

Stress testing the UK banking system: scenarios for the 2024 desk-based stress test

The 2024 desk-based exercise will test the resilience of the UK banking system to two hypothetical scenarios, which include severe but plausible combinations of adverse shocks to the UK and global economies.

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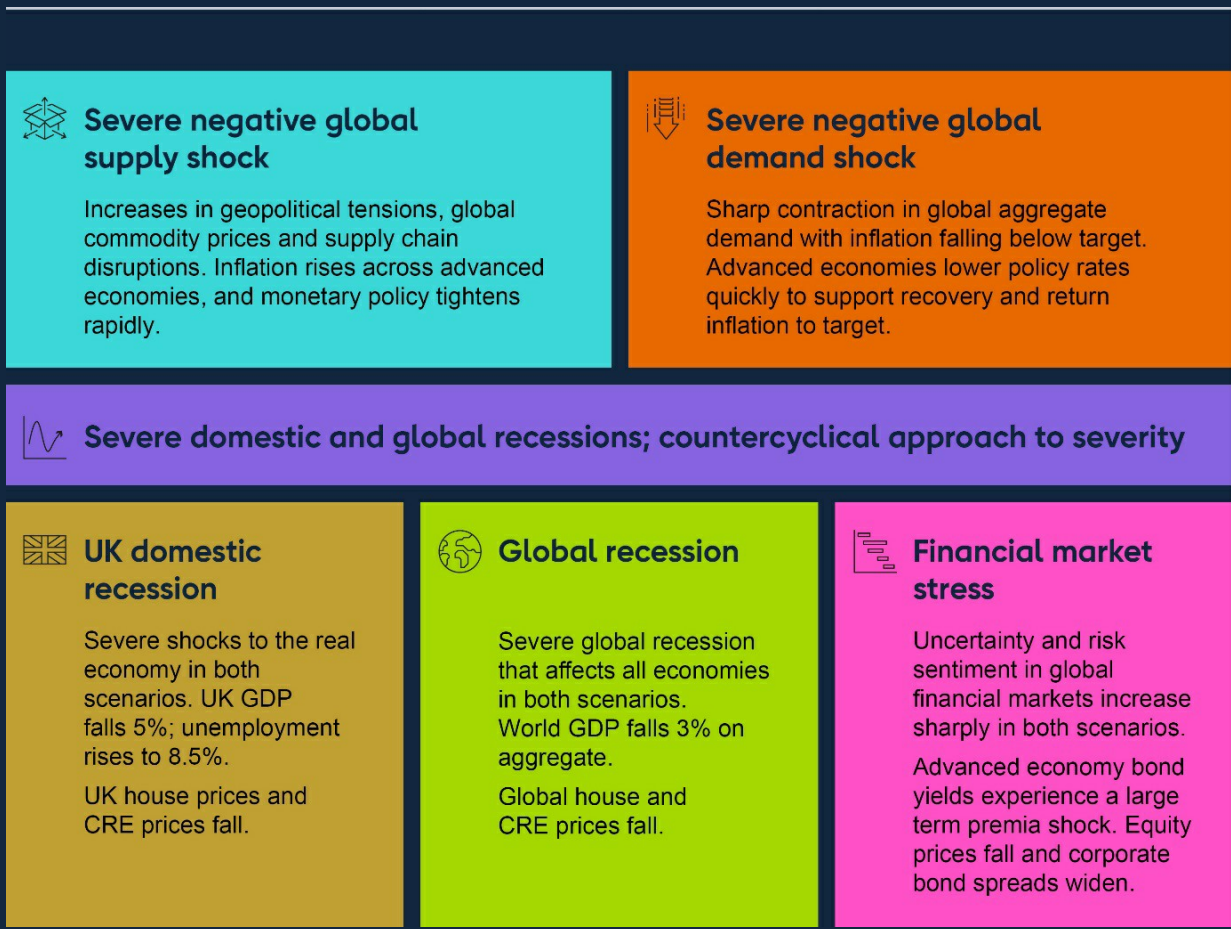
1: Executive summary

