

Germany

Key Rating Drivers

Credit Strengths: Germany's 'AAA' rating reflects its diversified, high value-added economy, record of sound public finances and strong institutions. The rating is also supported by Germany's position as the benchmark sovereign issuer in the eurozone, which ensures very strong financing flexibility.

Stagnation, Weak Recovery: Fitch Ratings expects the German economy to contract by 0.4% in 2023 (compared with Fitch's previous expectation of 0.1% expansion), as 1H23 GDP outturns were weak and sentiment and industrial indicators show persistent challenges for the rest of the year. We now expect GDP in 2024 to expand by 0.7% and by 2% in 2025 in line with a recovery in private consumption and a cyclical upturn in exports and investments.

Solid Labour Market: The economy is supported by a still-solid labour market, which is starting to show signs of cooling. Less job creation, together with an increasing labour force, is likely to lead to a slight rise in unemployment in 2024-2025, but it will stay significantly below 3.7% in 2020.

Structural Challenges: Germany's growth performance in the past five years (0.6%) and in our forecasts is among the weakest in the 'AAA' rating category, reflecting in part structural challenges, such as adverse demographics and slowing productivity growth. The authorities are under increased pressure to implement ambitious reforms to improve growth potential. Areas of focus are increasing the number of qualified migrants, reducing bureaucracy, accelerating green and digital transition and supporting small and medium-sized companies.

Declining, but Persistent Inflation: We forecast inflation (measured by the Harmonised Index of Consumer Prices, HICP) to average 6.4% in 2023, 3.1% in 2024 and 2.2% in 2025, driven by base effects, the impact of monetary tightening and easing labour-market pressures. Core inflation, estimated at 5.5% in July, remains sticky and is a factor behind inflation remaining above the ECB's 2% target in our forecast period.

Fiscal Prudence: Commitment by the German authorities to fiscal prudence reinforces the record of sound public finance management. It will also support the efforts by the ECB to contain inflationary pressures, while complying with EU fiscal rules, which are likely to be reinstated in 2024. However, it also creates important policy trade-offs, in particular given the country's macroeconomic challenges.

Narrowing Fiscal Deficits: We expect the fiscal performance in 2023 to improve, with the general government fiscal deficit narrowing to 2.3% of GDP, largely due to under-execution of off-budget funds. Spending from the Economic Stabilisation Fund has been much lower than planned (currently a quarter of the EUR80 billion, or 2% of GDP, earmarked for 2023) given lower prices and demand.

Falling Debt: Under our baseline scenario, the combination of moderate nominal economic growth and smaller deficits will lead to a gradual decline in public debt to GDP, from 66.2% in 2022 to 61.9% in 2025. This will be slightly above the pre-Covid-19 pandemic levels, and well above the current 'AAA' median of 39.3% of GDP (but compared with 91% in the eurozone). The average debt maturity is just under eight years, so higher yields will lead to only a gradual increase in interest expenditure.

Resilient Banking Sector: The German banking sector's 'a' Banking System Indicator reflects resilient asset quality and abundant funding and liquidity. The sector also has sound capitalisation, with the CET1 capital at 19.3% in 1Q23. This should limit the impact on German banks' credit profiles from the economic slowdown and falling credit demand.

This report does not constitute a new rating action for this issuer. It provides more detailed credit analysis than the previously published Rating Action Commentary, which can be found on www.fitchratings.com.

Ratings

Foreign Currency	
Long-Term IDR	AAA
Short-Term IDR	F1+
Local Currency	
Long-Term IDR	AAA
Short-Term IDR	F1+
Country Ceiling	AAA

Outlooks

Long-Term Foreign-Currency IDR	Stable
Long-Term Local-Currency IDR	Stable

Rating Derivation

AA+
+1
C
+1
C
C
AAA

Data

	2023F
GDP (USDbn)	4,410
Population (m)	84.5
Source: Fitch Ratings	

Applicable Criteria

Country Ceiling Criteria (July 2023) Sovereign Rating Criteria (April 2023)

Related Research

Fitch Ratings Affirms Germany at AAA; Outlook Stable (September 2023) Global Economic Outlook (September 2023) Interactive Sovereign Rating Model Fitch Fiscal Index - Analytical Tool Click here for more Fitch Ratings content on Germany

Analysts

Federico Barriga Salazar +49 69 768076 145 federico. barrigas a lazar@fitch ratings.com

Hannah Dimpker +49 69 768076 263 hannah.dimpker@fitchratings.com

Rating Summary

Long-Term Foreign-Currency Issuer Default Rating: AAA

Sovereign Rating Model: AA+

Contribution of variables, relative to AAA median

■ Structural ■ Macro ■ Public finances ■ External finances Governance GDP per capita Share of world GDP Yrs since Def. or Rest. Broad money / GDP Growth volatility Inflation Real GDP growth Debt / GDP Interest / revenue Balance / GDP FC debt / total debt Reserve currency SNFA/GDP Commodity dep. FX reserves Interest / CXR CAB + FDI / GDP 1.5 -1.0 -0.5 0.5 1.0 Notches

Qualitative Overlay: +1

Adjustments relative to SRM data and output

Structural features: 0

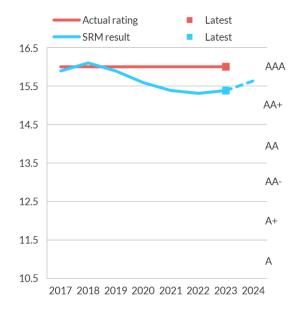
Macroeconomic outlook, policies and prospects: +1 notch, to offset the deterioration in the SRM output driven by volatility from the pandemic shock, including on GDP growth. Fitch believes that Germany has the capacity to absorb it without lasting effects on its long-term macroeconomic stability.

Public finances: 0

External finances: 0

Note: See Peer Analysis table for summary data, including rating category medians; see the Full Rating Derivation table for detailed SRM data. Source: Fitch Ratings

Sovereign Rating Model Trend



Recent Rating Derivation History

Review	LTFC	SRM	QO			
Date	IDR	Resultab	S	М	PF	EF
Latest	AAA	AA+	0	+1	0	0
31 Mar 23	AAA	AA+	0	+1	0	0
21 Oct 22	AAA	AA+	0	+1	0	0
29 Apr 22	AAA	AA+	0	+1	0	0
29 Oct 21	AAA	AA+	0	+1	0	0
30 Apr 21	AAA	AA+	0	+1	0	0
6 Nov 20	AAA	AA+	0	+1	0	0
12 Jun 20	AAA	AAA	0	0	0	0
17 Jan 20	AAA	AAA	0	0	0	0
19 Jul 19	AAA	AAA	0	0	0	0

 $^{^{\}rm a}$ The latest rating uses the SRM result for 2023 from the chart. This will roll forward to 2024 in July 2024.

