Deteriorating conditions of global financial markets amid high debt

OECD

Please cite as: OECD (2022), *Deteriorating conditions of global financial markets amid high debt,* OECD Business and Finance Policy Papers, OECD Publishing, Paris. https://doi.org/10.1787/89757fae-en.

Financial and commodity markets have been impacted by high inflation and a deteriorating growth outlook. The necessary tightening of monetary policy has cascaded through markets, contributing to rising yields, significant asset price corrections, and rising debt costs for sovereigns, households and corporates. Existing high debt levels in these sectors raise concerns about the prospects of debt servicing. In some emerging markets, tightening financial conditions combined with weak fundamentals and large outflows could accelerate debt distress. The growing potential for broad-based credit losses could affect the resilience of various financial intermediaries, with negative impacts on credit intermediation and economic growth going forward.

Foreword

This report assesses the major financial market developments, the spillovers to credit risk, and rising vulnerabilities in several market segments against a backdrop of tighter monetary conditions amid slowing global growth, elevated inflation and persisting geopolitical tensions. The report considers the economic imbalances highlighted by the OECD Economic Outlook (OECD, 2022[1]) and explores the financial ramifications.

This report was prepared by Caroline Roulet under the supervision of Robert Patalano of the Financial Markets Division within the OECD Directorate for Financial and Enterprise Affairs. The author gratefully acknowledges substantive contributions and constructive feedback provided by Ana Sasi-Brodesky and Oliver Garrett-Jones (Financial Markets Division, OECD Directorate for Financial and Enterprise Affairs). The author also gratefully acknowledges constructive feedback provided by the British, Czech, Italian and Spanish Delegations. Liv Gudmundson (OECD Directorate for Financial and Enterprise Affairs) provided editorial and communication support. This document [DAF/CMF(2022)29] was approved by the OECD Committee on Financial Markets at its 139th Session on 6 October 2022 and prepared for publication by the OECD Secretariat.

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1 Overview

Financial market conditions have deteriorated in 2022 as global growth slows, commodities markets remain volatile and geopolitical tensions persist. With growing concerns that elevated inflation could continue, many central banks in advanced and emerging economies have increased their policy rates, and several have begun to reduce the size of their balance sheets.

Tightening monetary policy has contributed to rising yields across bond markets. Yields have climbed in sovereign debt markets, and for both fixed and floating investment-grade corporate debt. Corporates that rely on leveraged finance markets are also facing tighter lending terms, with a substantial rise in speculative-rated corporate bond yields close to levels reached during the COVID-19 crisis. Tightening monetary conditions combined with deteriorating economic conditions contribute to elevated investors' concerns about recession risks, as reflected by flattening yield curves in major advanced markets. For instance, sovereign bond spreads have widened for some indebted issuers amid worsening growth prospects and reduced fiscal space to manage rising financing costs.

A deteriorating economic outlook has contributed to significant price declines for risk assets over the last six months. Rising interest rates on expectations of continued high inflation in 2023, and an erosion of the corporate earnings outlook, contributed to the significant decline in global equity prices in 2022. Notably, interest rate sensitive sectors such as technological and consumer discretionary sectors and emerging market equity benchmarks have recorded significant downward price movements. Corporate bond spreads and credit default swap spreads have also widened globally, and stand at elevated levels, particularly in Europe, amid rising concerns about energy costs on business conditions and debt sustainability prospects of leveraged firms. Mounting concerns about corporate debt sustainability have led investors to reduce exposure to speculative-rated corporate bond markets as reflected by declining issuance of speculative-rated corporate bonds and collateralised loan obligations (CLOs). Macroeconomic headwinds have also weighted heavily on the performance of crypto-assets, which have recorded substantial price corrections resulting in several failures among service providers.

Market liquidity metrics have worsened across asset classes, including in markets that are generally highly liquid, such as the US Treasury bond market, as well as the primary and secondary US corporate bond market. As the Federal Reserve reduces the size of its balance sheet, Treasury and repo funding markets could be under pressure. Dealers will inevitably hold more Treasury inventory and investment-grade rated corporate bonds, yet they would need to get funding. Therefore, pressures may increase on repo interest rates and probably contribute to more volatile Treasury markets.

In many countries, the cost of sovereign, household and corporate debt is rising, due to increasing rates and credit risk premia. As many countries are emerging from the pandemic with high levels of debt, debt servicing may pose challenges for sovereign issuers. Leveraged corporates are also facing tighter lending terms and standards amid contracting profit margins, due to higher costs and downward revisions to global earnings growth forecasts. Soaring borrowing costs and tighter lending standards, coupled with stretched valuations after years of rising prices, could adversely affect housing markets following significant house price declines in real terms. The credit quality of these assets may be tested under adverse economic conditions, with potential spillovers to the broader macroeconomy.

High debt levels in the sovereign, non-financial corporate and household sectors, combined with tighter financial conditions and complicating macroeconomic environment, could test many long-

standing and growing vulnerabilities in the global financial system. A broad-based rise in credit losses could undermine the earnings of banks and non-bank financial intermediaries and cause provisions to rise, which may negatively impact credit intermediation and growth. In particular, large mark-to-market losses and associated margin calls could raise the spectre of fire sales and self-fulfilling price dynamics, causing market conditions to deteriorate further. Notably, vulnerabilities are rising in certain market segments, and this report highlights the following five segments.

1. Highly indebted sovereign issuers, where refinancing risks may increase in OECD countries amid deteriorating credit conditions.

Despite reduced actual interest expenditures and lengthened average-term-to-maturity of outstanding debt across OECD countries, substantial amounts of debt will mature in many OECD economies within the next few years and may pose significant challenges in terms of refinancing in those countries. Though a widespread challenge, these pressures may well be felt unevenly across countries, and debt servicing will probably increase the most for those governments facing both sharp increases in yields and large financing needs.

2. Leveraged corporates, where higher interest rates and eroding credit conditions raise debt sustainability concerns, which may result in higher losses for a range of investors.

Debt sustainability concerns for leveraged corporate issuers are increasing, as reflected by outpacing rating downgrades than upgrades for speculative-rated corporate issuers since November 2021, and the sharp widening of credit spreads for lower-rated corporate borrowers. Corporate debt service ratios may rise further as financial conditions tighten and earnings decline amid rising costs and weakening economic prospects. Deteriorating credit quality of leveraged corporates in vulnerable sectors or geographies increases the risk of higher losses for a range of investors, including banks and institutional investors, and products (such as leveraged loans CLOs) exposed to these markets. In Europe, risks should be monitored for electricity companies, which could face substantial margin calls on their hedging strategies used to mitigate risks from their exposure to volatile electricity prices. Also, Chinese firms and companies in consumer discretionary, industrials and real estate sectors are likely to experience rising defaults.

3. Private capital markets, where risks could rise amid adverse market conditions, which may trigger substantial losses and possibly affect financial soundness of a range of investors.

Private equity issuance has declined significantly during the first quarter of 2022, which demonstrates the sensitivity shift in investors' sentiment. Underlying vulnerabilities, including leveraged private deals and the rise of non-bank lending in leveraged loan markets, could increase risks to financial resilience. For instance, the rising cost of debt and deteriorating earnings prospects could have a magnified impact on equity valuations amid elevated indebtedness levels, which in turn may negatively impact value creation for investors. In addition, direct lending from non-bank lenders and investments in distressed debt account for significant shares of the total assets in private debt markets. Substantial losses from private equity and debt investments may affect the financial soundness of a range of investors, including regulated pension funds and insurance companies.

4. Households in many OECD countries, where debt sustainability concerns are rising amid rising financing costs, which may cause deteriorating credit quality and losses for mortgage lenders and Residential Mortgage-Backed Securities (RMBS).

Delinquency rates are rising for US auto, credit card and consumer loans, where subprime borrowers account for a significant share of the outstanding balances, suggesting that lower-income households have become more economically strained. Higher financing costs could also moderate housing demand, which may contribute to slower growth or even decline in housing prices. Against this backdrop, declining performance of real estate investment trust (REITs) may result in share redemptions from real estate mutual investment funds (REMFs). REMFs may run out of cash and have to liquidate shares in REITs into increasingly illiquid markets, which could amplify price movements, transmitting stress to other parts of the financial system, and disrupting the availability of finance to the real economy. In addition, adjustable-rate mortgage contracts are prone to a higher probability of default when interest rates are rising, which is raising credit concerns for households, with higher risk of losses for mortgage lenders and RMBS. While mortgage interest rates have risen in many economies, mortgage lenders and RMBS markets could differ substantially in their sensitiveness to inflation and interest rate stress, depending on the prevalence of floating-rate loans and the level of household indebtedness.

5. A growing number of emerging market economies (EMEs), where tighter financial conditions amid elevated indebtedness could accelerate debt distress.

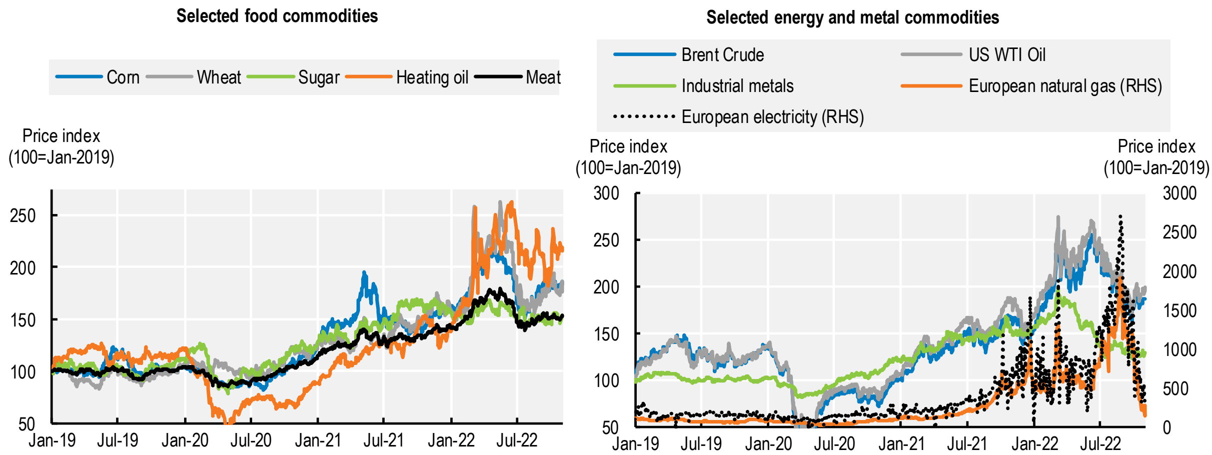
Elevated indebtedness and rising refinancing needs for sovereign issuers in many EMEs could limit public spending to support economic growth and vulnerable sections of the population. Data show that more than 50% of sovereign issuers in EMEs are in or at high risk of government debt distress, up from about 10% a decade ago. Further debt accumulation, higher bond yields and tighter financial conditions may contribute to compounding debt sustainability concerns and increase risks of default for economies whose sovereign bonds are already in distressed territory. Refinancing risks for both sovereign and corporates in EMEs could be exacerbated by widespread capital flights combined with weakening exchange rates. In addition, the significant share of Non-Bank Financial Intermediaries (NBFIs) in financing EMEs could make portfolio flows more susceptible to global financial conditions than before, accentuating the pro-cyclicality in capital flows and challenges for some issuers in EMEs to refinance their maturing debt.

2 Introduction

The global macroeconomic environment has changed considerably in the recent months. Inflation is now at multi-decade highs and broadly spread across countries. The economic outlook continues to deteriorate in many countries. At the same time, geopolitical risks persist. This introduction will explain the economic deterioration and discuss the prominent risks to the outlook as highlighted in the OECD Interim Economic Outlook (OECD, 2022[1]).

Global food and energy prices have experienced substantial growth over the recent years and have become more volatile. Among food commodities, prices for heating oil have recorded the largest increase and have more than doubled between January 2019 and end-October of 2022 (Figure 2.1). Prices for cereals (i.e. corn and wheat) have increased by about 80% and by about 50% for sugar and meat. Among energy commodities, prices for European natural gas and electricity have skyrocketed following current geopolitical tensions and remain highly volatile. Importantly, the cost of natural gas is a significant driver of electricity prices, including power generated from renewable energy sources, because of the way prices are determined in the wholesale electricity market (IEA, 2022[2]).[1] Therefore, as long as gas prices will remain extremely high, the cost of electricity is expected to remain also elevated (unless there will be an intervention) even though other, cheaper sources, also contribute to electricity production. Oil prices have also significantly increased by over 80% on European and US markets respectively. In contrast, prices of industrial metals have declined of about 20% during the first three-quarters of 2022 amid weakening demand from China following renewed lockdowns in some Chinese large cities.

Figure 2.1. Elevated food and energy prices could boost inflation



Source: Refinitiv, OECD calculations.

[1] The price of gas often acts as the marginal (i.e. highest cost) fuel of generating units that operators dispatch to supply electricity. Currently, the cost of electricity varies depending on the source of energy used to generate power. For example, the cost of generating electricity from energy sources is lower than actual spot selling market price.

Elevated food and energy prices are likely to contribute to boost price increases more broadly and become an increasingly politically sensitive topic as energy markets are focusing more deeply on the global energy transition (Blackrock, 2022[3]). The situation has worsened in September in Europe with the complete shutdown of North Stream I gas pipeline from Russia for an indefinite period. At the end of September, the destruction of parts of the pipeline makes the infrastructure unusable. Prices of food and energy commodities could remain elevated amid geopolitical tensions and China reopening, yet prices of iron ore and industrial metals (i.e. metallurgical metals, copper) may decline amid slowing demand from the Chinese construction sector (Financial Times, 2022[4]). Although some amount of supply chain disruption remains tied to ongoing lockdowns in parts of China, geopolitical concerns have caused many industries to re-evaluate supply chain geographical spread, which can be both disruptive and costly to implement and subsequently a driving factor of inflation.

Global GDP growth is expected to slow and inflation is projected to remain elevated in certain OECD jurisdictions in the short to medium term amid persisting geopolitical tensions, supply chain disruptions and labour market shortage. Current geopolitical tensions and the impact on global commodity, trade and financial markets, along with shutdowns in major cities and ports in China due to the zero-COVID-19 policy, has generated a set of adverse shocks for economic growth and inflation in 2022 (OECD, 2022[1]). Notably, global economic growth stalled in the second quarter of 2022, and indicators in many economies now point to an extended period of subdued growth. The war has also pushed up energy and food prices substantially, aggravating inflationary pressures at a time when the cost of living was already rising rapidly around the world. Against this backdrop, global growth is projected to slow from 3% in 2022 to 2.25% in 2023, well below the pace foreseen prior to the war. Headline inflation is projected to ease from 8.2% in 2022 to 6.5% in 2023 in the G20 economies and decline from 6.2% in the G20 advanced economies this year to 4% in 2023. Nevertheless, significant uncertainty is surrounding such projections. For instance, more severe fuel shortages, especially for gas, could reduce growth in Europe by a further 1.25 percentage points in 2023, with global growth lowered by 0.5 percentage point, and raise European inflation by over 1.5 percentage points.

Global GDP growth is projected to slow sharply this year to 3%, around 1.5 percentage points weaker than projected in the December 2021 OECD Economic Outlook, and to remain at a similar subdued pace in 2023. Consumer price inflation is projected to remain higher that targeted by central banks, averaging around 5.5% in the major advanced economies in 2022, and 8.5% in the OECD as a whole. Core inflation is projected to remain at or above medium-term objectives in many major economies at the end of 2023.

The uncertainty around this outlook is high, and there are a number of prominent risks. The effects of current geopolitical tensions may be even greater than assumed, considering the interruption of flows of gas to Europe from Russia and how cold the winter 2022-23 will be, further increases in commodity prices, or stronger disruptions to global supply chains. Persisting inflationary pressures and sharp increases in policy interest rates could also slow growth by more than projected. Financial markets are adjusting to tighter global financial conditions as investors are increasingly concerned by the implications of deteriorating economic conditions from high debt levels and elevated valuations of certain risky assets. High levels of indebtedness in certain jurisdictions could constraint needed additional fiscal support to the most vulnerable households and corporates to alleviate pressures from elevated energy costs. Challenges also prevail for many EMEs, from rising food and energy prices, the slow recovery from the pandemic, high debt, and the potential for capital outflows as interest rates rise in the advanced economies. Risks also remain from the evolution of the COVID-19 pandemic: new more aggressive or contagious variants may emerge, while the application of zero-COVID-19 policies in large economies like China has the potential to weaken global demand and disrupt supply for some time to come.

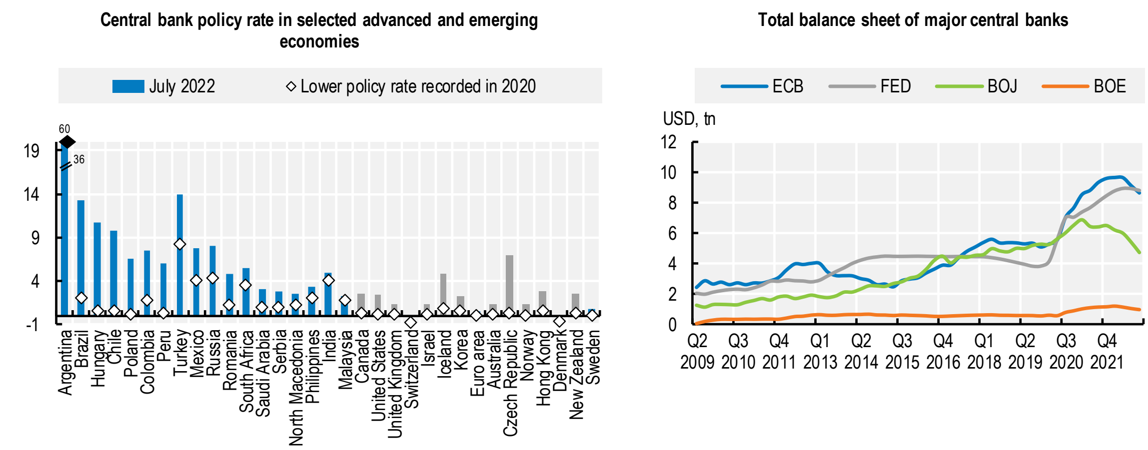
The report assesses the major financial market developments and rising vulnerabilities against a backdrop of tighter monetary conditions, elevated inflation, slowing global growth, and persisting geopolitical event risks. The rest of this report is structured as follows:

- Section 2 highlights the major financial market developments in response to elevated inflation, rising interest rates, and the deteriorating economic outlook.
- Section 3 explores the spillovers of credit risk across market segments including deteriorating credit market conditions for some indebted sovereign and corporate issuers, declining valuations of REITs and rising challenges for financial institutions from high inflation and slowing growth.
- Section 4 discusses global markets' credit risk outlook for sovereign issuers, leveraged corporates and private markets, households and emerging markets.

