are forecasts in the adverse scenario. In panels 1 and 2, the dark red and red areas correspond to the 80th and 60th percentiles in the pooled sample of eight major economies from 2009 to 2018. In panel 3, the 2019 number for the debt-at-risk in France is higher than what is reported in France's 2019 Financial Sector Assessment Program (FSAP), mainly because the debt-at-risk in this report is calculated at the system level, whereas the FSAP uses the debt-at-risk in the sample. Aggregate corporate debt in France includes intercompany debt. EBIT = earnings before interest and taxes; ICR = interest coverage ratio.

Figure 2.9. Shift in the Provision of Corporate Credit and the Investor Base

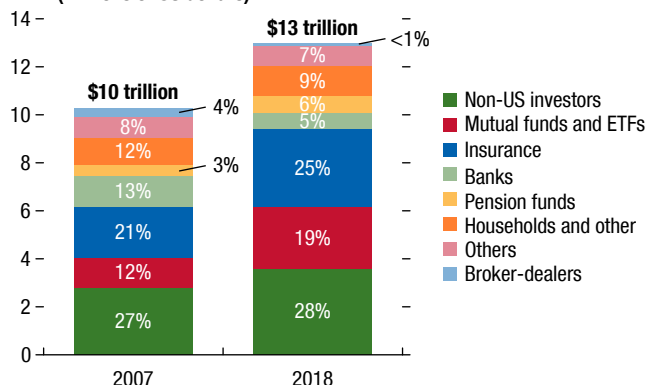
Capital market instruments have gained in prominence in the United States, whereas bank lending remains prevalent in the euro area and China.

1. Composition of Corporate Credit as of 2018 (Percent)



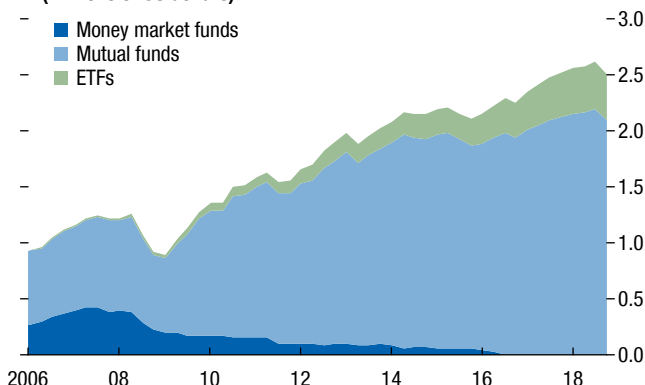
Ownership of US corporate bonds has shifted to investment funds and foreign investors ...

2. US Corporate Bond Ownership (Trillions of US dollars)



... as mutual fund ownership of US corporate bonds has increased more than 150 percent from levels before the global financial crisis.

3. US Corporate Bond Fund Ownership (Trillions of US dollars)



Sources: Bank for International Settlements; European Central Bank; Federal Reserve; Haver Analytics; Morgan Stanley; People's Bank of China; S&P Leveraged Commentary & Data; and IMF staff calculations.

Note: In panels 1 (the United States and the euro area), 2, and 3, financial corporate debt is included. For panels 2 and 3, the calculation for corporate bonds also includes holdings of foreign issues by US residents. ETFs = exchange-traded funds; HY = high yield; IG = investment grade.

funded by debt. Of particular concern is the rapid growth in the risky leveraged loan and private credit segments. Recent shifts in the investor base toward capital markets and nonbanks have been conducive to these developments. The analysis in this chapter shows that the US SME segment is relatively weak, which is a key factor in the IMF staff assessment of elevated speculative-grade debt and debt-at-risk. Banks and nonbank financial institutions that are highly exposed to corporate paper, leveraged loans, private credit, and SME loans would be susceptible to losses in an adverse scenario, possibly amplifying the magnitude of the downturn by cutting back on credit to the economy.

Policies Are Needed to Address Corporate Sector Vulnerabilities

These findings suggest that corporate vulnerabilities should be addressed urgently, and that policy uncertainty should be reduced to minimize the likelihood of an adverse scenario.

Financial *regulation and oversight* should remain robust and rigorous.²² Policymakers should consider broadening the regulatory and supervisory perimeter to include nonbank financial intermediaries

²²For example, see specific policy recommendations in France's 2019 Financial Sector Assessment Program.

as warranted—especially those with large exposures to firms:

- *Regulators and supervisors of regional banks* should closely monitor and address, as needed, the sizable exposures of such institutions to potentially vulnerable nonfinancial firms and commercial real estate through adequate risk management, provisioning, and capital buffers.
- *Disclosures at nonbank financial institutions*, including their exposures, should be improved. This is a crucial step toward monitoring systemic risk. In particular, *transparency in the growing private debt market* should be enhanced, including through collection of data on cross-border exposures.