Abbreviations: LT FC IDR = Long-Term Foreign-Currency Issuer Default Rating; SRM = Sovereign Rating Model; QO = Qualitative Overlay

Source: Fitch Ratings

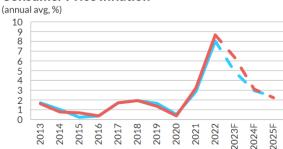
 $^{^{\}rm b}$ Historical SRM results in this table may differ from the chart, which is based on our latest data, due to data revisions.



Peer Analysis

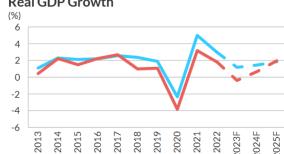
Germany

Consumer Price Inflation



AAA Median

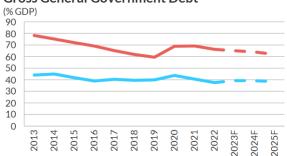
Real GDP Growth



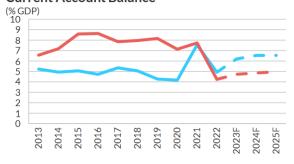
General Government Balance



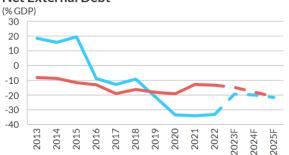
Gross General Government Debt



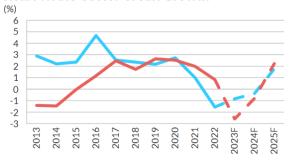
Current Account Balance



Net External Debt



Real Private-Sector Credit Growth



Governance Indicators



Source: Fitch Ratings, Statistical Office, Ministry of Finance, IMF, World Bank



Peer Analysis

2023F ^a	Germany	AAA median	AA median	A median
Structural features				
GDP per capita (USD) [SRM]	52,194	72,200	51,146	31,652
Share in world GDP (%) [SRM]	4.4	0.0	0.0	0.0
Composite governance indicator (percentile, latest) [SRM] ^b	89.4	93.9	84.1	75.1
Human development index (percentile, latest)	95.7	94.7	89.4	82.4
Broad money (% GDP) [SRM]	99.1	93.4	98.4	88.9
Private credit (% GDP, 3-year average)	81.0	122.6	102.9	73.5
Dollarisation ratio (% bank deposits, latest)	-	16.8	12.8	10.3
Bank system capital ratio (% assets, latest)	19.3	15.0	16.5	15.9
Macroeconomic performance and policies				
Real GDP growth (%, 3-year average) [SRM]	0.7	2.0	2.2	3.7
Real GDP growth volatility (complex standard deviation) [SRM]	2.2	1.9	2.4	3.0
Consumer price inflation (%, 3-year average) [SRM]	6.0	1.8	2.2	2.3
Unemployment rate (%)	3.1	5.4	5.1	6.4
Public finances (general government) ^c				
Balance (% GDP, 3-year average) [SRM]	-2.1	-0.2	-0.9	-2.4
Primary balance (% GDP, 3-year average)	-1.4	1.1	0.5	-0.6
Interest payments (% revenue, 3-year average) [SRM]	1.5	3.6	3.5	4.5
Gross debt (% revenue, 3-year average)	139.9	113.5	141.1	136.3
Gross debt (% GDP, 3-year average) [SRM]	65.1	43.9	40.5	42.1
Net debt (% GDP, 3-year average)	54.8	37.2	34.2	36.6
FC debt (% gross debt, 3-year average) [SRM]	2.5	0.0	0.8	9.8
External finances ^c				
Current account balance (% GDP, 3-year average)	4.6	4.9	1.2	0.9
Current account balance + net FDI (% GDP, 3-year avg.) [SRM]	2.0	2.1	0.6	2.4
Commodity dependence (% CXR) [SRM]	9.7	14.4	15.2	11.5
Gross external debt (% GDP, 3-year average)	181.8	178.1	119.9	65.9
Net external debt (% GDP, 3-year average)	-15.3	13.5	-2.3	-8.1
Gross sovereign external debt (% GXD, 3-year average)	24.1	12.2	17.8	19.0
Sovereign net foreign assets (% GDP, 3-year average) [SRM]	0.6	-4.6	7.7	11.9
External interest service (% CXR, 3-year average) [SRM]	2.5	7.3	4.1	2.3
Foreign-exchange reserves (months of CXP) [SRM]	1.6	1.4	3.0	4.4
Liquidity ratio	41.5	51.5	59.9	98.4

^a Three-year averages are centred on this year. Fitch does not forecast indicators labelled 'latest', meaning data may be lagging.

Supplementary Information

BSI / MPI = a / 3. About the BSI and MPI: Fitch's bank systemic indicator (BSI) equates to a weighted average Viability Rating. The macro-prudential risk indicator (MPI) focuses on one potential source of financial stress, ranging from '3' – high potential vulnerability to financial stress over the medium term based on trends in credit expansion, equity and property prices and real exchange rates – to '1' – low likelihood. For more information, refer to Fitch Ratings' most recent Macro-Prudential Risk Monitor report.

Year cured from the most recent default or restructuring event, since 1980 = No event.

The de facto exchange-rate regime, based on the latest IMF Annual Report on Exchange Arrangements and Exchange Restrictions report, is 'Free floating (EMU)'.

 $^{{}^{\}rm b}\, {\sf Composite}\, {\sf of}\, {\sf all}\, {\sf six}\, {\sf World}\, {\sf Bank}\, {\sf Worldwide}\, {\sf Governance}\, {\sf Indicators}\, ({\sf see}\, {\sf chart}\, {\sf on}\, {\sf the}\, {\sf previous}\, {\sf page}).$

See Appendix 2: Data Notes and Conventions for details of data treatment for public finances and external finances.

Source: Fitch Ratings, Statistical Office, Ministry of Finance, IMF, World Bank, United Nations



Rating Factors

Strengths

- High value-added, diversified and open and wealthy economy.
- High governance standards, as measured by the World Bank Worldwide Governance Indicators (WBGIs) although slightly lagging behind the 'AAA' median.
- Status of a primary benchmark issuer for the eurozone, which provides Germany with ample financing flexibility.
- Long average maturity of debt, at around 7.5 years, which limits the effects of rising funding cost on the government's balance sheet.
- Solid labour market, with one the lowest unemployment rates among EU countries at 3% and one of the highest employment rates (81% of total population).
- Strong external position, as reflected in a record of persistently high current account surpluses that resulted in a large positive net international investment position (73% of GDP estimated for 2022).