3 Major financial market developments in response to elevated inflation, rising interest rates, and the deteriorating economic outlook

To address such inflation pressures, a number of central banks in advanced and emerging market countries have increased their policy rates, yet short-term inflation expectations remain elevated in major advanced markets. A number of central banks have increased their policy rates in 2021 and 2022 globally, and policy rates stand at elevated levels particularly in some EMEs (Figure 3.1). Nonetheless, tightening cycles are likely to nearing an end in EMEs given already elevated policy rates as growth concerns are emerging in addition to inflation pressures (Capital Economics, 2022[5]). Also, major central banks are starting to reduce the size of their balance sheets (i.e. the Bank of Japan, the European Central Bank and the Federal Reserve in particular). These developments highlight a significant ongoing monetary policy shift globally in response to the highest inflation levels experienced in 40 years.

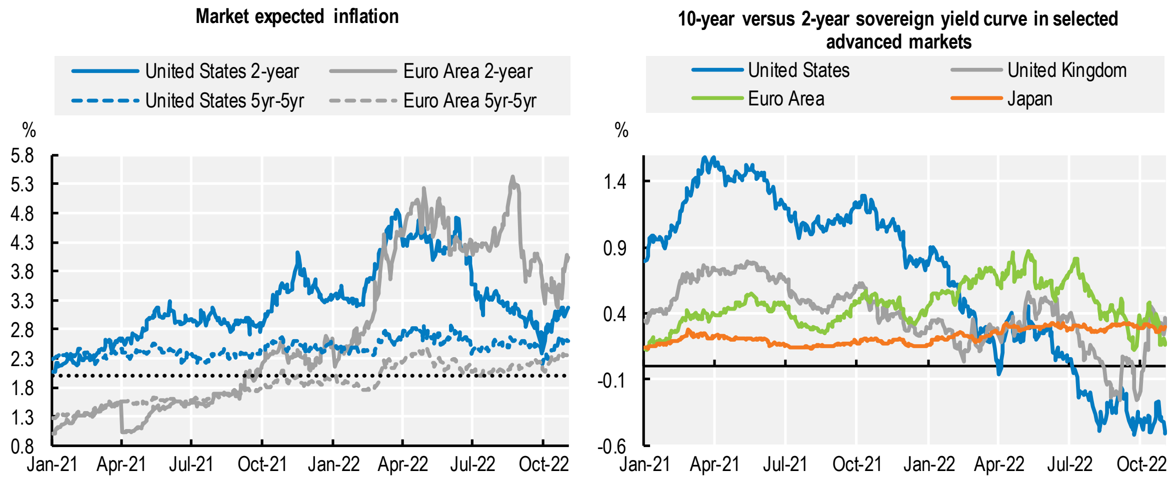
Figure 3.1. Tighter monetary policies globally



Source: BIS, Refinitiv, OECD calculations.

While long-term inflation expectations remain relatively steady at levels close to 2% both in the United States and Europe, market-based expectations at the short-term horizon remain elevated in both regions (Figure 3.2). However, significant interest rate hikes both in the United States and Europe[2] contributed to moderate declines in inflation rates to levels in early 2022. Indeed, recession concerns are particularly reflected in the United States by the inversion of the ten-year versus two-year yield curve.[3] In the Euro Area, the wider gap between short-term and long-term inflation expectations than compared to the United States reflects investor concerns about the impact of energy shortages on prices in the short term.

Figure 3.2. Elevated short-term market inflation expectations and yield curve flattening amid recession concerns



Note: Market expected inflation is measured using two-year and ten-year USD and EUR inflation linked swap rates.
Source: Refinitiv, OECD calculations.

Market-implied expectations of policy rates currently exceed actual policy rates both in the United States and the Euro Area, yet market-implied rates are higher in the United States than in the Euro Area (Figure 3.3). These trends suggest that investors expect more assertive interest rate increases in the United States.

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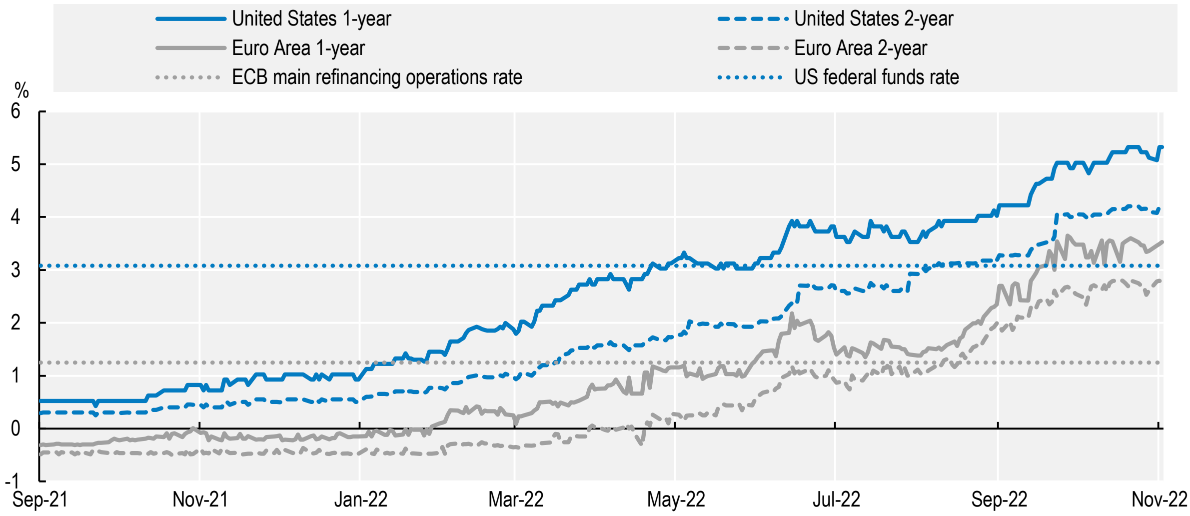
2 The Board of Governors of the Federal Reserve System decided to raise the target range for the federal funds rate (by 0.75 percentage point) to 3 to 3.25, effective on 21 September 2022 (Federal Reserve, 2022[65]). In November, Board of Governors of the Federal Reserve System decided to raise further the target range for the federal funds rate to 3.75 to 4, effective on 3 November 2022 (Federal Reserve, 2022[66]).

On 8 September 2022, the Governing Council of the European Central Bank decided to raise the three key interest rates by 75 basis points (ECB, 2022[67]). Accordingly, the interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility have been increased to 1.25%, 1.50% and 0.75% respectively, with effect from 14 September 2022. On 27 October 2022, the Governing Council of the European Central Bank decided to raise once again the three key interest rates by 75 basis points (ECB, 2022[68]). Accordingly, the interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility have been increased to 2.00%, 2.25% and 1.50% respectively, with effect from 2 November 2022.

3 It is worth noting that while the Federal Reserve is reducing the size of its balance sheet, actual size remains large, which contributes keeping duration out of the market and therefore relatively low long-term sovereign bond yields (Anderson et al., 2022[62]).

Figure 3.3. Rising market-implied expected policy rates both in the US and the Euro Area



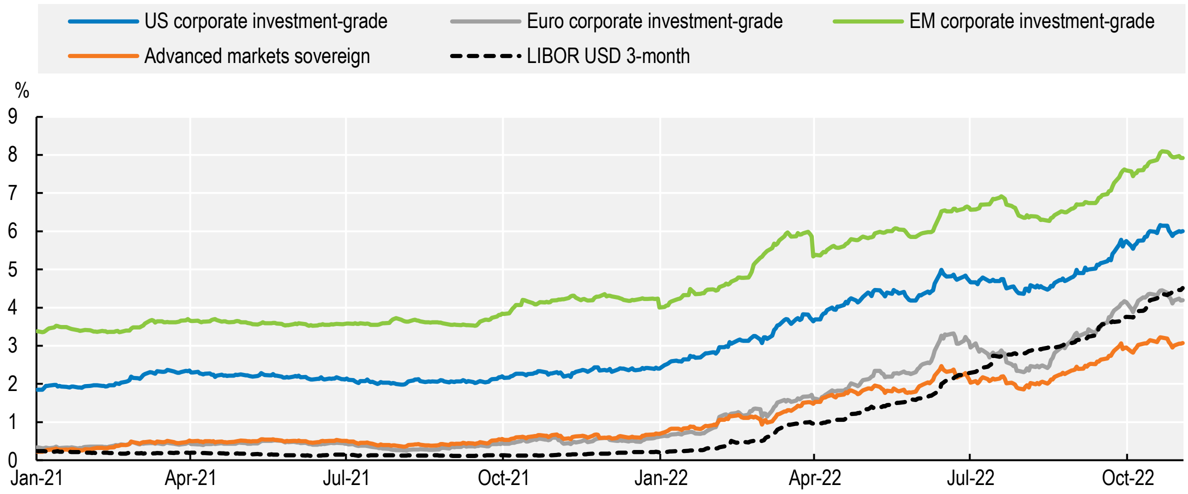
Note: Market-implied expectations of policy rates are measured using 12 or 24 months forward US dollar and Euro LIBOR rates. Policy rates are as of end-October 2022.
Source: Refinitiv.

3.1. The impact of rising policy rates on yields, risk asset valuations and overall financial market conditions

3.1.1. From sovereign to both fixed and floating investment-grade corporate debt, yields have climbed in 2022

Financing conditions for borrowers across public and private sectors globally began the year very favourably and in line with 2021 (Figure 3.4Figure 3.4.). However, funding rates have quickly risen following significant monetary policy tightening by major central banks to address mounting inflation pressures, which have been exacerbated since early 2022. Notably, yields of investment-grade rated corporate bonds have experienced the largest increase (i.e. of 4.5 percentage points in EMEs, 4.2 and 3.9 percentage points in US and European markets respectively), followed by three-month US dollar floating LIBOR (i.e. a rise of 4.3 percentage points) and sovereign bond rates in advanced markets (i.e. of 2.8 percentage points).

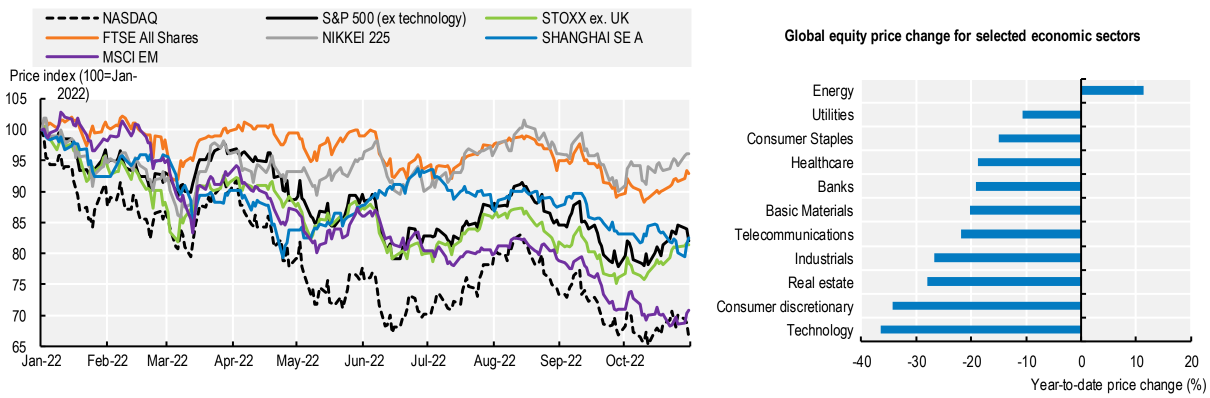
Figure 3.4. Rising yields on both public and private sectors' debt



Note: Yields on investment-grade corporate and advanced sovereign bonds are derived from ICE BofAM benchmarks.
Source: Refinitiv.

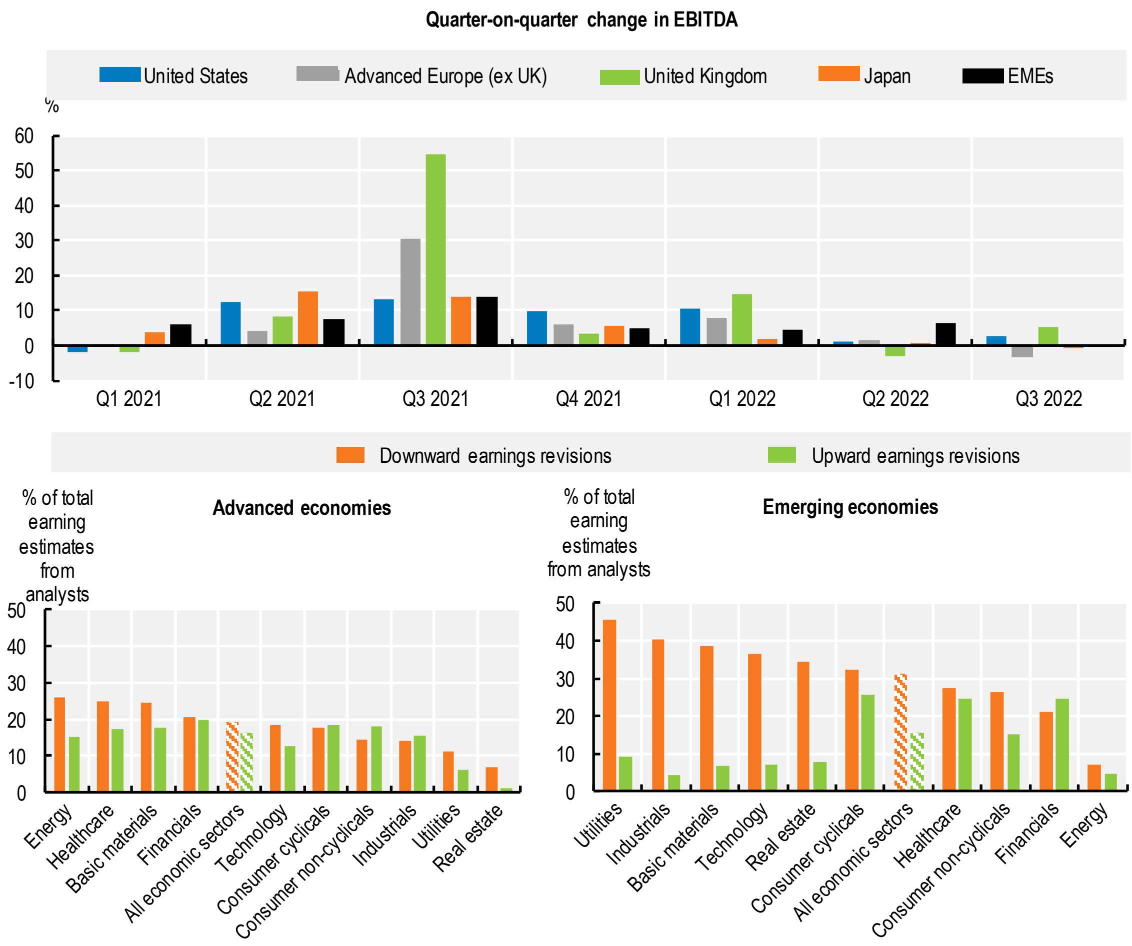
Rising interest rates and deteriorating earnings prospects have been an important factor behind the significant decline in global equity prices in 2022. European, US and Chinese stocks prices have also experienced substantial declines (Figure 3.5). This is particularly the case in interest rate sensitive sectors, such as technological and consumer discretionary sectors (i.e. of more than 35%). Also, emerging market equity benchmarks have recorded significant price corrections (i.e. of about 30%). Lower performance of equity benchmarks is occurring against a backdrop of subdued or even declining corporate earnings during second and third quarters of 2022 both in advance and emerging economies (Figure 3.6). Also, downward revisions to analyst earnings forecasts are gaining momentum across most economic sectors globally amid the deteriorating economic outlook.

Figure 3.5. Global decline in equity prices in 2022



Note: The right chart shows price changes of sectoral global equity benchmarks between January and October 2022.
Source: Refinitiv, OECD calculations.

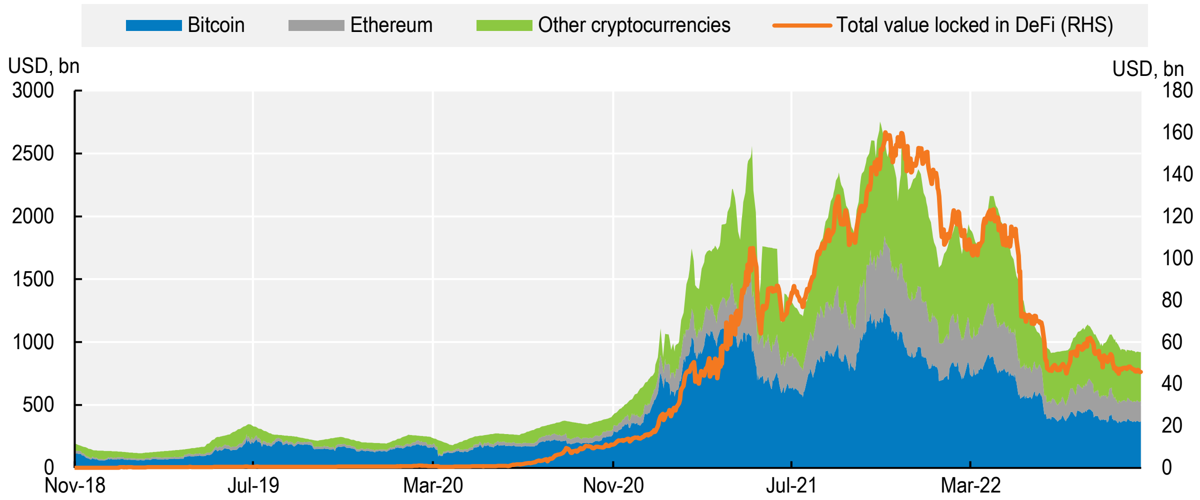
Figure 3.6. Declining corporate earnings and downward revisions



Note: Quarterly earnings growth rates in the top chart are derived from Refinitiv regional equity benchmarks. Bottom charts show the share of downward versus upward revisions for corporate earnings in total number of earnings estimates published by analyst during the first semester of 2022 in advanced versus emerging economies.
Source: Refinitiv, OECD calculations.

The performance of crypto asset markets has weakened in 2022 due to rising concerns over economic outlook and crypto market functioning. Following a peak in crypto-asset valuations in November 2021, the market for crypto-assets entered a prolonged sell-off amid a broader market downturn in risky assets. As of beginning of September 2022, the price of main crypto-assets, including Bitcoin (BTC) and Ethereum (ETH), fell sharply losing more than two-thirds of their value from their November peak. The entire crypto-asset market lost USD 1.8 billion of market capitalisation compared to its peak (Figure 3.7). DeFi markets followed a similar pattern, with total value locked (TVL) dropping by 70% since January 2022, reaching USD 46 billion of crypto-assets locked in ETH-based protocols in October 2022. This represented a 70% drop since the peak of the DeFi market at the end of 2021. The drop in crypto-asset markets amid a broader downturn in markets for risk assets reflects the positive and rising correlation of these markets with traditional asset classes, such as equities (OECD, 2022[6]). Though, the decline in crypto-asset prices was thus far lower than short-term historical correlation with equity markets would have suggested, given the magnitude of the declines recorded in some equity markets (OECD, 2022[7]).