- To support the Financial Policy Committee's (FPC's) and the Prudential Regulation Committee's monitoring and assessment of the resilience of the UK banking system to downside risks, the Bank of England ('the Bank') is carrying out a desk-based stress test in 2024. The exercise will not involve firm submissions of stressed projections. It will use the Bank's own estimates of the impact of the stress scenarios on the resilience of the UK banking system.
- A key benefit of a desk-based exercise is to allow for that resilience to be tested to more than one adverse macroeconomic scenario. The exercise will test the resilience of the banking system, as represented by the major UK banks and building societies that account for around 75% of the sector's lending to the UK real economy, to two hypothetical scenarios. These scenarios include severe but plausible combinations of adverse shocks to the UK and global economies.
- The scenarios are countercyclical and linked to the FPC's assessment of the underlying level of risks and vulnerabilities in the UK and global economies and financial markets.
- Both scenarios are designed to be severe and broad enough to assess the resilience of the UK banking system to a range of adverse shocks.
 - **The supply shock scenario** sees a severe, negative global aggregate supply shock from an increase in geopolitical tensions and global commodity prices and supply-chain disruptions. This leads to higher-than-expected inflation across advanced economies. High inflation is assumed to lead to expectations of higher inflation in the future and global policymakers increase interest rates to bring inflation back to target. In this scenario, Bank Rate rises to 9% and stays there for a year.
 - **The demand shock scenario** sees a severe negative global aggregate demand shock and global recession, resulting in falling inflation. This prompts Bank Rate to fall rapidly from 5.25% to 0.1%, remaining below 0.5% for two years, to support the recovery and return inflation to target.
- In both scenarios, there is a domestic and global recession, with UK GDP falling by 5%, unemployment rising to 8.5%, and house prices falling by 28%. World GDP falls by 3%. The macroeconomic scenario results in sharp moves in other asset prices. There are assumed to be further falls in UK and global commercial real estate (CRE) prices, equity prices fall, government bond term premia rise, and corporate bond spreads widen.
- The scenarios applied in the stress test are not a forecast of macroeconomic and financial conditions in the UK or abroad. The scenarios are not a set of events that are expected, or likely, to materialise. Rather, as per the scenarios used in previous exercises, they represent

coherent ‘tail-risk’ scenarios designed to be severe but plausible and broad enough to assess the resilience of the UK banking system to a range of adverse shocks. Monetary policy responses in the scenarios do not represent a forecast of how policy would actually respond in such a scenario.

- The Bank will publish findings from the desk-based exercise at an aggregate level by the end of 2024. It will not publish results at the level of individual banks.

Figure 1: Summary of the scenarios for the desk-based stress test



2: Background

| The Bank is carrying out a desk-based stress test in 2024.

Stress testing seeks to ensure that the banking system has sufficient resilience to continue providing support to households and businesses in the face of severe but plausible combinations of adverse shocks.

In 2024 the Bank is undertaking a desk-based stress test. The exercise seeks to assess the resilience of the UK banking sector in aggregate, as represented by the major UK banks and building societies that account for around 75% of the sector's lending to the UK real economy.

The desk-based exercise will not involve firm submissions of stressed projections. It will use the Bank's own estimates of the impact of the stress scenarios on the resilience of the UK banking system, including through impairments, costs, net interest income and traded risks.

In addition to the impact of the macroeconomic and financial scenario set out below, the test will also incorporate a stressed level of misconduct costs.

Section 3 summarises the two scenarios chosen for this exercise; Section 4 sets out these scenarios in more detail, and Section 5 outlines next steps.

3: Scenario design

3.1: Countercyclical scenario design

The scenarios are countercyclical and linked to the FPC's assessment of underlying vulnerabilities in the UK and global economies.

The approach taken to the overall level of severity of the scenarios is the same as that taken for previous countercyclical concurrent stress-test exercises.^[1] In designing the scenarios, the aim has been to stress key scenario variables to severe but plausible levels, informed by historical experience and current risks.