Weaknesses

- Ageing population. According to the European Commission's projections, Germany's working age population will shrink by 7.4% by 2030.
- Lower average growth potential than many 'AAA' peers, reflecting slowing labour productivity and increasing challenges to the export sector, including higher energy costs and structural shifts.

Rating	Sovereign
AAA	Germany
	Australia
	Denmark
	Luxembourg
	Netherlands
	Norway
	Singapore
	Sweden
	Switzerland
AA+	Austria
	Canada
	Finland
	New Zealand
	United States of America
Source: Fite	ch Ratings

Rating Sensitivities

Factors that Could, Individually or Collectively, Lead to Negative Rating Action/Downgrade

- **Structural**: A severe macroeconomic and/or banking system crisis that has a sizeable long-term impact on the economy/competitiveness.
- **Public Finances:** A sizeable increase in general government debt over the medium term, for example, due to a prolonged period of wider budget deficits or weaker growth.

Factors that Could, Individually or Collectively, Lead to Positive Rating Action/Upgrade

The ratings are at the highest level on Fitch's scale and cannot be upgraded.



Forecast Summary

	2020	2021	2022	2023F	2024F	2025F
Macroeconomic indicators and policy						
Real GDP growth (%)	-3.8	3.2	1.8	-0.4	0.7	2.0
Unemployment (%)	3.7	3.6	3.1	3.1	3.1	3.0
Consumer price inflation (annual average % change)	0.4	3.2	8.7	6.4	3.1	2.2
Policy interest rate (annual average, %)	0.0	0.0	0.7	3.9	4.2	3.3
General government balance (% GDP)	-4.3	-3.7	-2.7	-2.3	-1.2	-0.5
Gross general government debt (% GDP)	68.9	69.1	66.2	65.0	63.9	61.9
EUR per USD (annual average)	0.9	0.8	1.0	0.9	0.9	0.9
Real private credit growth (%)	2.5	2.0	0.8	-2.6	-0.8	2.2
External finance						
Merchandise trade balance (USDbn)	219.3	230.6	118.6	148.0	157.4	167.3
Current account balance (% GDP)	7.1	7.7	4.2	4.7	4.9	5.0
Gross external debt (% GDP)	204.3	182.5	193.6	179.8	172.1	164.8
Net external debt (% GDP)	-19.1	-12.8	-13.3	-14.8	-17.9	-21.1
External debt service (principal + interest, USDbn)	757.6	870.5	839.0	761.9	772.1	772.9
Official international reserves including gold (USDbn)	268.4	295.7	293.9	304.3	308.4	307.8
Gross external financing requirement (% int. reserves)	195.9	185.2	204.2	166.8	159.4	152.7
Real GDP growth (%)						
US	-2.8	5.9	2.1	1.2	0.5	2.4
China	2.2	8.4	3.0	4.8	4.6	4.8
Eurozone	-6.4	5.4	3.5	0.8	1.4	1.7
World	-3.0	6.1	2.7	2.4	2.1	2.9
Oil (USD/barrel)	43.3	70.6	98.6	80.0	75.0	70.0

Sources and Uses

Public Finances (General Government)

(EURbn)	2023	2024
Uses	473.5	438.1
Budget deficit	93.9	50.9
MLT amortisation	379.6	387.2
Domestic	365.3	372.6
External	14.3	14.6
Sources	473.5	438.1
Gross borrowing	483.5	440.3
Domestic	459.3	425.7
External	24.2	14.6
Privatisation	0.0	0.0
Other	-10.0	-2.2
Change in deposits	0.0	0.0
(- = increase)		
Source: Fitch Ratings		

External Finances

(USDbn)	2023	2024
Uses	490.4	485.0
Current account deficit	-208.5	-223.7
MLT amortisation	698.9	708.7
Sovereign	15.8	16.2
Non-sovereign	683.0	692.5
Sources	490.4	485.0
Gross MLT borrowing	749.6	697.4
Sovereign	-119.5	-136.1
Non-sovereign	869.0	833.5
FDI	-113.5	-89.5
Other	-149.9	-118.7
Change in FX reserves	4.1	-4.2
(- = increase)		
Source: Fitch Ratings		

Credit Developments

Economic Stagnation and Risks

Germany's economy remains in a slump, with GDP growth stagnant in 2Q23 qoq (and falling by 0.6% yoy) following two quarters of mild contraction. The economy managed to absorb last year's energy shock without significant recessionary impact, but other factors such as weaker growth in China and globally, and growing domestic pessimism, are taking a toll on consumption, exports and investment.

Survey data, as well as manufacturing, PMI and other leading indicators, point to a renewed qoq contraction in 3Q23, with little prospect of meaningful growth by the end of the year. As such, we now forecast a mild contraction of 0.4%, followed by a very modest recovery as falling inflation is likely to support private-sector consumption from end-2023. The outlook for investment and exports is uncertain, in part given risks around global trends. Germany is a large net exporter of capital goods, and therefore highly exposed to the global investment cycle and to China in particular more than the eurozone. Exports were a primary weakness in 2Q23 and we expect this to continue in coming quarters.

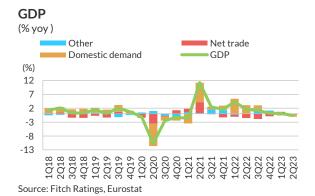
Germany's growth rate has fallen behind most other large economies and is among the weakest in the 'AAA' category (both in the past five years and in our forecast period). The combination of structural factors (adverse demographics, falling productivity and stagnant reforms over the past decade) and cyclical trends means that growth could continue to disappoint in the medium term, creating policy challenges.

Reform Pressure; Unwieldy Coalition Complicates Efforts

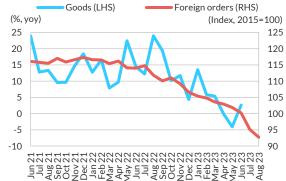
Tackling the country's growth challenges is becoming more urgent, with the focus of the three-party governing collation gradually moving away from Ukraine and the related energy crisis to medium-term structural reforms. In recent months the government approved a reform to attract qualified labour from abroad, and in September proposed a 10-point plan that includes measures to improve business environment, provides a modest corporate tax relief scheme (EUR7 billion) and plans further investment in secure and clean energy. Discussion is ongoing in the government over providing longer-term subsidies for some industrial companies, but approval is uncertain at present.