More countries would benefit from actively using *macroprudential tools* to increase their financial systems' resilience and to cool down credit growth where it may be posing risks to financial stability. At the same time, authorities should be mindful of the risks of shifting vulnerabilities from banks to

nonbank financial institutions and of exacerbating regulatory arbitrage:

- *Broad-based macroprudential tools* (such as *countercyclical buffers*) should be activated preemptively in countries where economic conditions are still relatively benign or financial conditions are still loose.
- Where credit developments are a concern in a particular sector, countries should conduct *targeted stress tests at banks* and could also consider more *targeted sectoral capital buffers for banks or increase risk weights* on such exposures (see the October 2014 GFSR). Countries may also consider developing *prudential tools for highly leveraged firms*.²³

Countries should reduce potential debt bias in tax systems—which allows firms to deduct at least some interest expenses and thus may encourage excessive corporate borrowing.²⁴

²³In France, for example, authorities tightened large exposure limits for bank credit to indebted companies.

²⁴See De Mooij and Hebous 2018; IMF 2016.

References

- Aikman, David, Andrew G. Haldane, and Benjamin D. Nelson. 2013. “Curving the Credit Cycle.” *Economic Journal* 125 (585): 1072–109.
- Antoshin, Sergei, Marco Arena, Nikolay Gueorguiev, Tonny Lybek, John Ralyea, and Etienne B. Yehoue. 2017. “Credit Growth and Economic Recovery in Europe after the Global Financial Crisis.” IMF Working Paper 17/256, International Monetary Fund, Washington, DC.
- Bank of England. 2019. “Financial Stability Report.” London.
- Bank of Japan. 2019. “Financial System Report.” Tokyo.
- Bernanke, Ben, Mark Gertler, and Simon Gilchrist. 1996. “The Financial Accelerator and the Flight to Quality.” *Review of Economics and Statistics* 78 (1): 1–15.
- Black, Fischer, and Myron Scholes. 1973. “The Pricing of Options and Corporate Liabilities.” *Journal of Political Economy* 81 (3, May–June): 637–54.
- Bridges, Jonathan, Chris Jackson, and Daisy McGregor. 2017. “Down in the Slumps: The Role of Credit in Five Decades of Recessions.” BOE Working Paper 659, Bank of England, London.
- Çelik, Serdar, Gul Demirtaş and Mats Isaksson. 2019. “Corporate Bond Markets in a Time of Unconventional Monetary Policy.” OECD Capital Market Series, Organisation for Economic Co-operation and Development, Paris.
- Collin-Dufresne, Pierre, Robert S. Goldstein, and J. Spenser Martin. 2001. “The Determinants of Credit Spread Changes.” *Journal of Finance* 56 (6): 2177–207.
- Crouzet, Nicolas, and Janice Eberly. 2018. “Understanding Weak Capital Investment: The Role of Market Concentration and Intangibles.” Speech given at Jackson Hole Economic Policy Symposium, August 23–25.
- De Mooij, Ruud, and Shafik Hebous. 2018. “Curbing Corporate Debt Bias: Do Limitations to Interest Deductibility Work?” *Journal of Banking & Finance* 96.
- Ericsson, Jan, Kris Jacobs, and Rodolfo Oviedo. 2009. “The Determinants of Credit Default Swap Premia.” *Journal of Financial and Quantitative Analysis* 44 (1): 109–32.
- European Central Bank. 2019. *Financial Stability Review* (May).
- Gluckman, Derek A., Enam Hoque, Evan M. Friedman, and Glenn B. Eckert. 2019. “North American Loan Covenant Quality Indicator.” Moody’s Investors Service, New York.
- International Monetary Fund (IMF). 2016. “Tax Policy, Leverage and Macroeconomic Stability.” IMF Policy Paper, Washington, DC.
- . 2019. “France: Financial System Stability Assessment.” IMF Country Report, Washington, DC.
- Jorda, Oscar, Moritz Shularick, and Alan M. Taylor. 2012. “When Credit Bites Back: Leverage, Business Cycles, and Crises.” Federal Reserve Bank of San Francisco Working Paper 2011–27.
- Jungherr, Joachim, and Immo Schott. 2018. “Debt Dilution and Debt Overhang.” ADEMU Working Paper 2018/124, A Dynamic Economic and Monetary Union, European Union Horizon 2020 Program, Brussels.
- Kalemli-Ozcan, Sebnem, Luc Laeven, and David Moreno. 2019. “Debt Overhang, Rollover Risk, and Corporate Investment: Evidence from the European Crisis.” European Central Bank Working Paper 2241, European Central Bank, Frankfurt.
- Kaplan, Robert. 2019. “Corporate Debt as a Potential Amplifier in a Slowdown.” Dallas Fed Economics, Federal Reserve Bank of Dallas.
- Merton, Robert. 1974. “On the Pricing of Corporate Debt: The Risk Structure of Interest Rates.” *Journal of Finance* 29 (2): 449–70.
- Mian, Atif, Amir Sufi, and Emil Verner. 2016. “Household Debt and Business Cycles Worldwide.” NBER Working Paper 21581, National Bureau of Economic Research, Cambridge, MA.
- Muthukrishnan, Ramki, Daniel Hu, and Stewart M. Webster. 2019. “Easy Credit Fuels Growth in U.S. Middle Market CLO Loans.” S&P Global Ratings, June 20.
- Preqin. 2019. 2019 Preqin Global Private Debt Report. London.
- Usai, Andrea, David Fanger, Megan Fox, and M. Celina Vansetti. 2019. “US Banks—Rising Leveraged Lending Risks Are Contained, Barring Adverse Turn in Operating Environment.” Moody’s Investor Services, New York.