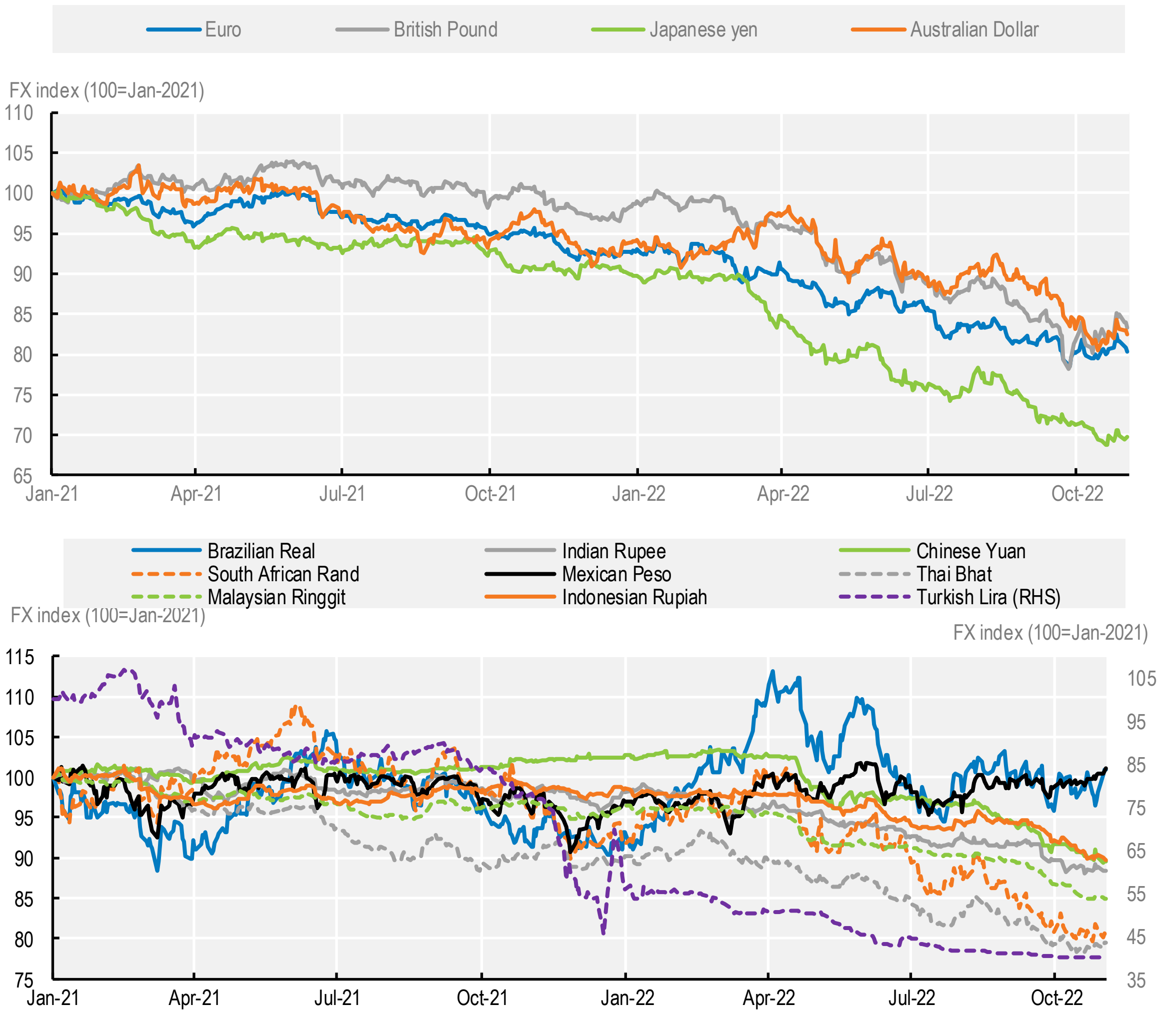
Figure 3.7. Substantial decline of cryptoassets' market capitalisation and total value locked in DeFi in 2022



Source: CoinMarketCap, DeFiLlama, OECD calculations.

Overall, deteriorating financial market conditions could worsen due to tightening liquidity conditions in particular bond markets. Significant monetary policy tightening and the shift in investors' risk sentiment amid deteriorating economic prospects have resulted in higher preference for dollar-denominated assets. These factors have also caused capital flights from emerging markets and currency depreciation in both advanced and emerging economies (Figure 3.8). While exporting companies benefit from higher sales and profits from their oversee businesses when converted into domestic currency and improvements in their cost competitiveness from domestically production exported abroad, the rising cost of energy combined with higher import and financing costs in US dollar are likely to weaken cost competitiveness advantage and could exacerbate existing vulnerabilities in many jurisdictions.

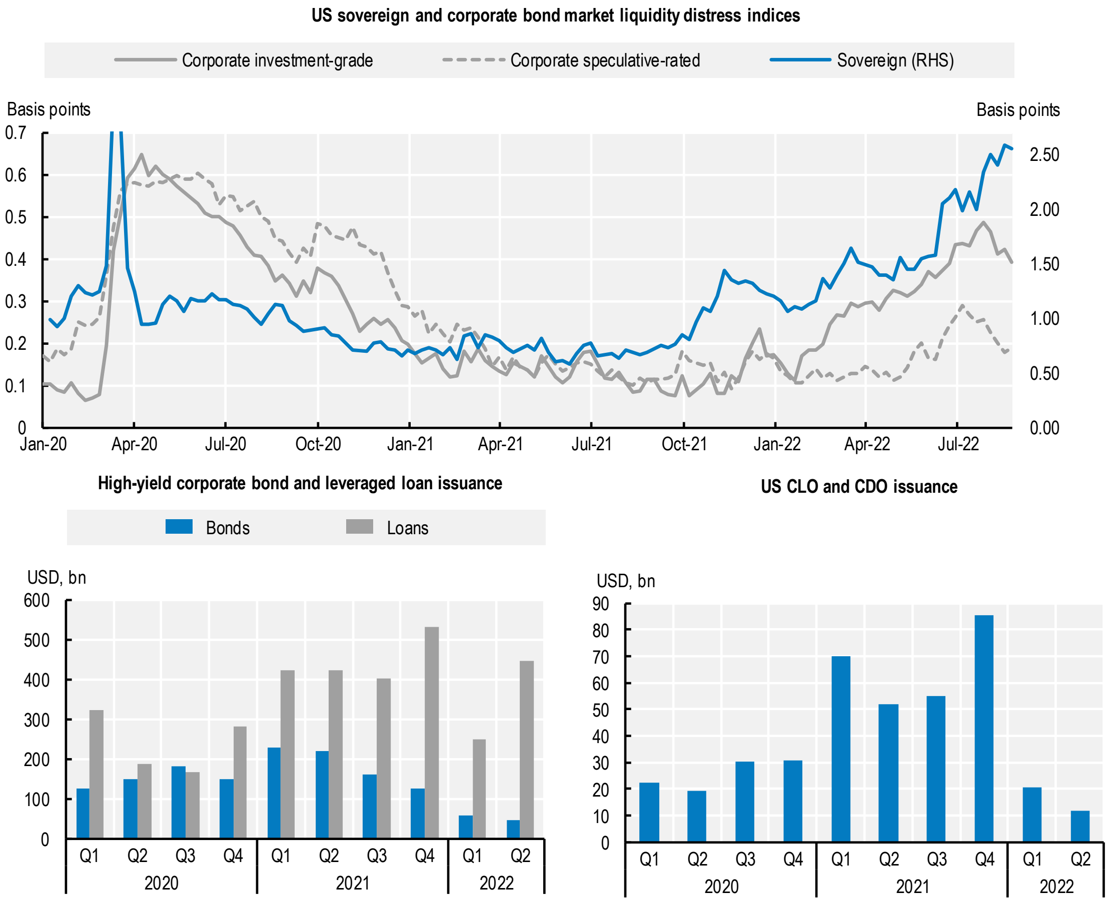
Figure 3.8. Significant currency depreciation against of the US dollar in selected advanced and emerging economies



Note: A rise is an appreciation against the US dollar.
Source: Refinitiv, OECD calculations.

Against a backdrop of deteriorating economic conditions and rising vulnerabilities globally, liquidity is declining in the US Treasury bond market as well as the primary and secondary US corporate bond markets (Figure 3.9). According to market analysts, as the Federal Reserve is reducing the size of its balance sheet, dealers will inevitably hold more Treasury inventory and investment-grade rated corporate bonds. They would need to get funding, which could put upward pressures on repo interest rates, which over time could probably contribute to more volatile Treasury and corporate bond markets (Bank of America, 2022[8]). As seen in 2019 and 2020, a substantial rise in repo funding rates is also likely to trigger liquidity stress for banks and a number of financial intermediaries, which could threaten financial system resilience. Also, speculative-rated corporate bond and CLO issuance have declined sharply during the first half of 2022 amid rising investor concerns about lower economic growth and credit quality of leveraged corporates. Leveraged loan issuance has also declined over the first quarter of 2022, but rebounded somewhat during the second quarter. For instance, the transition from LIBOR to SOFR base rate for new leveraged loan issuance since January 2022 has triggered some temporary market adjustments but without major durable disruptions (Pitchbook, 2022[9]).

Figure 3.9. Deteriorating bond market liquidity and declining issuance of speculative-rated corporate bond



Note: Bloomberg US Treasury market liquidity index measures prevailing liquidity conditions in the US Treasury market. This indicator displays the average yield error across the universe of US Treasury notes and bonds with remaining maturity one-year or greater, based off the intra-day Bloomberg relative value curve fitter. When liquidity conditions are favourable the average yield errors are small as any dislocations from fair value are normalised within a short time frame. Under stressed liquidity conditions, dislocations from fair value implied by the curve fitter can remain persistent resulting in large average yield errors. US corporate bond market liquidity distress indices are based on weekly metrics to construct an aggregate index of corporate bond market conditions for both the primary and the secondary market. Such indices incorporate a wide range of indicators, including measures of primary market issuance and pricing, secondary market pricing and liquidity conditions, and the relative pricing between traded and nontraded bonds. Speculative-rated corporate issuance include US dollar, Euro and other currencies denominated bond. Leveraged loan issuance include US and European loans.
Source: Bloomberg, Federal Reserve Bank of New-York, ICMA, SIFMA, Refinitiv, OECD calculations.

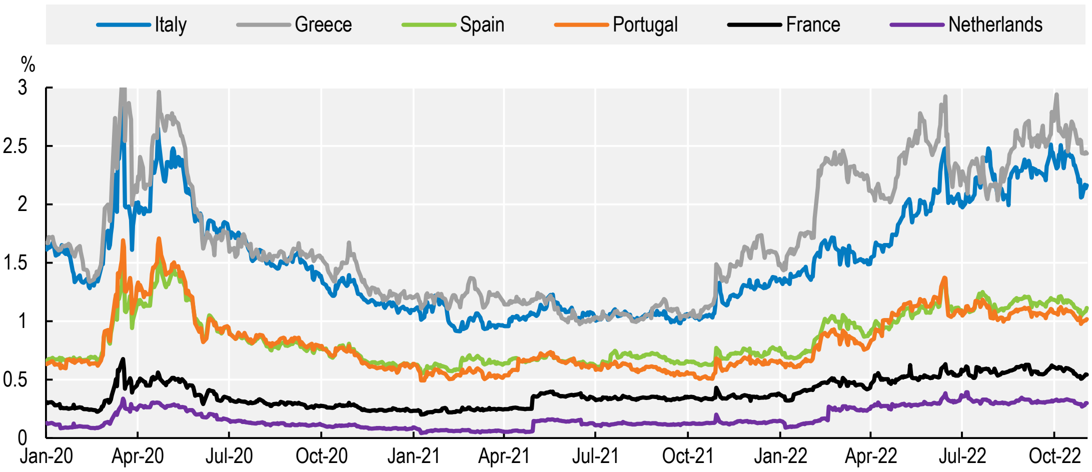
3.2. Spillovers of credit risk across market segments

Against the backdrop of high inflation, which could be more persistent than expected, central banks have continued to tighten their monetary policy over the past six months. Financial conditions have tightened further, which has prompted the cost of debt for sovereign, household and corporate borrowers and market volatility to increase. Higher risk premium and a broad-based rise in credit losses could test the resilience of various types of financial intermediaries with negative impacts on credit intermediation and growth.

3.3. Widening sovereign bond spreads for some indebted issuers amid monetary policy tightening

Spreads of 10-year euro-zone government bonds over ten-year German Bunds have widened during 2022 in some European economies with lower fiscal space amid normalisation of monetary conditions in the euro area. (Figure 3.10). Should bond market liquidity deteriorate, sovereigns with higher debt levels would face additional pressures from rising cost of debt, which would be gradual depending on the average term-to-maturity of outstanding sovereign debt.

Figure 3.10. Significant rise in sovereign bond spreads in some European economies with lower fiscal space

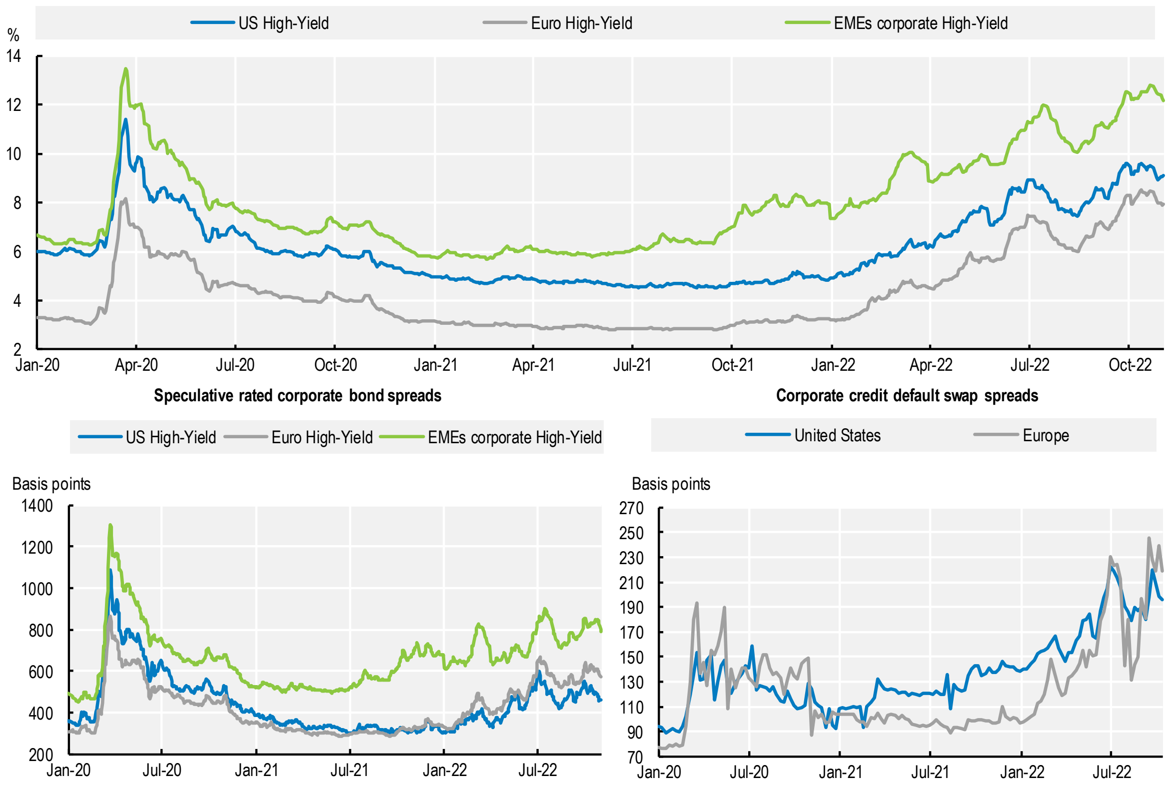


Note: This figure shows 10-year sovereign bond spreads between selected European economies and German bund.
Source: Refinitiv, OECD calculations.

3.4. Deteriorating credit market conditions for leveraged corporate issuers

Corporates that rely on leveraged finance markets are facing tighter lending terms and standards against a challenging growth backdrop and tightening monetary policy conditions. Notably, corporate bond yields have risen materially for speculative rated issuers over the recent to levels reached during the COVID-19 crisis (Figure 3.11). Also, corporate bond and credit default spreads have risen globally, and stand at elevated levels particularly in Europe amid rising concerns about energy shortages for business conditions and debt sustainability of leveraged firms. Spreads of speculative rated corporate issuers have risen the most in Europe (i.e. by 270 basis points), and to a lesser in US and emerging markets. Nonetheless, spreads remain contained, and stand below levels reached in 2020 following the COVID-19 shock, despite rising corporate bond credit default swap spreads that indicate investors are hedging against future credit losses. For instance, concerns are mounting about debt sustainability of both US and European corporates due to rising cost of debt against a backdrop of challenging economic conditions, possible energy shortages in Europe and declining actual and expected corporate earnings. It is worth noting that investors' are hedging against future credit losses, particularly from European corporates, as reflected by higher European credit default swap spread than that of US since the end-summer of 2022.

Figure 3.11. Significant increase in corporate bond yields, option-adjusted spreads credit default spreads globally



Note: The top chart shows yields of speculative-rated corporate bond indices in selected major markets derived from ICE BofAM benchmarks.The bottom left chart shows option-adjusted spreads of speculative-rated corporate bond indices in selected major markets derived from ICE BofAM benchmarks. The bottom right chart shows corporate CDS indices in selected major markets derived from Refinitiv sectoral indices.
Source: Refinitiv, OECD calculations.