Constant disagreement among the different governing parties around the scope, timeline and purpose of reforms is a risk to reform implementation. The authorities have pledged a return to more aggressive fiscal consolidation from 2024, limiting the fiscal space available to deal with mounting challenges. Moreover, some of the reforms announced have been proposed multiple times in the past (such as reducing bureaucracy) with only limited success.

Nevertheless, Germany's economy still has some important strengths, including a broadly stable political environment and the flexibility of the country's small and medium-sized firms (Mittelstand), which has built significant financial buffers in the past decade that provide it with the flexibility to invest and adjust to new global trends, even though challenges to Germany's competitiveness appear to be rising.



Germany - Exports and Orders



Source: Fitch Ratings, Federal Statistical Office, Bundesbank, Ifo, Haver Analytics

Inflation to Reach Target by 2025

Inflation has fallen more slowly than we expected, with the headline rate falling by just 0.1pp to 6.4% in August (up 0.4% mom) while core inflation is estimated at 5.5%. A subsidised travel scheme brought down services inflation in June-August 2022 but distorted the base of comparison. Also, annual energy price inflation rose. The annual inflation rate is likely to drop sharply in September and follow a downward trend thereafter to reach 4.4% by year-end.

We expect inflation to gradually moderate in 2024, although there are still lingering risks about energy costs (given rising fuel and gas prices in recent weeks). That said, the prospects of price shock as in 2022 appear minimal, and the authorities still have schemes in place to support households and businesses that they can extend, if needed. With core inflation remaining sticky, we don't expect the 2% inflation target to be met until late in 2025.

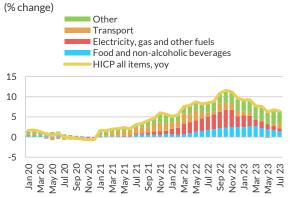
Moderate Wage Pressures; Labour Market Trends

Wage growth accelerated in recent months, driven by a tight labour market and pressure from the rising cost of living. Wage growth reached 6.6% in 2Q23, from 5.6% in the previous quarter, and similar growth rates are likely until the end of the year. The gradual expiry of the wage negotiation contracts and the government's one-off, tax-free inflation bonus (each employee can receive up to EUR3,000 in tax-free inflation bonus in both 2022 and 2023) appears to have eased wage increases. Some labour unions continue to demand higher wages but we do not expect an acceleration in 2024, in part as employees might start to feel less confident about labour prospects given persistent macroeconomic challenges.

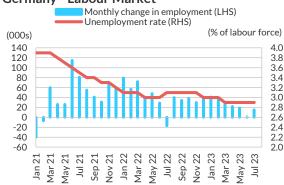
The labour market is cooling, with the rate of job creation falling. The number of jobs in manufacturing has fallen proportionately faster than in services. The number of vacancies has also fallen by around 106,000 from its peak in August 2022 to 771,000 (although it remains historically high and firms continue to cite shortages of skilled labour as a problem). Lower job creation, together with a combination of increasing labour force and temporarily lower participation as Ukrainian arrivals are incorporated, will lead to a gentle rise in unemployment.

HICP Components

Source: Fitch Ratings, Eurostat



Germany - Labour Market



Source: Fitch Ratings, Federal Statistical Office, Bundesbank, Haver

Fiscal Consolidation Proposed; Off-Budget Funds

The authorities plan a return to fiscal consolidation to meet domestic fiscal rules from 2024, including the debt brake rule (schwarze Null). This rule, which limits the central government's structural budget deficit to 0.35% of GDP, has been suspended since the pandemic outbreak in 2020. In the proposed budget (which is being debated in parliament), the general government fiscal deficit under domestic accounting rules should narrow to 0.4% of GDP (EUR16.6 billion), which is a substantial decrease from the EUR45.6 billion (1.1% of GDP) deficit expected in 2023 and EUR116 billion (3.0% of GDP) in 2022. The 2024 budget includes spending cuts in all non-defence departments, with extra defence outlays of EUR1.7 billion. The government plans to keep the deficit broadly unchanged in nominal terms between 2025 and 2027.

Domestic accounting rules for the debt brake calculations are based on cash-flow accounting, in contrast to accrual accounting that Eurostat and Fitch use. These rules also exclude spending channelled via special off-budget funds, including the Economic Stabilitsation Fund (total EUR200 billion, created to address the impact of the pandemic and then to mitigate the effects of the energy crisis), the Armed Forces Fund (EUR100 billion, intended to accelerate security spending closer to the 2% NATO target) and parts of the Climate and Transition Fund (EUR212 billion, which aims to help with green transition from 2024-2027).

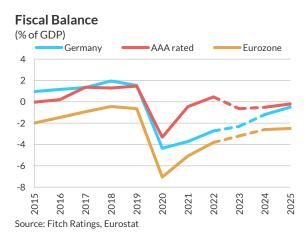
Accrual outturns reported by Eurostat (and our forecasts) incorporate the off-budget funds for both deficit and debt figures. The funds have specific annual expenditure targets, but thus far there has been a tendency to under-execute. In 2023 for example, the authorities planned to spend close to EUR80 billion from the Economic Stabilisation Fund, but just over a quarter was spent, given lower energy costs. Total spending on the Armed Forces Fund is below 2%. The government has some flexibility to use funds for other purposes, but politically this may be difficult, owing to growing scrutiny over the use of these schemes to circumvent debt brake rules.

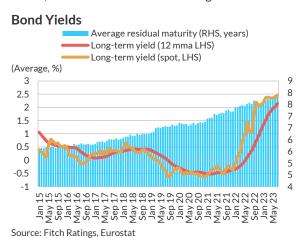
Improving Deficit and Debt Trends

The under-expenditure of off-budget funds means that we expect a gradual decline in the general government deficit in 2023, to 2.3% of GDP. The figures for the core budget (excluding off-budget funds) in 2023 are broadly in line with budget expectations, with very few implementation risks until year-end. The planned increase of off-budget schemes will be largely offset by planned fiscal consolidation in the core budget, with the deficit narrowing further to 1% of GDP in the medium term (meaning Germany would comply with the EU fiscal deficit cap of 3% of GDP, if reinstated next year).

Under our baseline scenario, a return to primary fiscal surpluses and moderate nominal growth will lead to a gradual decline in the general government debt burden to 61.9% of GDP in 2025 and closer to 59% by 2027 (very similar to pre-pandemic levels). This compares favourably to the eurozone average at about 91%, but it is significantly above the 'AAA' rated median at 39.3%. Debt could fall faster if the cash reserves accumulated during the pandemic are run down.