Stresses have therefore been applied to key UK variables that are far into the tail – the first percentile – of the distribution of historical experience of advanced economies. Non-UK variables are targeted slightly less far into the tail than the UK variables, to account for the lower likelihood of such a large range of economies experiencing such a stress at the same time.

Adjustments may then be made to key scenario variables in accordance with FPC judgements to ensure severity is appropriate and consistent with countercyclicity and with the FPC's most recent risk assessment, taking into account any additional information about the distribution of those shocks.

Under a countercyclical approach, should vulnerabilities in an economy be elevated, the size of the shocks in the stress scenario would be increased – this is to reflect that the likelihood of the economy facing a more severe downturn is higher. When shocks have already begun to crystallise, however, under a countercyclical approach the additional shock over the scenario horizon would be reduced, in order to avoid procyclicality.

The key judgements underpinning the severity of the stress scenarios are consistent with the FPC's most recent judgements, while also accounting for recent data news.

In June 2024, the FPC judged that UK household and corporate debt vulnerabilities remained at a standard level, with UK households and businesses likely to remain resilient in an environment of higher interest rates and relatively weak growth. It also judged that global financial stability vulnerabilities remained material, against the backdrop of heightened geopolitical tensions.

The calibration of the stress scenario has taken account of this and the shocks in certain non-UK jurisdictions are accordingly more severe. The calibration of the scenarios has also taken account of the crystallisation of risks in some markets, and this is reflected in the calibration of the marginal shocks over the scenario horizon.

The exercise will assess whether the banking system has the ability to continue meeting its share of the credit demand of creditworthy households and businesses in the stress scenarios.

3.2: Key features of the scenarios

| The exercise allows two severe, distinct scenarios to be tested.

Two distinct scenarios have been developed for this exercise. The scenarios both feature a global macroeconomic and financial stress, spanning a five-year period with a start point of end-December 2023.^[2]

The approach to designing the scenarios has been to stress certain key macroeconomic variables (GDP, unemployment and property prices) far into the tail of the historical distribution. In both scenarios, there is a severe domestic recession. UK GDP falls by 5% and unemployment peaks at 8.5% (Table A). UK house prices fall by 28% and UK CRE prices fall by 35%. Both scenarios feature a severe global recession with world GDP falling by 3%.

The two scenarios are then calibrated such that these severe macroeconomic outcomes are generated by different underlying shocks. Because of the different nature of the shocks, the result is divergent inflation and interest rate paths for each scenario.

- In the global aggregate **supply shock scenario**, there is an increase in geopolitical tensions, global commodity prices and supply-chain disruptions. Inflation rises across advanced economies and peaks at 12% in the UK. The rise in headline inflation is assumed to cause expectations of higher inflation for some time, which also puts upward pressure on wage growth. This creates a challenging trade-off between stabilising GDP growth and inflation. In part in order to prevent inflation expectations becoming entrenched, policymakers increase interest rates to bring inflation down again. The scenario sees Bank Rate rising to 9% over 2024, remaining at its peak level for four quarters. Policymakers then bring interest rates down over the stress horizon.
- In the global aggregate **demand shock scenario**, there is a contraction of domestic and global demand. GDP and inflation fall across advanced economies, with UK inflation falling from 4% at the end of 2023 to a trough of 0.5%. Policymakers reduce interest rates in response, to support the recovery and return inflation to target. Bank Rate falls from 5.25% to 0.1% and remains below 0.5% for eight quarters. Policymakers then increase interest rates over the stress horizon.

Quantitative tightening is assumed to continue in both scenarios. Monetary policy paths in the scenarios are simply hypothetical assumptions for the purpose of the stress test, and do not represent a forecast of how policy would actually respond in such a scenario. The scenarios used in this exercise are not intended to be used to inform the Monetary Policy Committee's policy discussion. Rather, as per previous exercises, they represent coherent 'tail-risk' outcomes, designed to be severe and broad enough to assess the resilience of UK banks to a range of

adverse shocks.

In the supply shock scenario, weaker asset prices (such as property and equity prices) can be motivated by higher interest rates, whereas in the demand shock scenario they can be motivated by lower income.