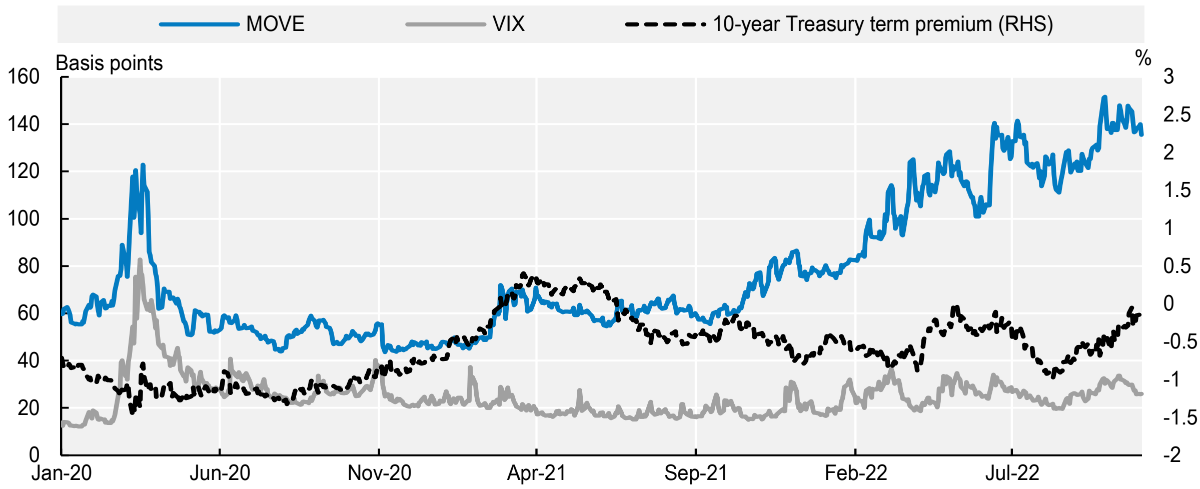
3.5. Rising expected volatility on sovereign bond markets

Higher volatility and implied volatility in sovereign bond markets reflects investor concerns about persisting structural vulnerabilities on US Treasury markets and downside risks from uncertain economic prospects. Volatility in Treasury markets has been continuously rising since April 2021 and currently exceeds peaks reached in 2020 following the COVID-19 shock (Figure 3.12). Also, the MOVE index has risen amid more range bound implied volatility in equity.[4] These trends suggest that investors are concerned by some persisting structural vulnerabilities on US Treasury markets and Treasury securities are more expensive to trade as reflected by the substantial deterioration in liquidity in the Treasury market, presumably as a results of the Federal Reserve quantitative monetary policy tightening (Federal Reserve, 2022[10]). It is worth noting that the discrepancy between options-implied volatility measure and risk premia could reflect a distinction between short- and long-run volatility. Investors may be confident that, once the current uncertainty has passed, the global conditions will return to a less-volatile (i.e. to a more "normal") state of

[4] The term structure of the VIX indicates that a moderate increase of 1.9 points is expected (i.e. from 26.5 basis points in November 2022 to 28.4 in June 2023).

affairs. In this sense, options-implied volatility measures are linked to fairly short-term instruments, especially when compared with, for example, the 10-year term premium.

Figure 3.12. Rising sovereign bond volatility, yet speculative-grade corporate bond volatility remains compressed



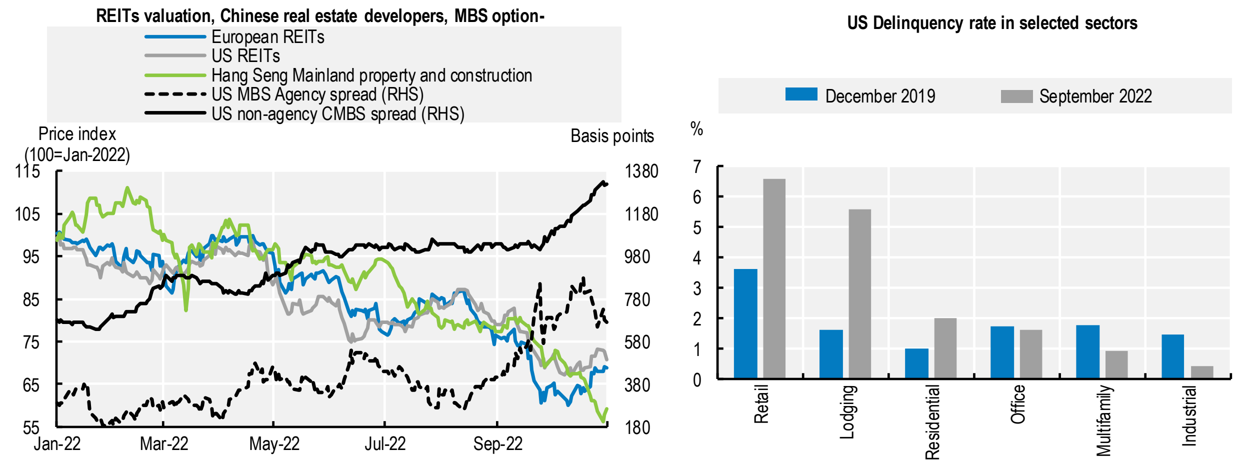
Note: The Merrill Lynch Option Volatility Estimate (MOVE) index is a yield curve weighted index of the normalised implied volatility on three-month Treasury options which are weighted on the two-, five-, ten-, and 30-year contracts. The CBOE Volatility Index (VIX) measures market expectation of near-term volatility conveyed by US stock index option prices. The ten-year Treasury term premium is derived from the Adrian, Crump, and Moench (ACM) model. It is defined as the compensation that investors require for bearing the risk that interest rates may change over the life of the bond. Since the term premium is not directly observable, it must be estimated, most often from financial and macroeconomic variables.
Source: Refinitiv, OECD calculations.

3.6. Declining valuations of REITs and widening credit spread for MBS

Rising risks in the corporate sector and higher interest rates have resulted in declining valuations of REITs and widening credit spread for MBS. Valuations of US and European REITs have recorded significant declines amid weakening economic conditions in the real estate industry. According to CBRE data, office vacancy in the United States reached 16.9% as of end-June 2022, the highest it has been since the GFC and one of the highest globally. As overall office occupancy levels are expected to remain well below pre-pandemic levels for the next few years, particularly given secular headwinds and slowing economic growth, office REITs would remain under pressure (S&P Global Ratings, 2022[11]). Also, declining consumer spending in the post-COVID-19 era is negatively impacting retail REITs as retail tenant quality is deteriorating and revenue growth is slowing (S&P Global Ratings, 2022[12]). In addition, conditions are worsening for Chinese REITs as sales of residential and commercial properties in China have started to decline since January 2022 (Box 3.1). Data show that residential and commercial contract sales fell at annual rate of about 30% and 23% respectively in August 2022 (Figure 3.14). The figures come as China's property sector is struggling with a liquidity crisis, which began in 2021 when a series of high-profile companies starting with China Evergrande, the world's most indebted developer, missed payments and then defaulted on onshore and offshore liabilities (OECD, 2022[13]).

Credit market conditions for non-agency CMBS and agency MBS have deteriorated, as reflected by widening spread during the first three-quarters of 2022 due to higher bond yields and concerns about the global economic outlook (Figure 3.13). Notably, delinquency rates in commercial sectors that have been the most sensitive to the economic consequences of the COVID-19 pandemic (such as travel, hotels, and retail sectors), and to a lesser extent residential mortgages, remain more elevated than pre-crisis levels. Household and corporate mortgage payment risks are likely to increase under deteriorating economic conditions, which may erode the credit quality of underlying mortgage collateral of MBS. Therefore, real estate markets, REITs, CMBS and possibly also RMBS markets are increasingly prone to rating downgrades and rising defaults under deteriorating economic conditions, given highly leveraged corporates, indebted households and froth in some housing markets (Capital Economics, 2022[14]). CMBS markets are also exposed to medium-term challenges related to climate transition risks that are likely to erode further the credit quality of some non-financial corporates. It is worth noting that pressure may increase in agency MBS markets as the Federal Reserve is reducing the size of its balance sheet.

Figure 3.13. Weakening conditions in real estate finance markets amid deteriorated credit quality in certain commercial sectors



Source: Trepp, Mortgage Bankers Association of America, Refinitiv, OECD calculations.

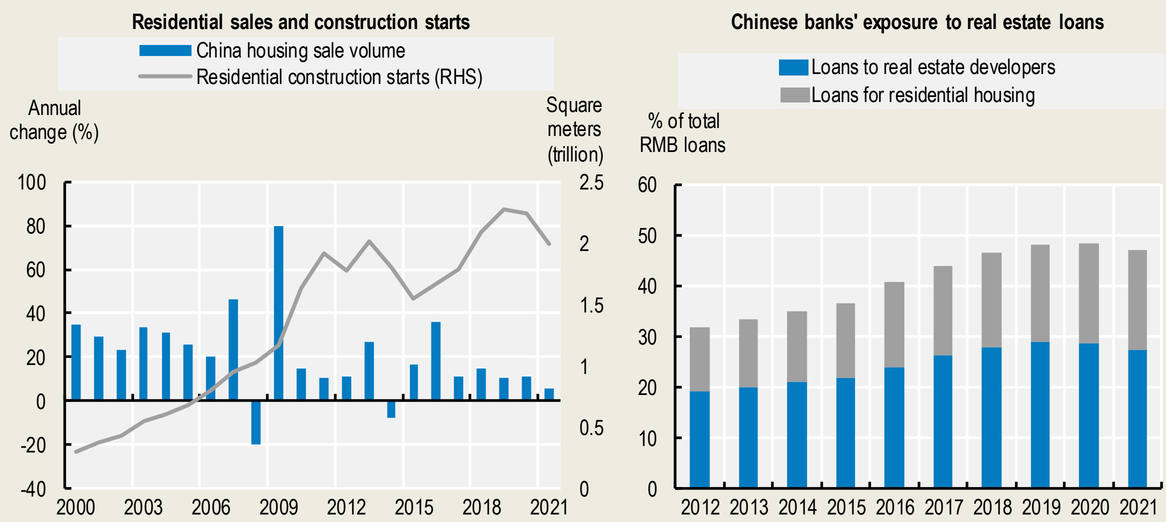
Box 3.1. Rising risks in China from strained real estate sector conditions

Strained conditions of Chinese real estate developers due to the cascading liquidity crisis across China's real estate sector and a sharp decline in property sales

Two main causes can be identified for the current Chinese housing crisis. First, the regulation implemented by Chinese authorities aiming to limit real estate developers' leverage, known as the "three red lines" has led real estate developers to stop unsustainable borrowing and sell down assets, severely eroding their profitability due to their limited ability to continue building and selling new projects.[5] Second, shutdowns under China's zero-COVID-19 policy have stopped clients from viewing homes and making purchases. Also, entrepreneurs and employees have become anxious about their future financial soundness. All these factors are negative for homebuying as reflected by subdued volumes of housing sales in China and declining new residential construction starts over recent years (Figure 3.14). Without access to bonds and loans, Chinese banks have started to reduce their exposure to the property sector and, with new sales now falling, Chinese real estate developers are therefore experiencing acute liquidity shortages.

Evergrande, the world's most indebted developer, defaulted in December 2021. Despite efforts to restructure its offshore debts, the firm missed a payment in July 2022. At least 28 other property companies have missed payments to investors or are being restructured. Equity trading of 30 Hong Kong-listed developers, constituting 10% of the market by sales, has been frozen (Reuters, 2022[15]). In early August half of China's listed developers traded at a price-to-earnings ratio of less than 0.5, the level that Evergrande traded four months before it defaulted. Recently, Country Garden, China's biggest developer by sales, revealed that profits for the first half of 2022 had fallen by almost 100%. The strain on Country Garden indicates that problems are no longer specific to certain developers. Instead, the entire Chinese real estate development industry is at risk.

Figure 3.14. Chinese residential property sales and banks' exposure to real estate loans



Source: National Bureau of Statistics of China, People's Bank of China, Refinitiv, OECD calculations.

To contain the fallout from the Asian financial crisis in the early 2000s, asset management companies (AMCs) acquired most toxic debts in China. With the current deepening distress in the Chinese property sector threatening to spark wider economic turmoil, those AMCs are now struggling to provide effective support to address deteriorating asset quality at a number of borrowers and leveraged real estate developers. The main challenge is that the balance sheets of China's "Big Four" AMCs[6] are already extensively exposed to toxic real estate assets Figure 3.15). Distressed AMCs highlight the challenges Chinese authorities face in mobilising rescue options.

Analysis from Fitch Ratings (2022[16]) suggests multiple sectors in China could be vulnerable if property-market distress is extended. Notably, companies in three sub-sectors are likely to be the most vulnerable, mainly AMCs, privately owned engineering and construction companies and smaller steel producers. Nine sub-sectors would also experience second-order impacts. These are non-cyclical or involve issuers with conservative balance sheets that have limited exposure to property distress and slower economic growth.

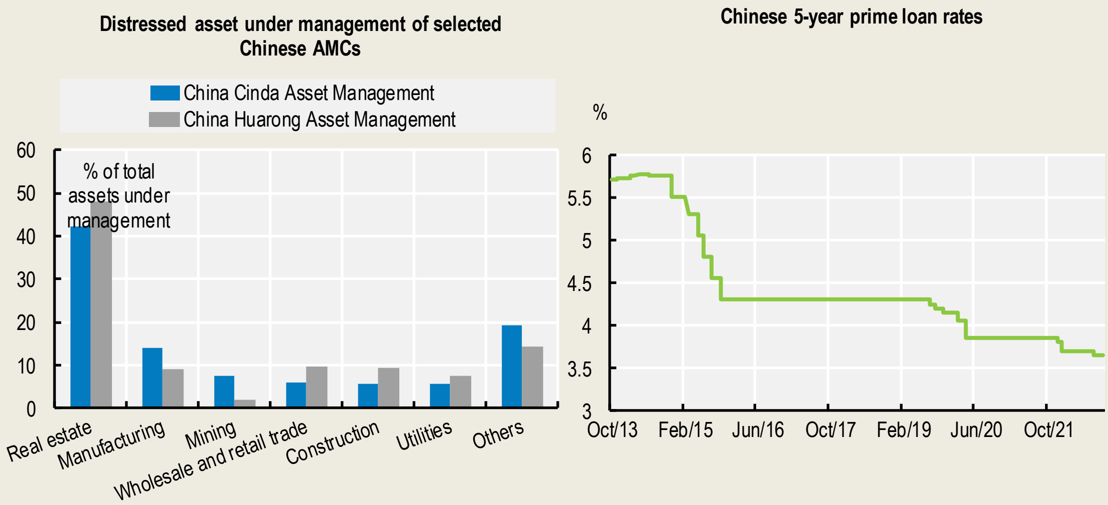
Chinese authorities have implemented support measures aiming to stabilise the property sector while avoiding any excessive stimulus that could risk re-inflating home prices (Fitch Ratings, 2022[17]).The central government has introduced policies targeting three specific areas: homebuyers, stalled projects and developers not facing financial distress. For instance, the main mortgage rate has been lowered in an attempt to support real estate sales and prices. Government-backed real estate funds have also been launched to replenish liquidity needed for labour and materials to finish the homes, but will not support developers repay debt (S&P Global Ratings, 2022[18]). In addition, China's local government financing vehicles (LGFVs) have bought vast quantities of land over the recent months with borrowed funds to support the real estate market and also budget of local governments, for which land sales are an important source of income (Financial Times, 2022[19]). Nevertheless, concerns are rising as a critical role of LGFVs is to fund long-term infrastructure development projects, yet they have little experience in property development. Also, LGFVs are increasing their leverage to finance land acquisitions by borrowing more from state banks and issue bonds. In many cities, the minimum price for land auctions has been raised given the substantial lack of bidders, which has often led LGFVs to pay a premium even as the market is weakening. Would conditions deteriorate further in the Chinese real estate market, LGFVs are likely to experience debt sustainability challenges with negative spillovers to state banks and bond markets that may necessitate additional public support.

Even with such a range of support measures provided to the real estate sector, uncertainties remain around whether these measures will be sufficient to restore homebuyers' confidence in privately owned developers, including their capacity to deliver properties on schedule. Questions over whether developers will be able to deliver on pre-sold homes have spurred hundreds of thousands of homebuyers across China to boycott mortgage payments in 2022, hitting sales revenues and worsening the liquidity crunch. For the moment, homebuyer mortgage strikes are mainly a social-stability risk, but should the strikes become widespread, they could undermine the resilience of certain financial intermediaries, particularly if negative sentiment spreads to existing homeowners and leads to wider defaults in existing mortgages and a sharp decline in home prices (S&P Global Ratings, 2022[20]).

[5] Chinese real estate developers are highly reliant on home sales long before starting to build homes. For instance, Chinese real estate developers pre-sold 90% of homes in 2021. Also, only 60% of homes that were pre-sold between 2013 and 2020 have been delivered (The Economist, 2022[61]).

[6] China's "Big Four" AMCs include China Cinda Asset Management, China Huarong Asset Management, China Great Wall Asset Management and China Orient Asset Management.

Figure 3.15. Significant exposure of Chinese AMCs to the real estate sector and declining mortgage rates

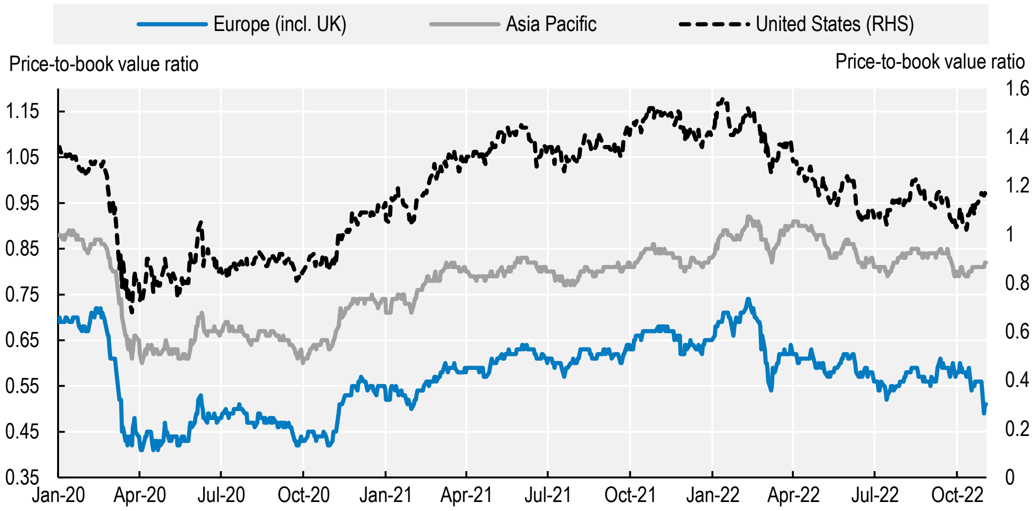


Note: The left charts shows the distribution of assets under management of two of the Chinese "Big Four" AMCs, for which annual reports are publicly available and translated into English.
Source: AMC annual reports, Refinitiv, OECD calculations.

3.7. Rising challenges for financial institutions from high inflation and slowing growth

Prolonged inflation and weakening economic growth could erode financial institutions' asset quality and earnings performance. Equity valuations of banks in major markets have declined during the first half of 2022 amid tightening monetary conditions, and stand at low levels particularly in Europe and the Asia-Pacific region. The sharpest decline has been recorded for US banks, where the rate increases have been swift, although their valuations remain well above banks in Europe and Asia Pacific (Figure 3.16). Also, relatively lower equity valuations of European banks reflect rising concerns about potential losses from negative effects of energy shortages on business conditions and debt sustainability prospects of leveraged firms. Banks in the Asia-Pacific region, including Chinese banks, are increasingly exposed to property-related risks, yet Asian banks benefit from relatively deep financial soundness (S&P Global Ratings, 2022[21]; OECD, 2022[22]).