Rising debt costs will have little effect on Germany's debt trajectory, as sound debt management and long maturities (averaging close to eight years) means that the pass-through of higher financing costs will take time to materialise. Financing needs will also fall, given the planned return to debt brake rule. We expect the interest payments-to-revenue ratio to increase to 1.9% in 2025 from a low of 1.2% in 2022, still well below the 3.6% average in 2010-2020.





Banking Trends Stable; Pockets of Risk

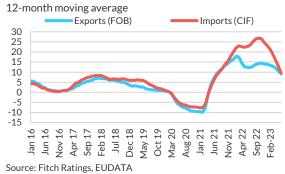
German banks' funding profiles benefit from a deep deposit base, which is the largest in Europe with about EUR4.6 trillion in total deposits and a sector loan-to-deposit ratio below 100%. The sector also has sound capitalisation (CET1 capital of 19.3% in 1Q23), and abundant liquidity. Higher interest rates have temporarily boosted profitability, partly on slower-than-expected deposit repricing. We expect this effect to be temporary and deposit repricing to catch up in 2H23 and 2024.

Corporate defaults remained low in 2022 and into 1H23; however, Fitch expects corporate insolvencies to increase in 2H23 and 2024. Therefore, asset quality pressure is likely to materialise from 2H23, primarily in energy-intensive industrial sectors, such as chemicals, paper, glass or machinery. Sectors that are interest-rate-sensitive, such as construction and real estate, are likely to have higher default rates. New business loans remain muted at most banks, particularly for private real estate (mortgage lending). New mortgage lending totalled EUR14.3 billion in July 2023, according to the Bundesbank, which is 32% lower compared with July 2022 when demand was already declining.

The real estate sector is suffering from rising interest rates and falling market valuations, posing a risk. Prices for residential and commercial real estate are declining (for example, residential house prices fell by nearly 7% in 1Q23) and transactions are drying up. This has put pressure on some real estate developers, leading to insolvencies.

The impact thus far on the financial sector appears to be limited, in part due to some mitigating factors such as the very high share of fixed-rate mortgage contracts (typically for 10 years) and sound, affordability focused underwriting standards. German banks' exposure to domestic and foreign commercial real-estate is high by European standards, however, (CRE), so this could be more pronounced. However, this should not result in outsized credit losses, at least in the near term, due to adequate collateralisation, long average maturities and predominantly fixed-rate loans in domestic CRE portfolios.

Trade Trends



Real Estate Prices



Source: Fitch Ratings, Europace AG

Public Debt Dynamics

Germany's GGGD-to-GDP ratio peaked at 69.1% of GDP in 2021 and we expect it to fall to 65% by end-2023, supported by strong nominal GDP growth and a lower primary deficit. From 2024, government debt should decline gradually, as fiscal rules are reinstated, which will require a return to primary balance surpluses. The main risk to debt dynamics would be a combination of weaker growth and failure to consolidate.

Debt Dynamics - Fitch's Baseline Assumptions

	2021	2022	2023	2024	2025	2026	2027
Gross general government debt (% of GDP)	69.1	66.2	65.0	63.9	61.9	60.5	59.2
Primary balance (% of GDP)	-3.1	-2.1	-1.7	-0.4	0.4	0.5	0.5
Real GDP growth (%)	3.2	1.8	-0.4	0.7	2.0	1.3	1.2
Average nominal effective interest rate (%)	0.9	1.0	1.1	1.3	1.6	1.8	1.9
EUR/USD (annual average)	0.8	1.0	0.9	0.9	0.9	0.9	0.9
GDP deflator (%)	3.0	5.4	6.0	3.1	2.3	2.0	2.0
Stock-flow adjustments (% of GDP)	0.0	0.0	0.0	0.0	0.0	0.0	0.0

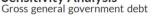
Source: Fitch Ratings

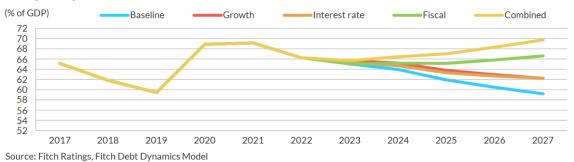
Debt Sensitivity Analysis: Fitch's Scenario Assumptions

Growth	GDP growth half standard deviation lower
Interest rate	Marginal interest rate 250bp higher
Fiscal	Primary deficit unchanged from 2023 levels
Combined	Fiscal and Growth Shocks

Source: Fitch Ratings

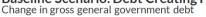
Sensitivity Analysis

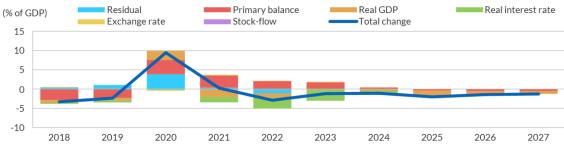




•

Baseline Scenario: Debt Creating Flows





Source: Fitch Ratings, Fitch Debt Dynamics Model

About the Public Debt Dynamics

Fitch uses stylised projections for a sovereign's gross general government debt/GDP ratio to illustrate the sustainability of its debt burden and its sensitivity to economic growth, the cost of borrowing, fiscal policy and the exchange rate.



Data Tables

General Government Summary

(% GDP)	2017	2018	2019	2020	2021	2022	2023F	2024F	2025F
Revenue	45.5	46.2	46.4	46.2	47.4	47.0	46.0	46.5	46.2
Expenditure	44.1	44.3	44.9	50.5	51.2	49.8	48.3	47.7	46.7
o/w interest payments	1.0	0.9	0.8	0.6	0.6	0.7	0.6	0.8	0.9
Interest payments (% revenue)	2.3	2.0	1.7	1.4	1.2	1.4	1.4	1.7	1.9
Primary balance	2.1	2.9	2.3	-3.7	-3.1	-2.1	-1.7	-0.4	0.4
Overall balance	1.3	1.9	1.5	-4.3	-3.7	-2.7	-2.3	-1.2	-0.5
Gross government debt	65.1	61.8	59.4	68.9	69.1	66.2	65.0	63.9	61.9
% of government revenue	143.3	133.8	128.0	149.1	145.7	140.8	141.4	137.5	134.0
Issued in domestic market	33.6	33.0	45.6	53.6	55.0	52.8	52.3	51.6	50.1
Issued in foreign markets	31.6	28.8	13.8	15.2	14.1	13.5	12.8	12.3	11.8
Local currency	62.0	59.1	56.9	66.4	67.3	64.5	63.4	62.4	60.4
Foreign currency	3.1	2.7	2.5	2.5	1.8	1.7	1.6	1.6	1.5
Central government deposits	10.8	10.9	10.8	13.5	13.0	10.8	10.2	9.8	9.4
Net government debt	54.3	51.0	48.7	55.4	56.1	55.4	54.8	54.1	52.5
Financing		-1.9	-1.5	4.3	3.7	2.7	2.3	1.2	0.5
Domestic borrowing		0.4	13.7	6.9	4.5	1.5	2.3	1.3	0.6
External borrowing		-3.2	-14.7	2.5	-1.4	-0.5	0.2	0.0	0.0
Other financing		0.8	-0.5	-5.0	0.6	1.8	-0.2	-0.1	-0.1
Change in deposits (- = increase)		-0.3	-0.3	-2.4	-0.4	1.4	0.0	0.0	0.0
Privatisation		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other		1.1	-0.3	-2.6	1.0	0.4	-0.2	-0.1	-0.1