Consistent with the macroeconomic scenarios, there is also a severe financial market stress with asset price falls and stresses in bond markets.

Table A: Macroeconomic variables experience severe stresses

Summary of key macroeconomic variables and comparators (a) (b) (c) (d)

Variable	Supply shock scenario	Demand shock scenario	2022/23 ACS	GFC
UK real GDP (change, %)	-5.0	-5.0	-5.0	-6.4
World real GDP (change, %)	-3.0	-3.0	-2.5	-2.1
UK unemployment (level, %)	8.5	8.5	8.5	8.4
UK Bank Rate (level, %)	9.0	0.1	6.0	0.5
UK CPI inflation (level, %)	12.0	0.5	17.0	4.8
UK residential property prices (change, %)	-28	-28	-31	-17
UK CRE prices (change, %)	-35 (-49)	-35 (-49)	-45	-42

Sources: Bank of England, Bloomberg Finance L.P., Eurostat, Halifax/Markit, IMF World Economic Outlook, MSCI Investment Property Databank, National Bureau of Statistics of China, Nationwide, ONS, Refinitiv Eikon from LSEG, US Bureau of Economic Analysis and Bank calculations.

(a) Data are quarterly or quarterly averages.

(b) Figures for supply shock scenario, demand shock scenario and 2022/23 ACS show start-to-trough changes. Figures for the global financial crisis (GFC) are peak to trough. Bracketed figures for UK CRE prices show peak-to-trough changes from mid-2022.

(c) GFC data for UK residential property prices are a combination of the quarterly Halifax/Markit and Nationwide house price indices.

(d) Bank Rate and UK CPI inflation figures show peak levels for the supply shock and trough levels for the demand shock. UK unemployment figures show the peak level in both scenarios. Figures for the remaining variables show start-to-trough changes in both scenarios.

4: Macroeconomic variables in the scenarios

4.1: Global recessions, GDP and unemployment

| Severe UK and global recessions occur in both scenarios.

UK real GDP falls by 5% at the start of both scenarios (Chart 1). UK real GDP experiences the same start-to-trough fall in both scenarios, though the trough occurs later in the supply shock scenario, reflecting lags in the pass-through of tighter monetary policy. The level of GDP recovers back towards its starting level in both scenarios.

Global real GDP^[3] contracts by 3% at start of both scenarios, as economies around the world experience severe and synchronised slowdowns. The start-to-trough fall in global output is the same in both scenarios, unfolding in a broadly similar way to the UK stress.

UK unemployment rises by 4.7 percentage points to peak at 8.5% in the first half of 2026, falling back slowly thereafter. The unemployment profile is the same in both scenarios.

| Variables have been calibrated to be consistent with the FPC's view of global risks.

In both scenarios, United States (US) real GDP falls by 5%. This is consistent with vulnerabilities in the banking system, CRE markets and broader geopolitical backdrop. Euro-area real GDP also falls by 5%.

Mainland China and Hong Kong real GDP fall by 3% and 9% respectively, consistent with vulnerabilities for both areas. The shock to Chinese GDP also reflects lower expected growth rates for mainland China over the scenario horizon, compared to historical averages.^[4]

Chart 1: The UK and overseas economies experience sharp falls in output and increases in unemployment

Changes in GDP and peak unemployment (a)



Sources: Bank of England and Bank calculations.

(a) The scenario does not include a projection for unemployment in mainland China due to data limitations.

4.2: Inflation and interest rates

The scenarios involve divergent inflation and interest rates paths, in response to different shocks.

In the supply shock scenario, UK inflation rises to a peak of 12% (Chart 2), with Bank Rate rising to 9% to bring inflation down again (Chart 3). Inflation would peak higher than 12% in the scenario, absent the monetary policy response.

In the demand shock scenario, UK inflation troughs at 0.5%. Bank Rate falls to 0.1% to support the recovery. In this scenario, inflation would be lower, absent the response of policymakers.

In both scenarios UK inflation converges to target by the end of the five-year horizon. Bank Rate is assumed to converge to 3.0%–3.5% at the five-year horizon.