Figure 3.16. Declining valuations of banks in selected major advanced banking markets in 2022

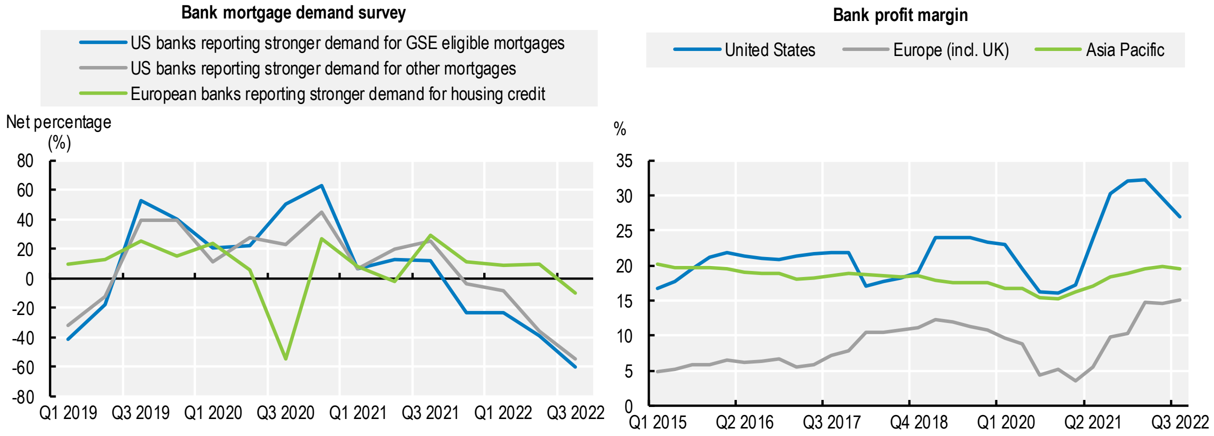


Note: This figure shows price-to-book value of banks using Refinitiv bank equity benchmarks in selected regions.
Source: Refinitiv, OECD calculations.

Prolonged inflation and weakening economic growth could substantially increase banking sector operating expenses and curtail investment and loan demand (Figure 3.17) with negative impacts on profitability and performance. Banks in some jurisdictions are already facing a decline in loan demand, particularly in the United States and to a lesser extent in Europe. Also, profit margin is declining for US banks and flattening for European and banks in the Asia-Pacific region. However, the magnitude of such effects will depend on the efficiency of banks. According to Moody's estimates (2022[23]), net income in less-efficient banking systems could fall by around 40% if operating expenses increase by 10% and if the banks do not have pricing power to pass on costs to customers. More efficient systems could see their net income fall by around 10%.

Higher interest rates are expected to only modestly improve banks' margins. A steep yield curve is generally considered supportive for banks' net interest margin (NIM). Nevertheless, bank NIMs had been on a declining trend long before, particularly during the period of near-zero interest rates. Moody's estimates (2022[24]) suggest that an increase in the level of interest rates and a steepening of the yield curve could improve NIMs at US banks, but it would not be enough to reverse the long-term decline in NIMs at banks due to the rise of market-based finance in many other countries. In contrast, NIMs would be less sensitive to the effects of higher interest rates and inflation in many EMEs with bank-based financial systems. For instance, banks in EMEs are holding more fixed-rate assets and liabilities that are slow to reprice when interest rates change.

Figure 3.17. Contracting loan demand and bank profit margin in selected advanced banking sector

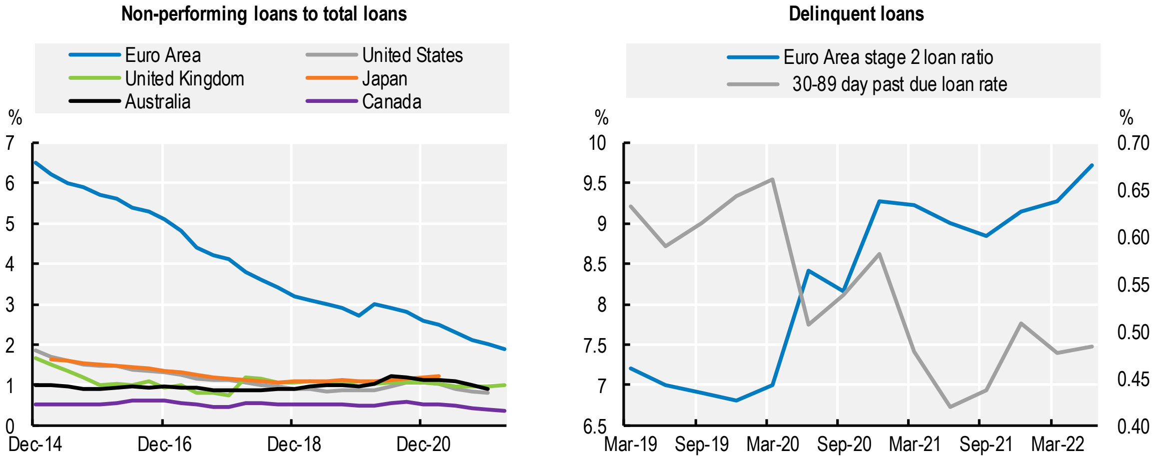


Note: Profit margin is calculated as the ratio of net income to total revenues.
Source: ECB, Federal Reserve, Refinitiv, OECD calculations.

While inflation and higher interest rates could increase banks' market and credit losses, banks benefit from substantial loss absorption capacities (OECD, 2021[25]). While higher inflation decreases borrowers' levels of real debt (i.e. making it easier to service debt), inflation could also decrease real disposable income (i.e. making it more difficult to service debt), and does so even more if inflation triggers a recession. Also, adjustable rate mortgage contracts are prone to a higher probability of default when interest rate are rising (OECD, 2022[26]). Signs of deterioration in credit quality continue to be observed (Figure 3.18). The share of underperforming loans (i.e. stage 2 loans) has continuously risen since September 2021 for European banks. In contrast, the 30- to 89-day past due loan rate has declined since 2020 for US banks amid strong economic recovery. In the euro area, the outlook for bank NPLs is negative due to substantial exposures of some European banks to high energy-intensive sectors following potential cuts in energy supply from Russia and elevated energy prices (Fitch Ratings, 2022[27]).[7] Credit quality outlook is also challenging for banks in other parts of the world, mainly Chinese banks amid persisting strained conditions for real estate developers (Box 3.2.). It is worth noting that bank balance sheets are in reasonably good shape to buffer headwinds (Figure 3.19). Banks globally are holding significant capital and loan loss absorption reserve buffers and benefit from a substantial stable funding base (i.e. Canadian and US banks in particular).

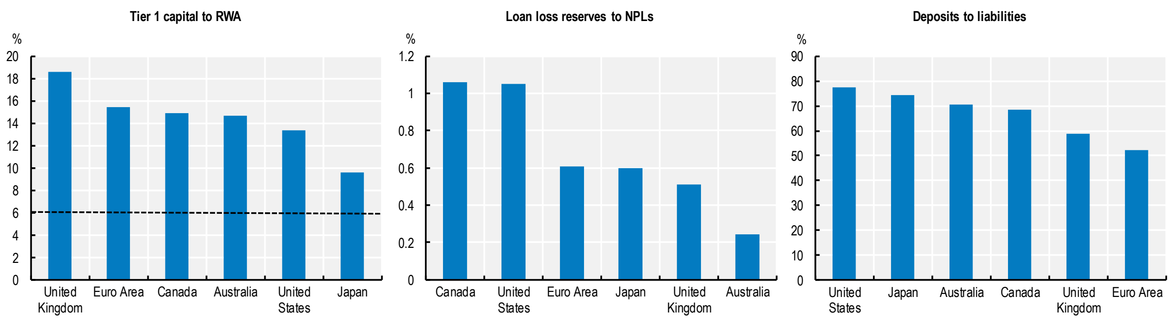
[7] Particularly for Italian, Greek, Austrian, Spanish, Slovenian, Slovakian, Bulgarian, Dutch and German banks.

Figure 3.18. Relatively low stocks of non-performing loans, yet signs of deterioration in credit quality



Note: In the left chart, problem loans have been estimated using stage 2 loan ratio for banks in the Euro Area and 30- to 89-day past due loan rate until June 2022. Under IFRS accounting standards, stage 2 assets are financial instruments that have deteriorated significantly in credit quality since initial recognition but offer no objective evidence of a credit loss event. The 30-89 mortgage delinquency rate is a measure of early stage delinquencies and can be an early indicator of the mortgage market's overall health. It captures borrowers that have missed one or two payments.
Source: European Banking Authority, European Central Bank, IMF Financial Soundness Indicators, FDIC, OECD calculations.

Figure 3.19. Resilience of bank balance sheet in selected advanced banking markets



Note: Average ratios have been calculated using a sample of 204 banks in major advanced banking markets. All data are as of end of 2021.
Source: Refinitiv, OECD calculations.

Box 3.2. China mortgage boycott likely to affect the resilience of mid-sized Chinese banks

While mortgage strikes pose a limited direct threat to large Chinese banks, deteriorating credit quality of mid-sized banks could amplify stress due to their interconnectedness within the banking system.

China's widening mortgage boycott has raised fears of a further downward spiral of the property sector, which may cause threats to financial resilience in a country already under pressure from stalled economic growth, sluggish consumer demand, and COVID-19 outbreaks (PIMCO, 2022[28]). Since late June 2022, hundreds of thousands of homebuyers in dozens of Chinese cities have threatened to stop payment on mortgages for pre-sold yet stalled property projects. At least 300 developments are reportedly affected, most in central and western regions, including some 20% in Henan province.

According to PIMCO estimates, delayed projects account for around 4%-8% of all under-construction projects. In a downside scenario, where delayed projects could rise to 10% and all related mortgages go into default, the non-performing loan ratio of the nation's banking system would increase by around 50 basis points. Coupled with three other sources of potential downside risk, including additional NPL formation from developers, NPLs from construction loans, and banks' potential shadow exposures to real estate developers, additional NPL pressure would be about 2.6% of total loans. In context, the annual net NPL formation rate for the whole banking sector is currently at 0.7%-0.8% and the normalised range through 2017-20 was around 1.0%-1.3%.

Nevertheless, the resilience of Chinese banks is not at immediate risk of distress. While systemic risk stemming from the mortgage boycott seems unlikely, some individual banks could suffer from rising mortgage delinquencies beyond the amount of their capital buffer (S&P Global Ratings, 2022[29]; BNP Paribas, 2022[30]). According to PIMCO estimates, excess common equity tier one (CET1) capital above the regulatory minimum, general provision reserves, and pre-provision operating profits add up to about 9.3 trillion yuan, equivalent to 5.7% of total loans in the system, which is a sufficient buffer to absorb shocks from the downside scenario. However, the buffer would seem noticeably smaller if the few larger banks with stronger balance sheets had been excluded. Also, concentration risk, as some of the banks may have much lower capital ratios, could result in distress of some banks.

Instead, the key focus in terms of vulnerabilities should be on mid-sized banks. Potential NPL pressure stands at 3.4% of total loans versus 4.4% of available buffers.[8] Not only are these banks relatively large with nationwide operations, they are also much more interconnected within the banking system. For instance, 37% of the mid-size banks' balance sheets is funded by interbank borrowings and bonds, compared with 17% at large banks and 15% at small banks. In addition, mid-sized banks are also relatively more exposed to shadow banking activities, suggesting that they may be more vulnerable if non-bank lenders' financing to property developers becomes problematic before bank loans.

Small banks in China are more prone to weak governance than larger peers (S&P Global Ratings, 2022[31]). Protests outside "village" banks and regulatory offices in Henan province dramatically underscore this problem. Panic has gripped bank customers after some faced barriers to withdrawing funds at four village banks in Henan province and another two in Anhui province. If there is contagion, deposits leaving small banks would likely land at larger peers. Flight-to-quality scenarios hinge on public perception of the deposit-protection system and whether an institution has government backing.

European banks' holdings of sovereign bonds may erode their performance following possible decline in their capital gains amid rising credit spreads. Notably, rising government credit spreads in some European markets could reduce the capital gains for banks from their sovereign bonds in the held-for-sale trading portfolio due to induced write downs on low yielding debt that may rise as new high-yielding debt is issued (Oliver Wyman, 2022[32]). Besides, deteriorating conditions in European sovereign debt markets could lead to a flight of institutional money out of Europe, which may lead to diverging yields across European economies with implications for the performance of the financial sector, sustained credit intermediation and ultimately economic growth.

Among non-bank finance companies, residential mortgage lenders and nonprime consumer lenders are the most vulnerable to weakening credit quality of new mortgages. Higher interest rates are likely to constrain profitability of residential non-bank mortgage lenders amid lower loan demand and reduced

[8] However, the impact from isolated cases of small regional bank stress on the banking system should be manageable, due to their small size and limited reliance on interbank funding.

borrower credit quality (Moody's, 2022[24]). Origination volumes could decline materially, particularly refinance originations, which have been at record levels during the last two years. Also, rising interest rates will contribute to a significant slowdown in existing home price growth over the next few years, which could weaken the quality of mortgages. Non-prime consumer lenders are mostly exposed to middle to lower income families, the consumer cohort hit hardest by rising energy, food and housing prices, since these costs form a high percentage of their household budgets. Higher interest rates are also a modest negative factor to non-prime consumer lenders' net interest margin and profitability. For instance, some of these lenders already charge interest rates right below legal lending limits, restricting their ability to transfer increased funding costs to their borrowers.

Insurance companies and private pension funds are recording losses on their diversified investment strategies from declining bond prices and equities and are facing rising credit risk from their direct lending (OECD, 2021[33]). Solvency ratios of insurance companies are likely to be eroded and pension funds could face increasing challenges towards generating returns from financial investments to meet their commitments (Calpers, 2022[34]). Also, pension funds are facing margin calls from their Liability Driven Investment trades (LDI), which caused the Bank of England to perform a temporary and targeted intervention to restore market functioning in long-dated government bonds and reduce risks from contagion to credit conditions for UK households and businesses (Box 3.3.).

Box 3.3. Potential spillovers from stress in Liability Driven Investment funds

For the past 25 years, the substantial decline in long-dated government bond yields has delivered a costly headwind to pension funds, in particular for funds providing defined benefit pension schemes. In particular, when government bond yields fall, the present value of those future liabilities rise as they are discounted at a lower rate. As a result, many pension funds have found themselves with substantial funding gaps. While pension funds cannot control swings in their liabilities' value, they can invest their assets so that they move in line with their liabilities. As government bond prices are closely related to the valuation of pension liabilities, investing pension assets into government bonds or other assets that move with long term discount rates can effectively hedge the volatility of liabilities. LDI strategies enable defined benefits (DB) pension funds to do this. While some strategies do so without taking on leverage, others use leverage via repo (i.e. to borrow) or swaps to increase their exposure to long-term government bonds, while also holding riskier and higher-yielding assets such as equities in order to boost their returns to start to close long-run funding gaps. For many pension funds they get exposure to LDI by using third-party managed LDI funds. The LDI funds maintain a cushion between the value of their assets and liabilities, intended to absorb any losses on those bond holdings. If losses exceed this cushion, the DB pension fund investor is asked to provide additional funds to increase it, a process known as rebalancing or the fund risks negative net asset valuation, and being wound up. This also results in the pension fund losing its hedge.

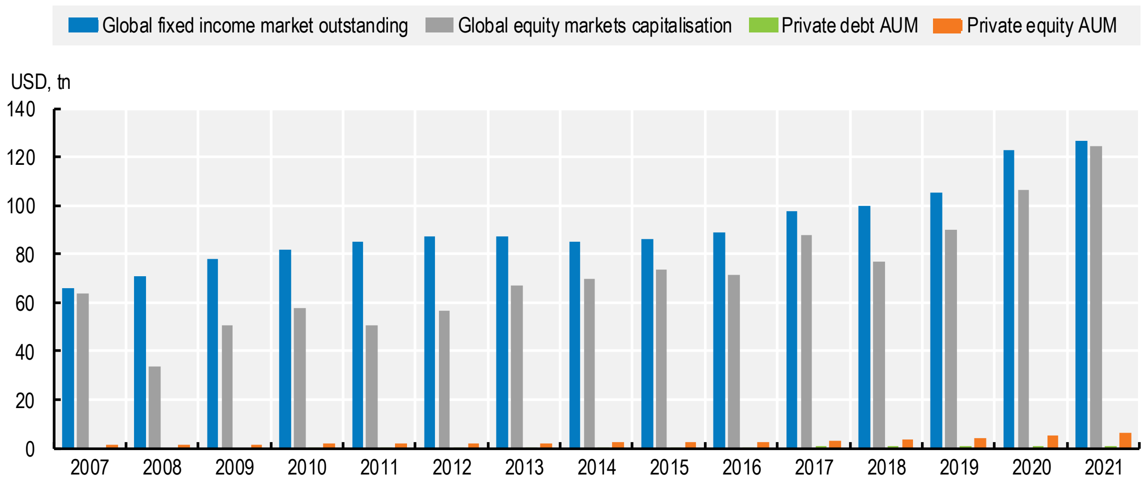
In late September, investor concerns about the UK's fiscal and inflation outlook weighed heavily on market sentiment. The UK Chancellor announced the Government's growth plan on 23 September, which included a large package to support households from high energy prices, and a series of unfunded tax cuts. These announcements triggered a sharp decline in the value of Sterling, which fell around 4% in US dollar terms and around 2% in Euro terms, and saw long-term gilt yields increased by 30 basis points during the day. Over the following days, liquidity conditions worsened, and long-term gilt yields increased further, with 30 year nominal gilt yields rising by 139 basis points from 21st September to 27th September; the corresponding figure for 30 year real yields was 191 basis points. Tthe Bank of England received market intelligence of increasing severity from a range of market participants, and in particular from LDI fund managers, reporting that conditions in core markets, should they continue to worsen, would force them to sell large quantities of long-term gilts into an increasingly illiquid market.

The Bank of England decided to intervene on Wednesday 28 September to preserve financial stability (Bank of England, 2022[35]) by announcing a facility to purchase long-dated gilts. This intervention was temporary and targeted and explicitly a financial stability and not a monetary intervention. Without such an intervention, a large number of pooled LDI funds would have been left with negative net asset value and would have faced shortfalls in the collateral posted to banking counterparties. The value of DB pension fund investments in those pooled LDI funds would have significantly depreciated. If the LDI funds defaulted, the large quantity of gilts held as collateral by the banks that had lent to these funds would then potentially be sold on the market. Massive sales of long dated gilts in an increasingly illiquid market would have amplified the stresses on the financial system, which would in turn have forced other institutions to sell assets to raise liquidity and add to self-reinforcing falls in asset prices. This would have resulted in even more severely disrupted core gilt market functioning, which in turn may have led to an excessive and sudden tightening of financing conditions for the real UK economy. The Bank of England terminated its gilt purchase programme as intended on 14th October 2022.

4 Global markets' credit risk outlook

High debt levels in the sovereign, non-financial corporate and household sectors, both in advanced and emerging economies, make the current conjuncture a particular concern. While low interest rates have contained debt payments to date, helping the resilience of the non-financial sector (or its ability to absorb shocks), tighter financial conditions and lower incomes will increase debt servicing pressure that may result in deteriorating credit quality, rising solvency risks and financial distress which would negatively impact for the resilience of a range of market segments and financial intermediaries. Global debt outstanding stands at historical highs, totalling USD 127 trillion in 2021, as sovereigns and corporates have benefited from low cost of debt (Figure 4.1).[9] While private equity and credit markets remain small compared to public markets, private markets fundraising has expanded substantially over the past decade as companies seek alternative sources of financing outside of traditional publicly traded markets.