Balance of Payments

(USDbn)	2017	2018	2019	2020	2021	2022	2023F	2024F	2025F
Current account	289.6	316.9	318.0	276.0	330.0	172.7	208.5	223.7	238.5
(% GDP)	7.9	8.0	8.2	7.1	7.7	4.2	4.7	4.9	5.0
Goods	288.0	263.3	245.9	219.3	230.6	118.6	148.0	157.4	167.3
Services	-27.4	-18.6	-15.1	8.6	6.0	-31.0	-25.2	-21.4	-17.3
Primary income	87.9	132.2	144.0	110.3	163.1	157.6	181.4	172.4	172.3
Secondary income	-58.9	-60.0	-56.8	-62.2	-69.7	-72.5	-95.7	-84.7	-83.7
Capital account	-3.1	1.3	-4.1	-10.6	-1.5	-19.5	-1.2	1.5	2.5
Financial account	304.4	287.7	224.8	223.2	257.2	230.9	281.5	241.0	251.7
Direct investment	36.1	29.0	98.8	-5.9	118.8	131.5	113.5	89.5	87.7
Portfolio investment	223.1	176.5	82.0	27.1	238.1	25.4	-38.2	-18.2	-26.7
Derivatives	12.7	26.8	23.2	106.5	71.2	45.6	40.0	40.0	40.0
Other investments	32.5	55.4	20.8	95.5	-170.9	28.4	166.2	129.7	150.7
Net errors and omissions	16.4	-30.0	-89.7	-42.3	-33.8	82.4	70.0	20.0	10.0
Change in reserves (+ = increase)	-1.5	0.5	-0.6	-0.1	37.5	4.7	-4.1	4.2	-0.7
International reserves, incl. gold	200.0	198.0	224.0	268.4	295.7	293.9	304.3	308.4	307.8
Liquidity ratio (%)	45.4	39.6	42.2	42.5	34.8	37.7	41.5	42.3	43.2
Memo									
Current external receipts (CXR)	2,053.8	2,249.1	2,204.5	2,019.7	2,439.9	2,476.1	2,498.2	2,580.5	2,655.1
Current external payments (CXP)	1,764.2	1,932.2	1,886.5	1,743.7	2,109.9	2,303.4	2,289.7	2,356.8	2,416.6
CXR growth (%)	7.7	9.5	-2.0	-8.4	20.8	1.5	0.9	3.3	2.9
CXP growth (%)	9.7	9.5	-2.4	-7.6	21.0	9.2	-0.6	2.9	2.5
Gross external financing requirement	330.2	376.2	367.3	439.0	497.2	604.0	490.4	485.0	470.9
% International reserves	178.0	188.1	185.5	195.9	185.2	204.2	166.8	159.4	152.7
Net external borrowing	81.2	157.7	47.3	455.8	557.4	58.4	49.1	3.6	-15.4
Source: Fitch Ratings, IMF									



External Debt and Assets

(USDbn)	2017	2018	2019	2020	2021	2022	2023F	2024F	2025F
Gross external debt	6,309.2	6,204.6	6,500.0	7,910.4	7,791.0	7,878.5	7,927.7	7,931.2	7,915.8
% GDP	171.1	156.0	166.8	204.3	182.5	193.6	179.8	172.1	164.8
% CXR	307.2	275.9	294.9	391.7	319.3	318.2	317.3	307.4	298.1
Short-term debt (% GXD)	45.1	44.8	45.0	47.7	50.2	55.6	55.3	55.3	55.4
By debtor									
Sovereign	2,214.1	2,176.5	2,073.9	2,531.2	2,495.2	2,047.0	1,911.7	1,759.4	1,587.1
Monetary authorities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
General government	2,214.1	2,176.5	2,073.9	2,531.2	2,495.2	2,047.0	1,911.7	1,759.4	1,587.1
Banks	2,281.1	2,125.7	2,392.2	2,875.0	2,654.0	3,355.9	3,460.9	3,540.9	3,620.9
Other sectors	1,814.0	1,902.3	2,033.9	2,504.2	2,641.9	2,475.7	2,555.1	2,631.0	2,707.9
Gross external assets (non-equity)	7,010.2	6,848.3	7,206.1	8,650.1	8,338.1	8,420.3	8,580.2	8,756.4	8,929.7
Sovereign	1,705.9	1,689.4	1,610.7	2,080.2	2,081.3	1,938.9	1,945.8	1,953.5	1,952.2
International reserves, incl. gold	200.0	198.0	224.0	268.4	295.7	293.9	304.3	308.4	307.8
Other sovereign assets	1,505.9	1,491.3	1,386.7	1,811.8	1,785.6	1,645.0	1,641.5	1,645.0	1,644.5
Banks	2,517.5	2,435.7	2,697.3	3,091.6	2,735.6	3,400.3	3,482.4	3,563.8	3,643.1
Other sectors	2,786.7	2,723.1	2,898.3	3,477.9	3,520.8	3,080.3	3,162.3	3,252.8	3,347.5
Net external debt	-701.0	-643.8	-706.1	-739.7	-547.0	-541.8	-652.6	-825.2	-1,013.9
% GDP	-19.0	-16.2	-18.1	-19.1	-12.8	-13.3	-14.8	-17.9	-21.1
Sovereign	508.0	487.0	463.4	450.6	413.6	107.2	-23.9	-180.4	-352.0
Banks	-236.3	-310.0	-305.1	-216.6	-81.6	-44.4	-21.5	-22.9	-22.2
Other sectors	-972.7	-820.8	-864.4	-973.7	-879.0	-604.6	-607.2	-621.8	-639.7
International investment position									
Assets (trn)	10.3	10.0	10.7	12.8	13.0	12.8	13.0	13.2	13.5
Liabilities (trn)	8.5	8.0	8.5	10.1	10,0	9.8	9.8	9.8	9.8
Net (trn)	1.8	2.0	2.3	2.7	3.0	3.0	3.2	3.4	3.7
Net sovereign	-508.0	-487.0	-463.3	-450.6	-413.6	-107.2	23.9	180.4	352.0
% GDP	-13.8	-12.2	-11.9	-11.6	-9.7	-2.6	0.5	3.9	7.3
External debt service (principal + interest)	675.5	747.0	733.2	757.6	870.5	839.0	761.9	772.1	772.9
Interest (% CXR)	2.7	2.4	2.2	2.1	1.8	2.5	2.5	2.5	2.4
Source: Fitch Ratings, central bank, IMF, World Bar	nk								