Given the global nature of the shocks in the scenarios and an assumption that monetary policy responses are common across advanced economies, the sterling-dollar and sterling-euro exchange rates are assumed to be flat.

Chart 2: UK inflation rises sharply in the supply shock scenario and falls sharply in the demand shock scenario

UK inflation

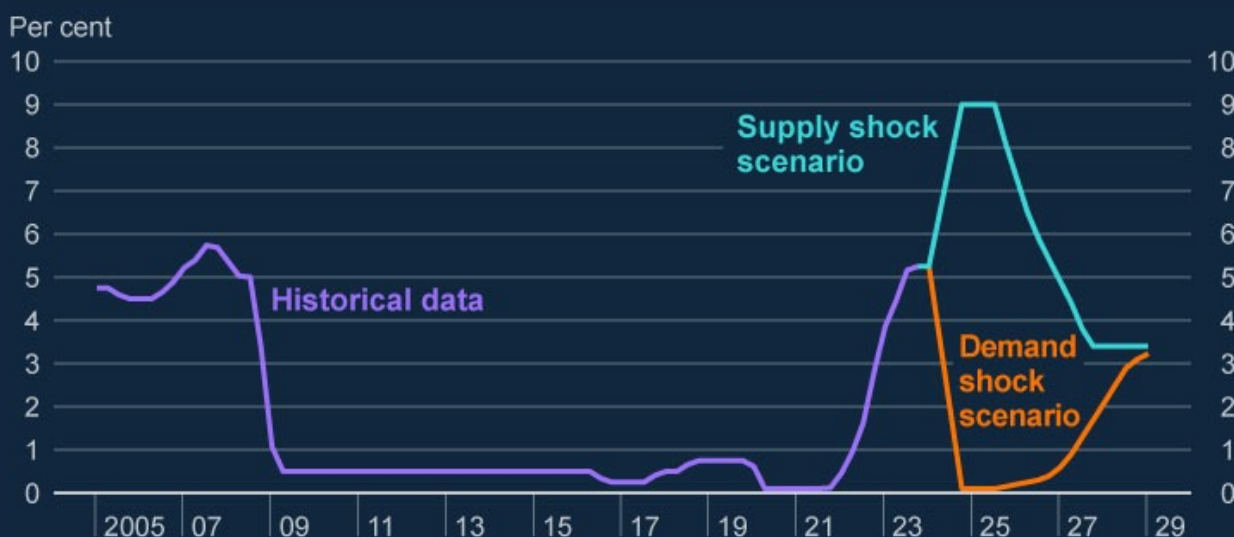
Per cent change on a year earlier



Sources: ONS and Bank calculations.

Chart 3: Bank Rate is assumed to rise in response to the supply shock and to fall in response to the demand shock

Bank Rate (a)



Sources: Bank of England and Bank calculations.

(a) Monetary policy paths in the scenarios are simply hypothetical assumptions for the purpose of the stress test, and do not represent a forecast of how policy would actually respond in such a scenario.

4.3: Residential property prices and CRE

UK property prices fall sharply in both scenarios, in addition to recently observed price falls.

To determine property prices, the peak-to-trough changes in variables are calibrated to a level far in the tail of the historical distribution, then adjusted to reflect recently underlying vulnerabilities and observed price falls to ensure countercyclicality.

In both scenarios, UK residential property prices fall by 28%. This fall is in the tail of the historical distribution of advanced economy moves in property prices, and much larger than in the GFC or 1990s.