Figure 4.1. Extraordinary growth of capital markets over the last decades



Source: SIFMA Capital Markets Fact Book, 2022, Preqin Global Private Equity and Global Private Debt Reports, OECD calculations.

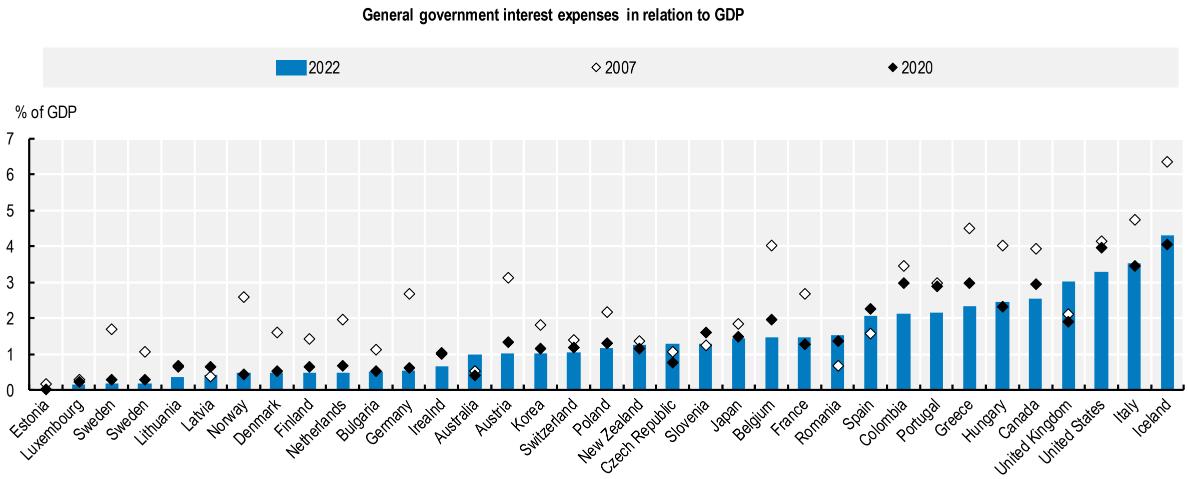
4.1. Sovereign sector: challenges for highly indebted issuers in OECD countries amid deteriorating credit conditions

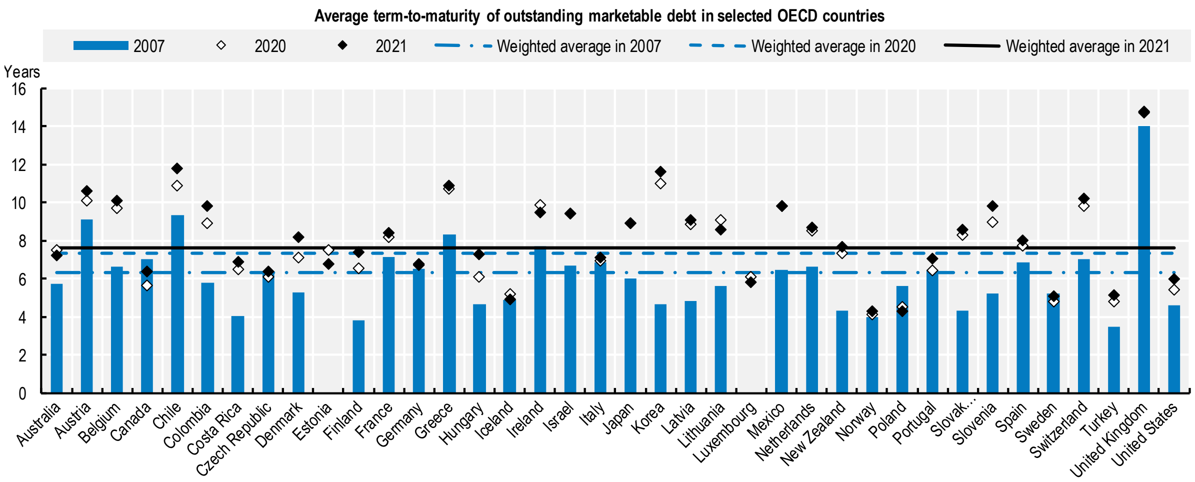
Despite the surge in government debt in the wake of the COVID-19 crisis debt-servicing costs on debt continued to fall in most OECD countries due to the low level of interest rates. Notably, the ratio of interest payments to government revenues has generally been low by historical standards in many OECD economies (Figure 4.2). Also, the average-term-to-maturity (ATM) of outstanding debt returned to pre-pandemic levels in most OECD economies, standing at 7.6 years in 2021 and reached record highs in

[9] Companies, in particular, took advantage of the demand for income and willingness to take on relatively cheap financing to drive growth.

16 OECD countries including France, Italy, Korea, Portugal, Spain and the United States. From a risk management perspective, the higher ATM and duration figures imply a lower pass-through of interest rate changes to government debt-service costs and enhanced fiscal resilience.

Figure 4.2. Reduced interest expenditures and lengthened average-term-to-maturity in OECD economies

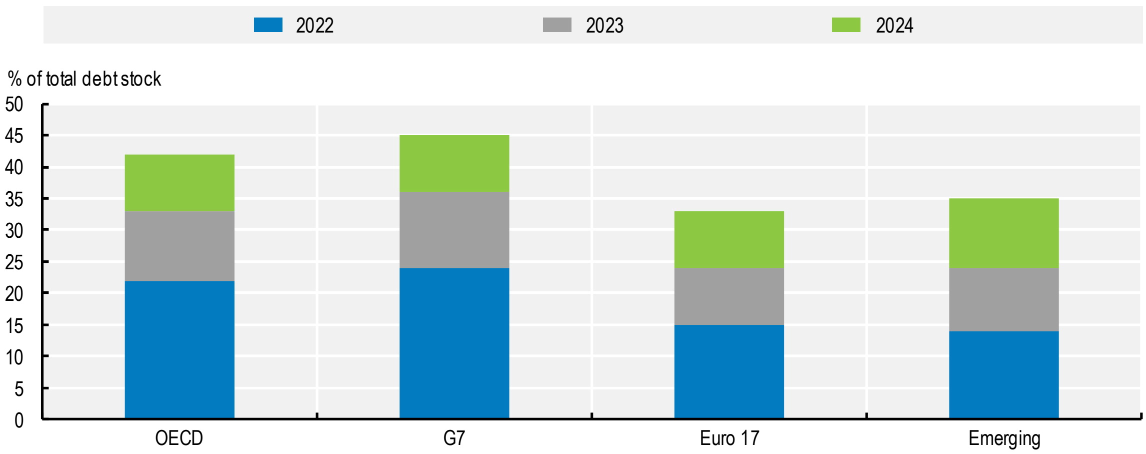




Source: OECD (2021[36]), OECD Economic Outlook, https://doi.org/10.1787/66c5ac2c-en; OECD (2022[26]), OECD Sovereign Borrowing Outlook 2022, https://doi.org/10.1787/b2d85ea7-en.

Despite reduced actual interest expenditures and lengthened average-term-to-maturity of outstanding debt in many OECD countries, substantial amounts of debt will mature in many OECD economies within the next few years and may pose significant challenges in terms of refinancing risks (OECD, 2022[26]). In nominal terms, governments in the OECD economies are expected to redeem more than USD 20 trillion worth of maturing debt by the end of 2024. This is equivalent to 40% of outstanding marketable debt stock needing to be refinanced or repaid within the next three years (Figure 4.3). Debt servicing pressures are likely to rise for many governments amid elevated government indebtedness and gross refinancing needs, along with the combination of the tightening in financial conditions, a likely slowdown in economic activity and tax revenues, and possible additional fiscal spending to support vulnerable households and corporates afford rising food and energy costs. These pressures, however, may well be uneven and debt servicing will probably increase the most in those governments facing both sharp increases in yields and large financing needs. Though, any sudden shifts in sentiment and perceptions of sovereign risk not necessarily related to long-term solvency, may lead to a deterioration in credit spreads, and even an interruption of market-based borrowing as seen during the 2010-12 European sovereign debt crisis. In that regard, the announcement by the ECB of Transmission Protection Mechanism would help to preserve market stability and mitigate the risk of spread spikes in some European sovereign bond markets. In a context of elevated uncertainty and a changing funding environment, effective communications, both by debt management offices and central banks, to cope with potential challenges in government securities markets will remain crucial, not only to avoid information asymmetries, but also to guide market assessments of sovereign risk.

Figure 4.3. Redemptions of central government marketable debt in OECD country groupings



Source: OECD (2022[26]), OECD Sovereign Borrowing Outlook 2022, https://doi.org/10.1787/b2d85ea7-en.

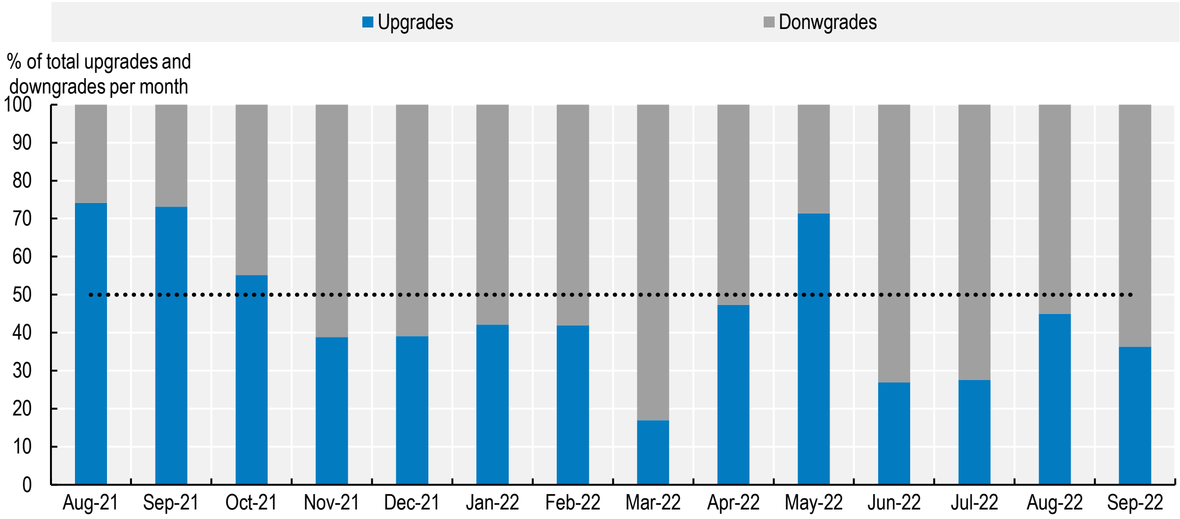
4.2. Corporate sector: rising debt sustainability concerns for leveraged issuers with subsequent losses for a range of investors

Deteriorating economic and credit conditions combined with higher interest rates would increase debt sustainability concerns for leveraged corporates, which may result in higher losses for a range of investors. Speculative-rated corporate bond downgrades outnumber upgrades since November 2021 (Figure 4.4). While rating agencies perceived corporate fundamentals as strong in 2021, in 2022 borrowing costs have risen sharply, the corporate profit outlook is poor, and demand is slowing (S&P Global Ratings, 2022[37]). In addition, substantial currency depreciation in both advanced and emerging economies may increase further the price of imports (including energy) with detrimental effects on companies' earnings and ability to repay their debt. Also, European electricity companies are facing particular headwinds from surging energy prices and substantial margin calls from their risk hedging strategies[10] that could result in significant

[10] Electricity companies reduce the financial risk of their power sales to households and businesses by taking short positions in futures markets before selling the physical electricity. Such trades require electricity companies to post additional collateral to the exchange's clearing house if the value of the underlying asset rises, resulting in soaring margin requirements as power prices have soared.

liquidity squeeze across the sector and possible profitable utilities collapse without government support (Financial Times, 2022[38]).[11]

Figure 4.4. Speculative-rated corporate bond downgrades outnumber upgrades since end-2021



Note: This figure shows relatives shares of speculative-rated corporate bond downgrades and upgrades (i.e. using Fitch long-term issuer domestic and foreign default ratings) globally since August 2021.
Source: Refinitiv, OECD calculations.

Corporate debt service ratios are likely to rise further as financial conditions tighten and earnings are declining amid rising costs and weakening economic prospects. Recent BIS estimates suggest that debt servicing capacity could be tested in advanced economies and the resulting strains could not only have a material effect on economic activity,[12] but could also lead to credit losses that are similar to those experienced following the GFC in an adverse scenario (BIS, 2022[39]).[13] Against a backdrop of lower global

[11] European energy trading is being strained by margin calls of at least USD 1.5 trillion, which could raise pressure on sovereigns in the region to provide more liquidity buffers (Bloomberg, 2022[60]). According to market analysts, most of the strains identified for electricity companies relate to their current liquidity needs for trading purposes. At least, for the electricity companies that are selling power they are producing, they do not face solvency challenges as they benefit from high prices in the physical market. Nevertheless, the situation needs to be monitored, given highly volatile energy prices and uncertainty about geopolitical developments, which may trigger additional margin calls.

The European Commission implemented a set of emergency measures to help power companies access the funds they need in mid-September. In the United Kingdom, the Treasury and the Bank of England would put in place an Energy Markets Finance Scheme to provide GBP 40 billion in short-term liquidity to wholesale energy producers. The Danish Government is planning to provide USD 13.5 billion of loan guarantees to utilities.

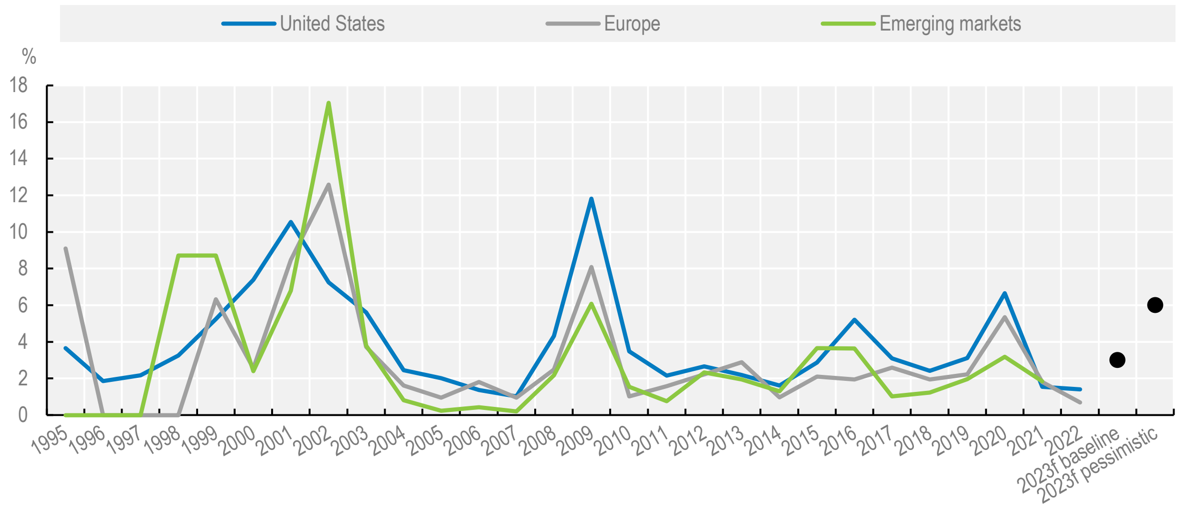
[12] If interest rate would follow the steeper path of the early 2000s, by 2025 debt service ratios could climb back to their GFC levels while both house and equity prices would see steep declines. As a result, the shortfall of GDP relative to the baseline is around 3%.

[13] Similar analysis performed by S&P Global ratings (2022[53]) suggests that debt-weighted ratio of corporate loss-makers could rise by 2.4 times to 17% in 2023, from actual 7% in 2021 and 10% in the 2022 base case. China subsample is the worst performer, at 22% from 12% in the 2022 base case. Asia-Pacific excluding-China is not far behind, at 20% from 12%, and to a lesser extent other EMEs (at 17% from 11%). Europe fares better, at 14% up three-quarters from 8%. Considering economic sectors, consumer discretionary and industrials, which have not fully recovered from the COVID-19 crisis, could be severely impacted. Also, real estate construction sector could face

growth, inflation spikes and higher credit spreads, leveraged corporate borrowers in vulnerable sectors could face limited borrowing capacities would earning pressures cause springing revolving credit facilities leverage covenants to trigger.

US and European trailing-12-month speculative-grade corporate default rates are expected to increase in 2023 (S&P Global Ratings, 2022[37]). Such default rate could reach 3% by March 2023 (from 1.4% and 0.7% respectively in March 2022), and possibly 5-6% under an adverse scenario (Figure 4.5). Deteriorating credit quality of leveraged corporates in vulnerable sectors or geographies are likely to result in higher risk of losses for a range of investors, including banks and institutional investors, and products (leveraged loans CLOs) exposed to these markets.

Figure 4.5. US and European corporate speculative-grade default rate could double to 3% by the first quarter of 2023



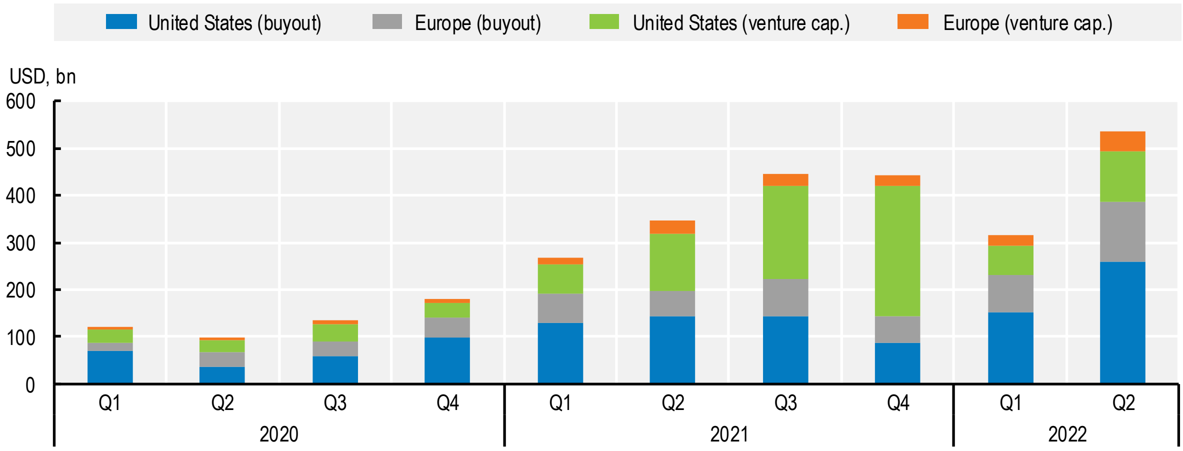
Note: This figure shows trailing-12-month speculative-grade corporate default rates in the United States, the European Union and EMEs respectively over the period 1995-2023. Value in 2023 are forecasts for speculative-grade corporate default rates of US and European corporates.
Source: S&P Global Ratings.