Full Rating Derivation

Long-Term Foreign-Currency Issuer Default Rating (SRM + QO)

AAA

Sovereign Rating Model					Applied	Rating ^d		AA+
					Model Result and	ing	15.38 = AA+	
Input Indicator	Weight (%)	2022	2023	2024	Adjustment to Final Data	Final Data	Coefficient	Output (notches)
Structural features								11.73
Governance indicators (percentile)	21.4	n.a.	89.4	n.a.	-	89.4	0.077	6.92
GDP per capita (USD)	12.4	n.a.	52,194	n.a.	Percentile	82.2	0.038	3.15
Nominal GDP (% world GDP)	13.9	n.a.	4.39	n.a.	Natural log	1.5	0.627	0.93
Most recent default or restructuring	4.6	n.a.	None	n.a.	Inverse 0-1 ^a	0.0	-1.822	0
Broad money (% GDP)	1.2	n.a.	99.1	n.a.	Natural log	4.6	0.158	0.73
Macroeconomic performance, policies	s and prospects	5						-0.93
Real GDP growth volatility	4.6	n.a.	2.2	n.a.	Natural log	0.8	-0.728	-0.57
Consumer price inflation	3.4	8.7	6.4	3.1	3-yr avg. ^b	6.0	-0.067	-0.41
Real GDP growth	2.0	1.8	-0.4	0.7	3-yr avg.	0.7	0.065	0.04
Public finances								-1.65
Gross general govt debt (% GDP)	8.9	66.2	65.0	63.9	3-yr avg.	65.1	-0.023	-1.48
General govt interest (% revenue)	4.5	1.4	1.4	1.7	3-yr avg.	1.5	-0.044	-0.07
General govt fiscal balance (% GDP)	2.4	-2.7	-2.3	-1.2	3-yr avg.	-2.1	0.044	-0.09
FC debt (% of total general govt debt)	2.7	2.6	2.5	2.4	3-yr avg.	2.5	-0.007	-0.02
External finances								1.48
Reserve currency (RC) flexibility	7.3	n.a.	3.1	n.a.	RC score 0 - 4.5°	3.1	0.509	1.58
SNFA (% of GDP)	7.4	-2.6	-5.0	-6.0	3-yr avg.	-4.5	0.011	-0.05
Commodity dependence	1.2	n.a.	9.7	n.a.	Latest	9.7	-0.004	-0.04
FX reserves (months of CXP)	1.5	n.a.	0.3	n.a.	n.a. if RC score> 0	0.0	0.029	0
External interest service (% CXR)	0.4	2.5	2.5	2.4	3-yr avg.	2.5	-0.007	-0.02
CAB + net FDI (% GDP)	0.1	1.0	3.3	2.9	3-yr avg.	2.4	0.001	0.00
Intercept Term (constant across all so	vereigns)				<u> </u>			4.76

a Inverse 0-1 scale, declining weight; b of truncated value (2%-50%); Coclining weight; Sovereign rating committee can override SRM Predicted Rating if a marginal change in the Model Result leads to a notch change which is judged to be temporary or caused by a re-estimation of the SRM, a process that Fitch undertakes on at least an annual basis. Please refer to the Rating Action Commentary for further information when the Applied Rating differs from the Predicted Rating.

Note: This table contains data as at the date of the most recent rating action. There may be minor differences to data presented elsewhere in this report, which may have been updated where appropriate, for example in the event of subsequent data releases.

Source: Fitch Ratings

Qualitative Overlay (Notch Adjustment, Range +/-3)	+1
Structural features	0
Macroeconomic outlook, policies and prospects	+1
Public finances	0
External finances	0

About the SRM and QO

Fitch's SRM is the agency's proprietary multiple regression rating model that employs 18 variables based on three-year centred averages, including one year of forecasts, to produce a score equivalent to a Long-Term Foreign-Currency Issuer Default Rating (LT FC IDR). Fitch's QO is a forward-looking qualitative framework designed to allow for adjustment to the SRM output to assign the final rating, reflecting factors within our criteria that are not fully quantifiable and/or not fully reflected in the SRM.



Supplementary Ratings

Local-Currency Rating

As Germany's Long-Term Foreign-Currency IDR is 'AAA', there is no capacity for upward notching of the Long-Term Local-Currency IDR, which is therefore also 'AAA.

Country Ceiling

The Country Ceiling for Germany is 'AAA', in line with the LT FC IDR at the upper limit of the rating scale. We view the risk of exchange and capital controls as de minimis. Fitch's Country Ceiling Model produced a starting point uplift of +3 notches and Fitch's rating committee did not apply a qualitative adjustment to the model result.

Overall Country Ceiling Uplift (CCM + QA, notches)			+3
Country Ceiling Model (CCM, notches)			+3
Pillar I = Balance of payments restrictions			+2
Current account restrictions (% of 40)	Latest	7.5	+3
Capital account restrictions (% of 69)	Latest	36.2	+1
Combined pillar II & III incentives score			+3
Pillar II = Long-term institutional characteristics			+3
Governance (WB WGI)	Latest	89.4	+3
International trade			+2
Trade openness	2019-23 avg	53.5	+2
Volatility of change in CXR (across 10yrs)	2023	9.0	+2
Export share to FTA partners	2019-23 avg	74.4	+2
International financial integration ^a	2019-23 avg	142.6	+3
Pillar III = Near-term risks			+3
Macro-financial stability risks			+3
Composite inflation risk score			+2
Volatility of CPI (across 10yrs)	2023	2.8	+2
Recent CPI peak	2019-23 max	8.7	+3
Cumulative broad money growth	2018-23 chg %	32.7	+2
Volatility of change in REER (across 10yrs)	2023	1.8	+3
Dollarisation	Most recent	0.0	+3
Exchange rate risks			+3
Net external debt (% of CXR)	2021-23 avg	-21.2	+3
Exchange rate regime	Latest	Free floating	+3
Qualitative Adjustment (QA, notches)			0
Pillar I = Balance of payments restrictions			0
Pillar II = Long-term institutional characteristics			0
Pillar III = Near-term macro-financial stability risks			0
^a Data for international financial integration is the average of private external ass Source: Fitch Ratings	sets (% of GDP) & private external de	bt (% GDP).	