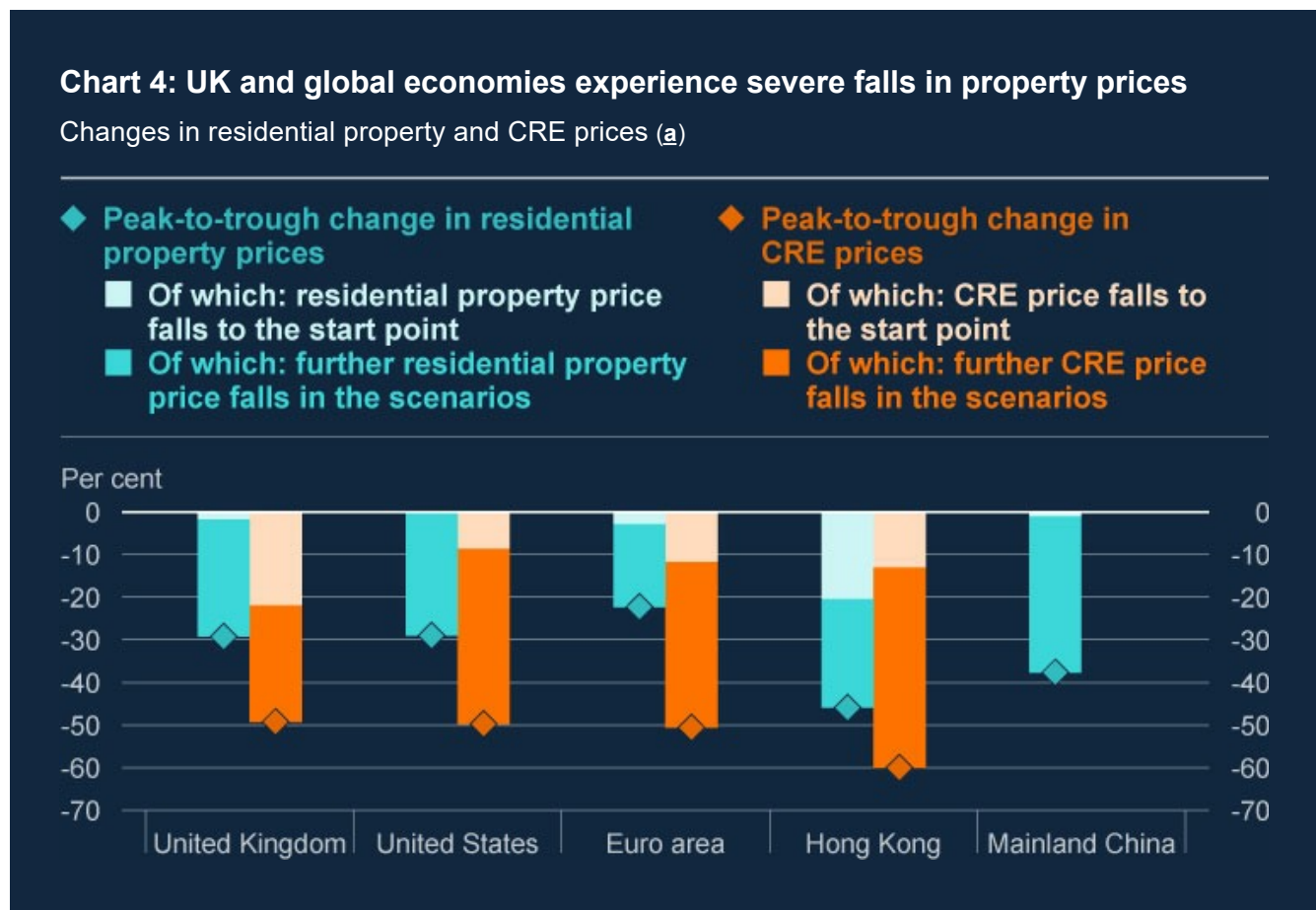
The peak-to-trough decline in UK CRE prices in both stress scenarios is 49% from mid-2022 to 2025. CRE prices fall by more than house prices, consistent with evidence from historical stresses. This peak-to-trough decline also incorporates a judgement to enhance the severity of the fall in UK CRE prices, due to a degree of overvaluation when prices were at their peak. Given CRE prices have already declined by around 20% from their mid-2022 peak, that implies a further fall of 35% from the start point of the scenario to the trough.

| Global residential and CRE prices also fall sharply in the scenario

The peak-to-trough changes in global property prices are calibrated to a severe point in the tail of the historical distribution and take into account global vulnerabilities.