4.3. Private capital markets: risks could rise amid adverse market conditions with possible negative spillovers to a range of investors

Substantial decline in private equity issuance during the first quarter of 2022 reveals that private capital markets are prone to shift in investors' sentiment and underlying vulnerabilities have the potential to undermine growth and performance of these products (Figure 4.6). Yet issuance have significantly rebounded during the second quarter of 2022. Indeed, current geopolitical tensions, higher inflation and interest rates, and supply chain and labour challenges led investors' to temporarily reassess their investment strategy (McKinsey and company, 2022[40]; S&P Global ratings, 2022[41]). These trends suggest that risks could rise on private capital markets amid adverse market conditions, which may trigger substantial losses and possibly affect financial soundness of a range of investors.

strained conditions, yet it is currently facing a significant downturn as reflected by the sharp decline in floor-space building sold in many jurisdictions in the post-COVID-19 era. Under stress, their loss-makers could rise by over half.

Figure 4.6. Significant decline in private equity issuance during Q1 2022



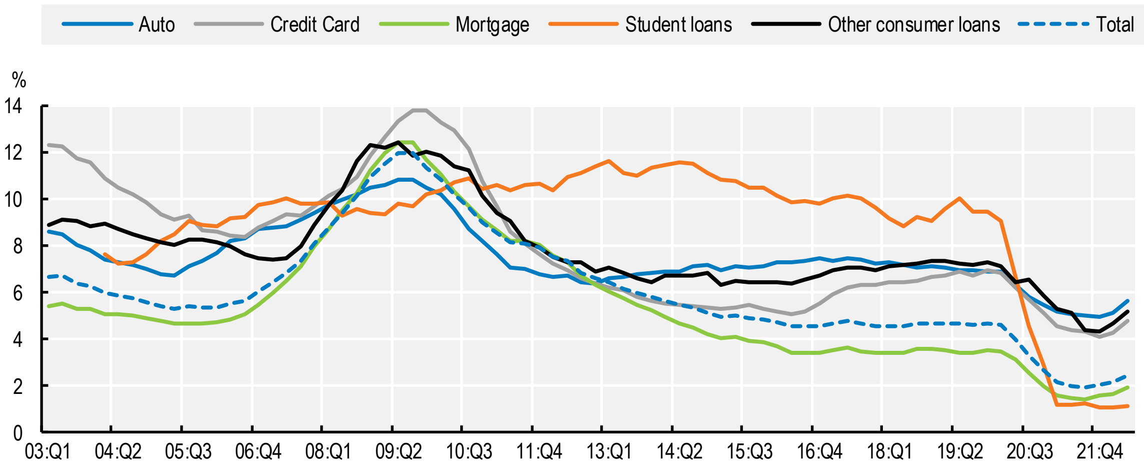
Source: Refinitiv, OECD calculations.

Leveraged private deals and the rise of non-bank financing could cause risks for financial resilience due to rising credit losses (Annex A). For instance, private equity deal multiples and buyout leverage stand at historically high levels, and buyout firms continue to utilise debt (i.e. LBO) for more than half of deal purchase price. Rising cost of debt could have a magnified impact on equity valuations amid elevated indebtedness levels. Also, the rise of non-bank financing (including direct lending from insurance companies and pension funds) makes private capital markets prone to rising defaults amid deteriorating economic conditions as less regulated non-bank lenders tend to grant loans to leveraged borrowers and the credit quality of distressed debt would start deteriorating at the early stage of the changing economic cycle. Deteriorating credit quality of direct loans and leveraged loans could also erode the resilience of securitisation markets, mainly CLOs, leading to increasing risk of losses for investors exposed to these products.

4.4. Households: Rising financing costs and deteriorating credit quality likely to trigger losses for mortgage lenders and RMBS

Debt sustainability concerns are rising for households in many OECD countries amid rising financing costs, which may cause deteriorating credit quality and losses for mortgage lenders and RMBS. Delinquency rates are rising for US auto and credit card loans (Figure 4.7), which suggest that economic strains are building for lower-income households where subprime borrowers account for a significant share of the outstanding balances (Federal Reserve Bank of New York, 2022[42]). Also, credit losses could rise of consumer lenders broadly, including for Buy Now Pay Later (BNPL) from credit deterioration, as BNPL customers tend to be the near prime and subprime cohorts, segments likely to be most impacted by multi decade high inflation (Fitch Ratings, 2022[43]).

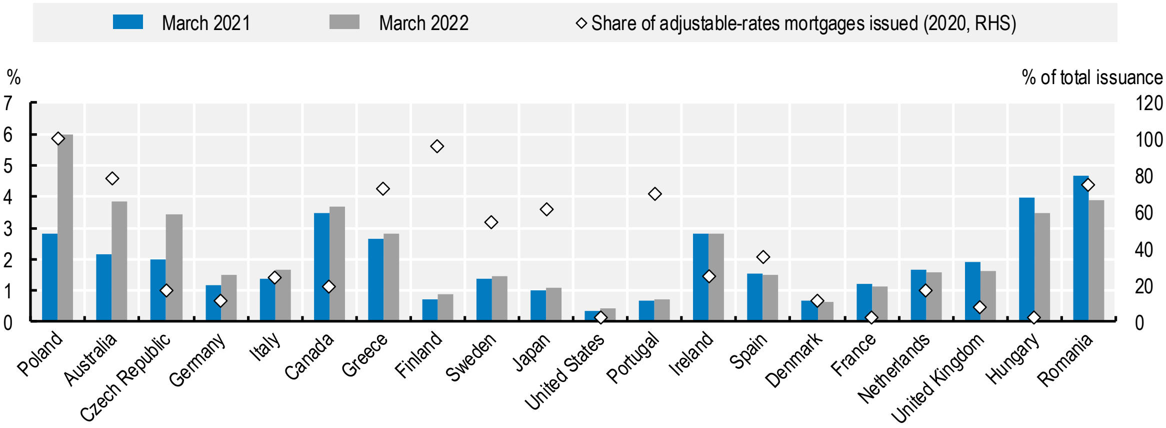
Figure 4.7. While historically low, US 30+ day delinquent consumer loan balances are beginning to rise



Note: This figure shows quarterly data for US 30+ day delinquent consumer loan balances since the first quarter of 2003 to the second quarter of 2022.
Source: Federal Reserve Bank of New York, Quarterly report on household debt and credit.

Mortgage rates are increasing in many OECD countries, which are raising debt sustainability concerns for households and rising risk of losses for investors and products exposed to these markets amid elevated housing prices and household indebtedness. Notably, higher financing costs could moderate housing demand, which may contribute to slower growth or even decline in housing prices (Figure 4.8). Against this backdrop, REMFs are likely to face redemptions that may result in substantial declining valuations for REITs. Notably, a deterioration of real estate prices may lead to lower returns for REITs and therefore for REMFs that may experience financial distress depending on the extent of share redemptions. REMFs may run out of cash and have to liquidate shares in REITs into increasingly illiquid markets, which could amplify price movements, transmitting stress to other parts of the financial system, and disrupting the availability of finance to the real economy. Besides, adjustable rate mortgage contracts are prone to a higher probability of default when interest rate are rising, mainly prevalent in several countries in Southern (Portugal and Greece), Eastern (Poland, Bulgaria, Romania and the Baltics) and Northern Europe, with higher risk of losses for mortgage lenders (including banks and non-banks) and investors holding junior tranches of RMBS (OECD, 2022[44]). While household balance sheets are currently stronger than before the GFC, aggregate numbers might conceal important heterogeneity, and risks remain that the repayment capacity of low-income borrowers could deteriorate, given the withdrawal of pandemic income support measures and higher inflation (OECD, 2022[1]). The high correlation of real estate prices in OECD countries is compounding these concerns. Rising correlation might reflect that similar factors are underpinning the house prices growth and many jurisdictions could face pressures in housing markets simultaneously would economic and housing market conditions start to deteriorate (Reuters, 2022[45]).

Figure 4.8. Mortgage lending rates have risen in many OECD economies in Q1 2022 versus Q1 2021



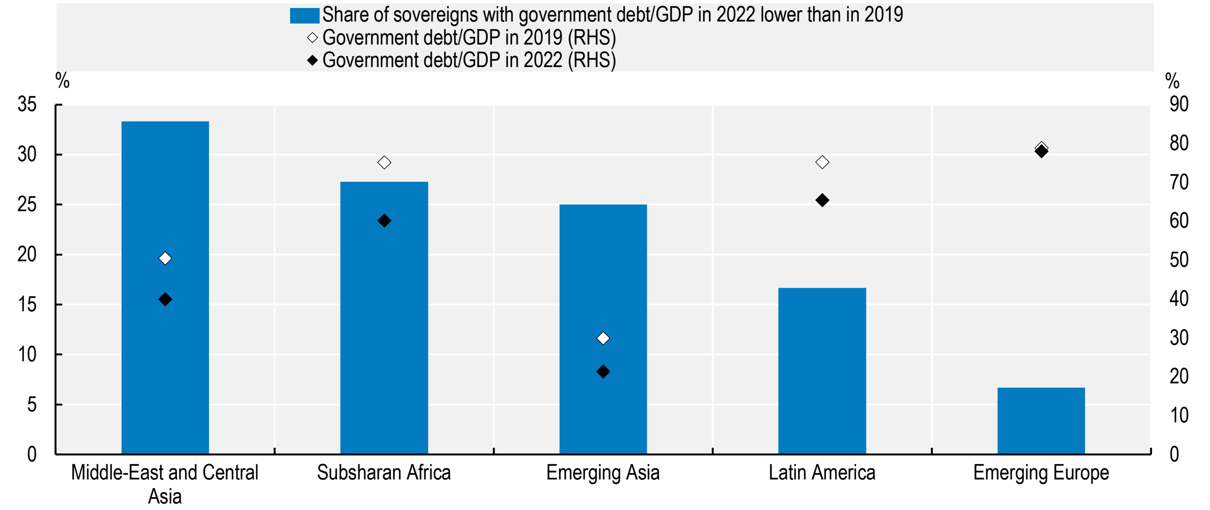
Source: European Mortgage Federation, Quarterly Review of European Mortgage Markets.

Downside risks for mortgage lenders and RMBS markets are a function of many country-specific stresses and mortgage market sensitivities. Mortgage borrowers are suffering a cost of living shock, particularly in Europe, which may potentially compromise their ability to repay their mortgages (S&P Global Ratings, 2022[46]). For instance, the rise in prices has been far from uniform, however, partly due to varying sources of domestic energy consumption between countries. Also, elevated inflation and tightening monetary policy, which leads mortgage rates to substantially increase in certain countries, such as in the United States, may erode the debt of low-income and subprime borrowers in particular (S&P Global Ratings, 2022[47]). While mortgage interest rates have risen in many economies, mortgage lenders and RMBS markets could differ substantially in their sensitiveness to inflation and interest rate stress, depending on the prevalence of floating-rate loans and the level of household indebtedness.

4.5. Emerging markets: Risk of debt distress accelerated by tighter financial conditions amid elevated indebtedness

Tighter financial conditions amid elevated indebtedness could accelerate debt distress in some emerging economies. Also, elevated indebtedness and rising refinancing costs for many sovereign issuers in EMEs could limit public sector support to economic growth. Notably, government debt-to-GDP ratios is at 2019 levels or lower in just 35 of the 145 sovereigns in EMEs with data available in the IMF database by end-2022 (Figure 4.9). This is despite unexpectedly strong fiscal outcomes and nominal GDP growth in 2021. Middle East and African economies have the highest proportion of sovereigns with lower debt-to-GDP in 2022 than in 2019. Most are oil exporters that have benefited from the surge in oil prices. Emerging Asian economies have also benefited from the strong global recovery and significant increase in revenues from trade activities (Fitch Ratings, 2022[48]).

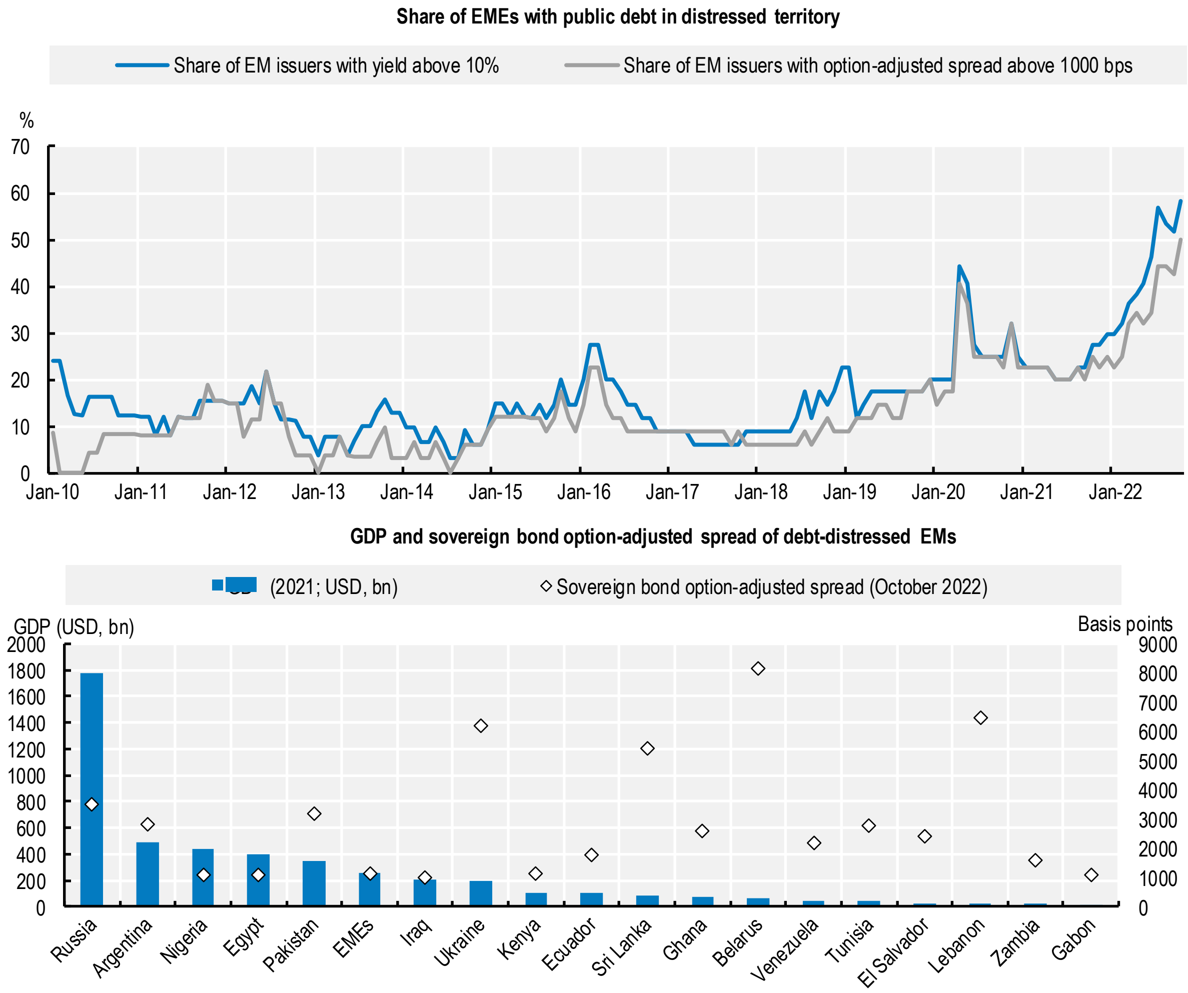
Figure 4.9. Sovereign debt levels have not returned to pre-COVID-19 norms in most EMEs



Note: The sample includes 145 emerging economies. 2022 data are forecasts.
Source: World Economic Outlook database, OECD calculations.

Tighter financial conditions are contributing to debt distress in a growing number of emerging economies. Notably, interest rates and spreads have risen to elevated levels for many sovereign issuers in EMEs amid increasing debt accumulation. Also, sovereign issuers in many EMEs, mainly in Asia, Africa and Latin America, are facing debt sustainability challenges through their involvement in the Belt and Road Initiative (Box 4). For instance, more than 50% of sovereign issuers in EMEs are in or at high risk of government debt distress, up from about 10% a decade ago (Figure 4.10). Among the countries with debt in distressed territory, Russia (which has defaulted) is by far the largest economy, followed by Argentina, Nigeria, Egypt and Pakistan. Also, highly strained conditions on sovereign debt markets prevail in Belarus, Lebanon, Ukraine, Sri Lanka, and to a lesser extent Russia and Pakistan. Further debt accumulation, higher bond yields and tighter financial conditions may contribute to compound debt sustainability concerns and increase risks of default for economies whose sovereign bonds are in distressed territory.

Figure 4.10. A growing share of sovereign debt in EMEs at high risk of distress



Note: In the top chart, the share of emerging markets sovereign issuers with a yield above than 10% is calculated as the number of sovereign issuers with a yield above 10% divided by the total number of sovereign issuers in the sample (i.e., 63 countries). Also, the share of emerging markets sovereign issuers with an option-adjusted spread above 1 000 basis points is calculated as the number of sovereign issuers with an option-adjusted spread above 1000 basis points divided by the total number of sovereign issuers in the sample. An EM issuer is considered in distress territory if sovereign bond option adjusted spread exceeds 1 000 basis points. These indices have been computed using ICE BofA sovereign bond indices for a sample of 63 EMEs. The bottom chart shows GDP and option-adjusted spread of sovereign issuers with option-adjusted spread above 1000 basis points. GDP data are as of 2021 and option-adjusted spread of sovereign issuers in selected EMEs are as of end of October 2022.

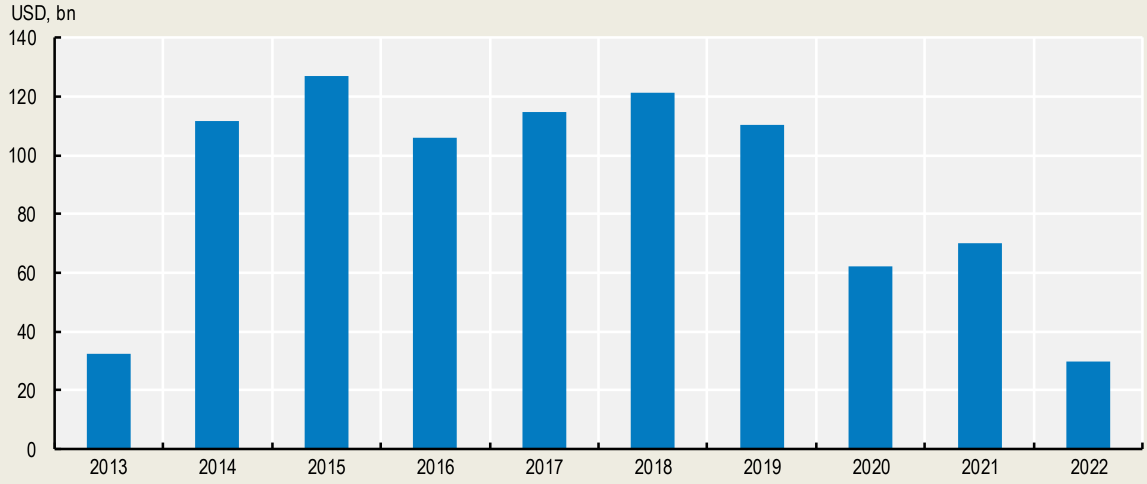
Source: Refinitiv, IMF World Economic Outlook database, OECD calculations.

Box 4. Deteriorating credit quality of borrowings from the Belt and Road Initiative of China

Sovereign issuers in a range of EMEs, particularly in Asia, have accumulated substantial amount of debt through their involvement in the Belt and Road Initiative (BRI) of China, which has brought new vulnerabilities in many countries.

Since the programme was launched in 2013 the value of China-led infrastructure projects and other transactions classified as BRI in scores of emerging and developing countries had reached USD 885 billion by end of June 2022 (Figure 4.11). Nevertheless, the annual amount of borrowed funds have been cut by half since 2020 and about 80% of the loans have been granted before 2019.

Figure 4.11. Total borrowings from BRI lending programme



Source: China Global Investment Tracker complied by the American Enterprise Institute and the Heritage Foundation, OECD calculations.

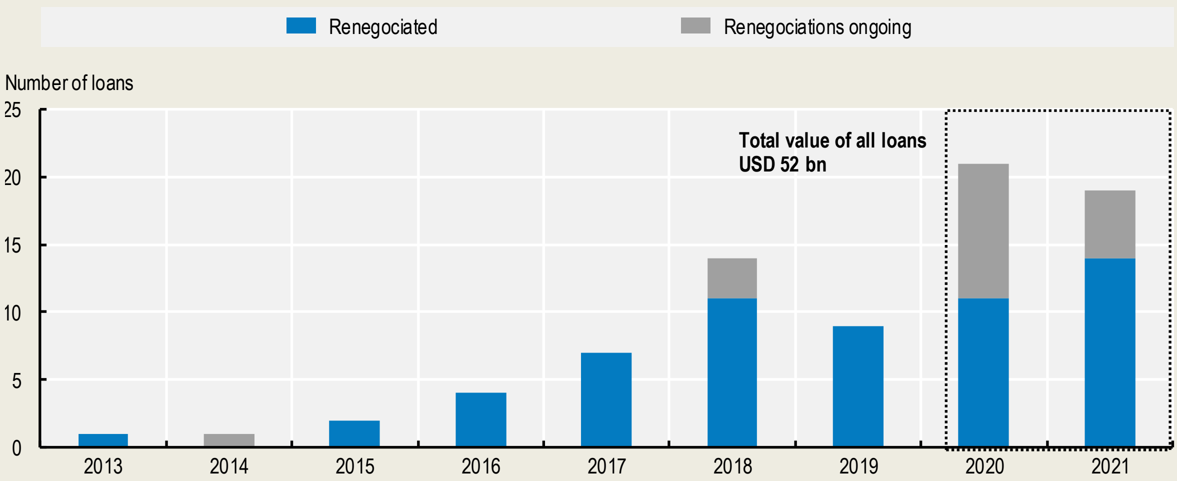
One major emerging challenge is the surging number of troubled transactions and renegotiated loans. Notably, about USD 90 billion of transactions are classified as “troubled”, mainly in Western and Eastern Asian economies and in Sub-Saharan African economies (Table 4.1). Troubled transactions represent about 45%, 44% and 34% of total transactions in these regions respectively. Also, the total value of loans from Chinese institutions that had to be renegotiated in 2020 and 2021 surged to USD 52 billion. This was more than three times the USD 16 billion of the previous two years (Figure 4.12).

Table 4.1. Total troubled transactions recorded in the BRI lending programme since 2013

	Total BRI troubled transactions (USD, bn)	Total BRI troubled transactions (% of total troubled)
Arab Middle East and North Africa	3	14
South America	10	36
Europe	13	20
Sub-Saharan Africa	15	34
East Asia	20	44
West Asia	30	45

Note: This table shows total troubled transactions recorded in the BRI lending programme from October 2013 to June 2022, expressed in US dollar and as a share of total troubled transactions with China (i.e., including BRI and other transactions).
Source: China Global Investment Tracker complied by the American Enterprise Institute and the Heritage Foundation, OECD calculations.

Figure 4.12. A growing number of BRI loans are being renegotiated

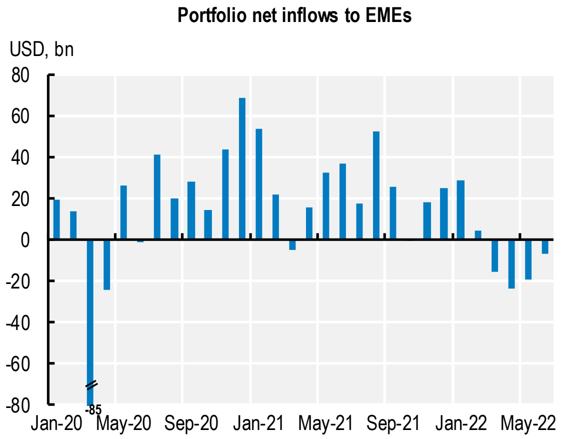


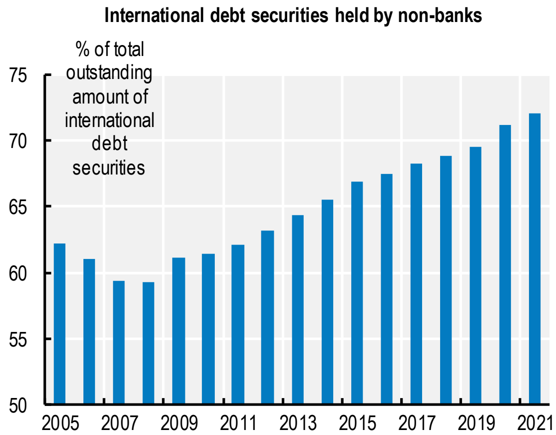
Note: Renegotiated includes loans written off, deferred, refinanced, witheld further financing or denied.
Source: Rhodium.

Chinese financial institutions have had to manage a number of defaults on sensitive overseas loans in recent years but the cumulative impact of the multiple renegotiations that they currently faces amount to the country's first overseas debt crisis. The World Bank recently expressed concerns that developing countries may be headed towards a debt crisis on a scale last seen in the 1980s (World Bank, 2022[49]). Current geopolitical tensions, rising inflation, tightening global financial conditions and renewed geopolitical tensions between the US and China are all underpinning such dire scenarios.

Widespread capital flight, weakening exchange rates and rising external debt could amplify refinancing risks, which may aggravate market fragmentation and erode financial sector resilience and sustainable economic growth. The overall rise in non-financial sector debt has been reflected in an increase in EME external debt, with a large share denominated in foreign currency (i.e. mainly in US dollar according to a recent FSB study (2022[50]) or with longer-term maturity). Meanwhile, high inflation is also driving up nominal interest rates, raising sovereign borrowing costs, as well as driving exchange-rate weakness in some emerging markets, thus contributing to increase repayment burdens associated with foreign currency-denominated debt. The impact of higher rates on borrowing costs will feed through at different speeds in different parts of the world, reflecting variations in factors such as the speed and scale of rate hikes, debt duration, and the proportion of debt that is inflation-indexed, on floating rates or foreign-currency denominated. In addition, the greater role of NBFIs in financing EMEs could make portfolio flows more susceptible to global financial conditions than before (FSB, 2022[50]), accentuating the procyclicality in capital flows (Figure 4.13) and difficulties for some issuers in EMEs to refinance their maturing debt. In fact, some EMEs already experienced portfolio debt outflows since the end of 2021.

Figure 4.13. Capital flows to EMEs and non-bank holdings of international debt securities





Source: OECD Monthly Capital Flow dataset, Joint External Debt Hub, OECD calculation.

Overall, global financial market conditions have deteriorated amid tightening monetary conditions and weakening economic prospects. The numerous regulatory and supervisory reforms implemented since the GFC and the extraordinary support measures provided following the COVID-19 shock have helped strengthening the resilience of the financial system. Yet a number of structural vulnerabilities remain in some segments, which make markets and intermediaries vulnerable to sudden shift in sentiment. Further bouts of market turbulence could be amplified by the combination of uncertain economic and geopolitical outlooks, high leverage in many sectors, interconnectedness, pro-cyclical behaviour and liquidity imbalances. High debt levels in the sovereign, corporate and household sectors at the same time makes the current conjuncture a particular concern. In addition, debt accumulation and widespread capital flights could amplify refinancing risks in EMEs. While low interest rates have contained debt payments to date, helping the resilience of the non-financial sector (or its ability to absorb shocks), tighter financial conditions and lower incomes would likely increase debt servicing pressure. A broad-based rise in credit losses could trigger sharp valuation corrections of a range of market products and test the resilience of various types of financial intermediaries with negative impacts on sustained credit intermediation and economic growth.

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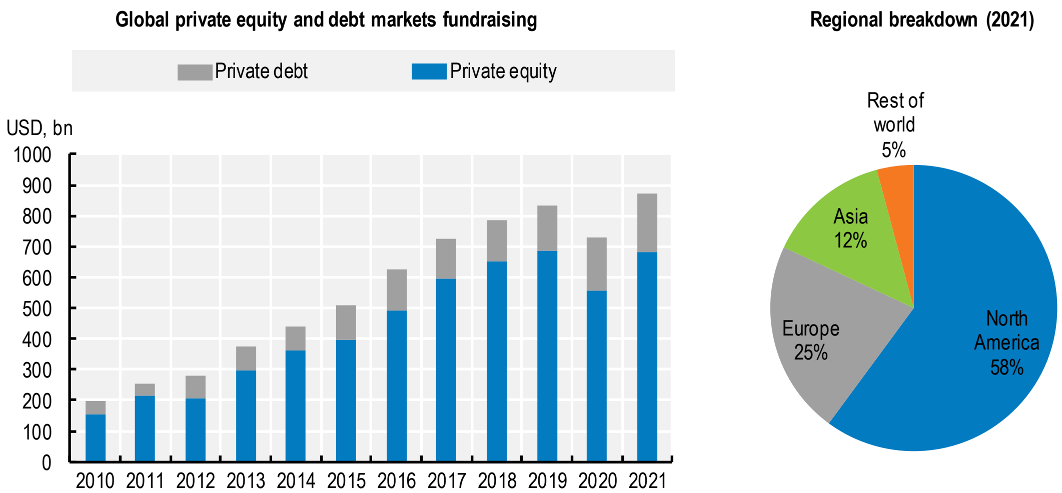
Annex A. Major developments in private capital markets in the post COVID-19 era and structural vulnerabilities

Private equity and debt markets rebounded in 2021 after a year of pandemic-driven turbulences that suppressed fundraising and deal activity (Figure 4.14). Fundraising rebounded across regions, and global totals fell just short of the pre-pandemic peak in 2019. Private equity continued to drive global growth in private markets, which are dominated by US issuers followed by European and Asian issuers.

Figure 4.14. Private markets fundraising reached a new high in 2021

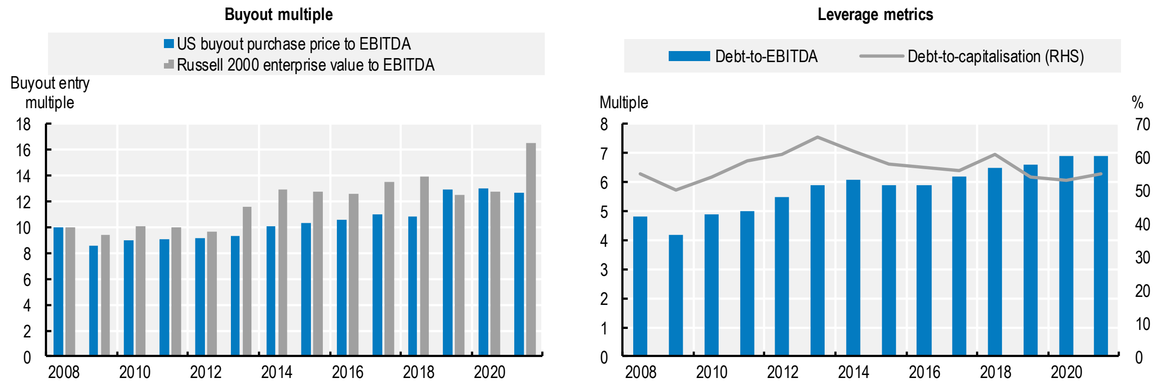


Source: Preqin, McKinsey and Company, OECD calculations.

Private equity deal multiples and buyout leverage stand at historically high levels, and buyout firms continue to utilise debt (i.e. LBO) for more than half of deal purchase price. For most of the decade ended 2020, both US private equity and public markets multiples expanded steadily, with valuation growth in the private markets slightly outpacing that in public markets (Figure 4.15).[14] However, buyout multiples compressed slightly in 2021, even as public multiples surged. This trend may be partially attributable to a mix shift in deal activity from higher-multiple sectors (such as technology companies, which have been relatively unaffected by and, in many cases, benefited from the pandemic) in 2020 to lower multiple sectors in 2021 (such as manufacturing, which sellers had been reluctant to exit at trough valuations a year earlier). General partners have continued to take advantage of low cost of debt in 2021 and while leverage did not rise further, it remained elevated at roughly 7 times EBITDA. Notably, US buyout firms continue to utilise debt for approximately 55% of a deal's purchase price, on average.

[14] From 2010 to 2020, the average median entry multiple in US buyout increased from 9.0 to 13.1 times earnings before interest, taxes, depreciation, and amortization (EBITDA). This meant that an investor in 2020 paid over 30% more to acquire the same EBITDA as they would have a decade prior. Debt financing and its lower cost versus equity has led to increases in the weighted average cost of capital (WACC) supporting growth in equity valuations and enterprise values.

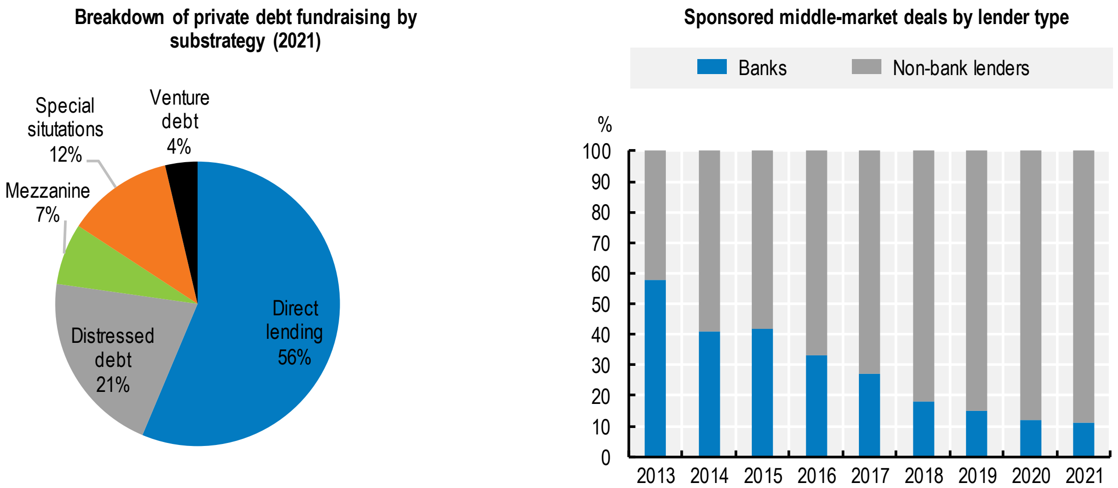
Figure 4.15. US buyout multiple growth has levelled off and buyout leverage stands at nearly seven times in 2021



Source: Refinitiv, S&P Capital IQ, McKinsey and company.

Direct lending from non-bank lenders and investment in distressed debt account for significant shares of private debt markets, exposing private debt markets and non-bank lenders to higher default rates amid worsening economic prospects. For instance, direct lending accounted for nearly 60% of overall private debt fundraising in 2021, followed by distressed debt (i.e. 21%, Figure 4.16). Banks have reduced their middle-market corporate lending activities and direct lenders, which are not subject to the same regulatory capital requirements as banks, have been willing to grant more sub-investment-grade credit. In 2021, banks account only for 11% of sponsored middle-market financings, down from nearly 70% in 2013. Also, as direct lenders have enhanced their value proposition relative to syndicated lending channels, borrowers (especially those backed by private equity sponsors) have been attracted by the speed, certainty, convenience, and confidentiality offered by direct loans, even when priced slightly wider than a syndicated alternative.

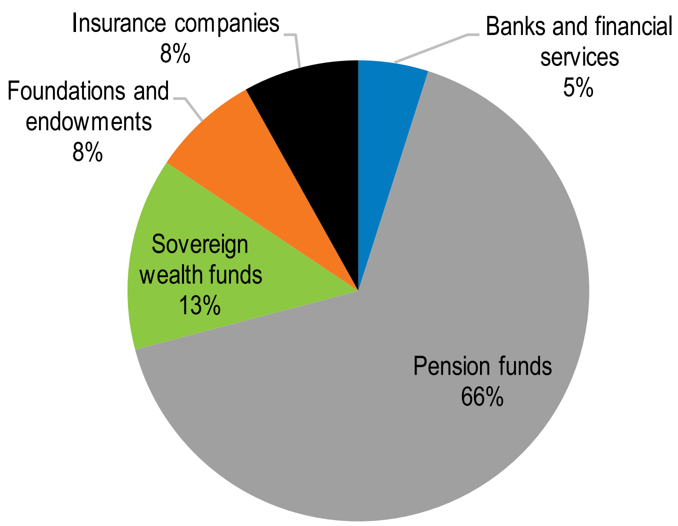
Figure 4.16. Direct loans account for a substantial share of private debt fundraising and banks have almost exited the sponsored middle-market



Source: Preqin, Refinitiv, McKinsey and company.

Substantial losses from private equity and debt investments may affect the financial soundness of a range of investors, including regulated pension funds and insurance companies. In 2021, pension funds provided more than 65% of total capital to the top 100 global private equity deals, followed by sovereign wealth funds (13%), foundations and endowments and insurance companies (8% both, Figure 4.17). However during the first half of 2022, pension and sovereign wealth funds sold about USD 33 billion worth of stakes in private funds, up from USD 19 billion in the same period in 2021 (Financial Times, 2022[51]). For instance, the sharp decline in equity valuations has left pension funds' overall portfolios highly exposed to buyout funds and other private investments. At the same time, pension funds that had committed money to buyout firms have had to actually stump up the cash far more quickly than expected over the past two years because of the frenzy of dealmaking, which has sparked fears of a funding squeeze. Such sell-offs and weakening equity valuations amid worsening economic conditions cast doubts on the ability of pension funds and sovereign wealth funds to sustain the fundraising that has transformed them into a major force in global dealmaking.

Figure 4.17. Pension funds account for the largest share of capital allocated top 100 global private equity deals in 2021



Source: Adapted from Preqin.

OECD