Property prices have fallen across several regions, with large falls in CRE prices in particular. In line with our countercyclical approach, the start-to-trough changes have been reduced to reflect the price falls already observed. This is shown in Chart 4 for the UK, US, euro area, Hong Kong and mainland China.

The stress applied to euro-area CRE prices has also been increased to reflect a judgement that the peak-to-trough fall would be similar to that of US and UK CRE prices (of around 50%), given comparable headwinds facing global CRE markets.



Sources: Bank of England and Bank calculations.

(a) The scenario does not include a projection for CRE prices in mainland China due to data limitations.

4.4: Financial markets

| The increase in risk aversion spills over into financial markets, leading to falls in asset prices.

Global financial conditions tighten significantly in both scenarios. As the recessions start, uncertainty and risk aversion in financial markets increase. Measures of market-implied volatility rise, with the CBOE volatility index (VIX) increasing to a peak of 51, consistent with the FPC's view of global vulnerabilities (Table B). The rise in uncertainty and risk aversion also leads to an increase in bond term premia.

In the supply shock scenario, 10-year government bond yields rise materially (peaking at 6.3% in the UK and 6.9% in the US), as monetary policy tightens.

In the demand shock scenario, yields initially fall as monetary policy loosens. They then increase above their starting level, given the recovery path in short-term interest rates, and the rise in term premia (10-year government bond yields peaking at 4.2% in the UK and 4.8% in the US).

Global equity prices fall in the stress, by a similar magnitude in both scenarios. In the UK, the FTSE All-Share index falls by 33% in both scenarios. In the US, the Standard & Poor's (S&P) 500 index falls 53%, consistent with vulnerabilities in this jurisdiction.

Finally, investment-grade and high-yield corporate bond spreads widen, in line with deteriorating macroeconomic conditions and the financial market shock. UK investment-grade spreads peak at 450 basis points, while high-yield spreads peak at 2,000 basis points. US investment-grade spreads peak at 575 basis points, while high-yield spreads peak at 1,750 basis points.

Table B: Global financial conditions tighten significantly, and asset prices fall

Summary of key financial market variables (a) (b) (c) (d)

Variable	Jurisdiction	Supply shock scenario	Demand shock scenario	2022/23 ACS	GFC
10-year government bond yield (peak, %)	UK	6.3	4.2	5.3	5.1
	US	6.9	4.8	6.1	4.9
	DE	5.0	2.8	4.1	4.3
Investment-grade corporate bond spreads (peak, basis points)	UK	450	450	419	491
	US	575	575	574	574
Equity prices (change, %)	UK	-33	-33	-45	-40
	US	-53	-53	-49	-46
VIX (peak)	US	51	51	45	58

Sources: Bloomberg Finance L.P., ICE/BofAML Global Research, TradeWeb and Bank calculations.

(a) Data are quarterly or quarterly averages.

(b) Figures for supply shock scenario, demand shock scenario and 2022/23 ACS show start-to-trough changes. Figures for GFC are peak to trough.


(c) UK (US) equity prices are the quarterly average of FTSE All-Share (S&P 500) price index.

(d) Corporate bond spreads are the quarterly average option adjusted spread over maturity-matched government spot curve on local currency-denominated investment-grade corporate debt publicly issued in the domestic market. UK data also includes corporate debt publicly issued in the Eurobond market.

5: Next steps

| The results of the desk-based stress test will be published by the end of 2024.

The Bank will publish findings from the exercise at an aggregate level by the end of 2024. It will not publish results at the level of individual banks.

1. For instance, the [2022/23 annual cyclical scenario \(ACS\)](#).
2. Shocks are assumed to start from end-June 2024. Variables are assumed to follow realised outturns in the first quarter of 2024 where these are available.
3. Purchasing power parity weighted.
4. For instance, as given by projections for Chinese GDP growth in the [May 2024 Monetary Policy Report](#) and the IMF's [April 2024 World Economic Outlook](#) .

 [Stress testing the UK banking system: Variable paths for the 2024 desk-based stress test \(XLSX 0.4MB\)](#)