Full Rating History

		Foreign-Curren	cy Rating	<u> </u>	_		
Date	Long-Term	Short-Term	Outlook/Watch	Long-Term	Short-Term	Outlook/Watch	Country Ceiling
22 Jul 16	AAA	F1+	Stable	AAA	F1+	Stable	AAA
17 Jun 04	AAA	F1+	Stable	AAA	-	Stable	AAA
21 Sep 00	AAA	F1+	Stable	AAA	-	Stable	-
26 Oct 95	AAA	F1+	-	AAA	-	-	-
10 Aug 94	AAA	-	-	-	-	-	-

Appendix 1: Environmental, Social and Governance (ESG)

Credit Relevance Scores

General Issues	Key Sovereign Issues	SRM	QO	Score
Environmental (E)				
GHG Emissions and Air Quality	Emissions and air pollution as a constraint on GDP growth	2	2	2
Energy Management	Energy resource management, including potential for 'stranded assets', affecting exports, government revenues and GDP	3	3	3
Water Resources and Management	Water resource availability and management as a constraint on GDP growth	2	2	2
Biodiversity and Natural Resource Management	Natural resource management, including potential for 'stranded assets', affecting exports, government revenues and GDP	3	2	3
Natural Disasters and Climate Change	Impact of adverse climate trends, and likelihood of and resilience to shocks	3	2	3
Social (S)				
Human Rights and Political Freedoms	Social stability, voice and accountability, regime legitimacy	4	2	4 +
Human Development, Health and Education	Impact of human development, health and education on GDP per capita and GDP growth	3	2	3
Employment and Income Equality	Impact of unemployment and income equality on GDP per capita, GDP growth and political and social stability	3	2	3
Public Safety and Security	Impact of public safety and security on business environment and/or economic performance	3	2	3
Demographic Trends	Population decline or aging, rapidly rising youth population; pensions sustainability	3	2	3
Governance (G)				
Political Stability and Rights	Political divisions and vested interests; geo-political risks including conflict, security threats and violence; policy capacity: unpredictable policy shifts or stasis	5	2	5 +
Rule of Law, Institutional & Regulatory Quality, Control of Corruption	Government effectiveness, control of corruption, rule of law, regulatory quality	5	2	5 +
International Relations and Trade	Trade agreements, membership of international organisations, bilateral relations; sanctions or other costly international actions	3	2	3
Creditor Rights	Willingness to service and repay debt	4	2	4 +
Data Quality and Transparency	Availability, limitations and reliability of economic and financial data, including transparency of public debt and contingent liabilities	3	2	3

About ESG Credit Relevance Scores

The scores signify the credit relevance of the respective E, S and G issues to the sovereign entity's credit rating, according to the following scale:

- 5 Highly relevant to the rating, a key rating driver with a high weight.
- 4 Relevant to the rating, a rating driver.
- 3 Relevant, but only has an impact on the entity rating in combination with other factors.
- 2 Irrelevant to the entity rating but relevant to the sector (sovereigns).
- 1 Irrelevant to the entity rating and irrelevant to the sector (sovereigns).

The score for each 'General Issue' is comprised of a component SRM and QO score, and is simply the higher of the two. SRM scores are fixed across all sovereigns as the weights in the SRM are the same for all sovereigns; QO component scores vary across all sovereigns.

All scores of '4' or '5' result in a negative impact on the rating, unless indicated otherwise. Where a positive impact is occurring, the score of '4' or '5' is appended with a '+' symbol. Scores of '3', '2' and '1' do not have a direction of impact assigned.

Please refer to ESG Relevance Scores for Sovereigns for further information on the framework, including 'Sovereign Rating Criteria References' (which identify specific potentially related SRM variables and QO factors for each 'General Issue').



Credit-Relevant ESG Derivation

Germany has an ESG Relevance Score of '5[+]' for Political Stability and Rights as WBGI have the highest weight in Fitch's SRM and are therefore highly relevant to the rating and a key rating driver with a high weight. As Germany has a percentile rank above 50 for the respective governance indicator, this has a positive impact on the credit profile.

Germany has an ESG Relevance Score of '5[+]' for Rule of Law, Institutional & Regulatory Quality and Control of Corruption as WBGI have the highest weight in Fitch's SRM and are therefore highly relevant to the rating and are a key rating driver with a high weight. As Germany has a percentile rank above 50 for the respective governance indicators, this has a positive impact on the credit profile.

Germany has an ESG Relevance Score of '4[+]' for Human Rights and Political Freedoms as the Voice and Accountability pillar of the WBGI is relevant to the rating and a rating driver. As Germany has a percentile rank above 50 for the respective governance indicator, this has a positive impact on the credit profile.

Germany has an ESG Relevance Score of '4[+]' for Creditor Rights as willingness to service and repay debt is relevant to the rating and is a rating driver for Germany, as for all sovereigns As Germany has record of 20+ years without a restructuring of public debt, which is captured in our SRM variable, this has a positive impact on the credit profile.

Except for the matters discussed above, the highest level of ESG credit relevance, if present, is a score of '3'. This means ESG issues are credit neutral or have only a minimal credit impact on the entity, either due to their nature or to the way in which they are being managed by the entity. For more information on Fitch's ESG Relevance Scores, visit www.fitchratings.com/topics/esg/products#esg-relevance-scores.



Appendix 2: Data Notes and Conventions

Acronyms

Acronyms used in the above table and elsewhere in report are: Gross Domestic Product (GDP), Current External Receipts (CXR), Current External Payments (CXP), Current Account Balance (CAB), Foreign Direct Investment (FDI), World Bank Worldwide Governance Indicators (WBGI), Sovereign Rating Model (SRM), Qualitative Overlay (QO). For a full list of indicator definitions, please refer to the most recent Sovereign Data Comparator.

Medians

Medians underlying the SRM relative to rating category chart on the Rating Summary page and as reported in the Peer Analysis table on page 4 are long-term historical medians. These are based on actual data since 2000 for all sovereign-year observations when the sovereign was in the respective rating category at year-end. Current year ratings and data are excluded.

Chart medians on page 3 are based on data for sovereigns in the respective rating category at the end of each year. Latest ratings are used for the current year and forecast period.

Notes for Germany

All data are on a calendar-year basis, which aligns with the domestic fiscal year for this sovereign.

Public finances data referenced in this report relate to the consolidated general government, as per our principal approach, unless specifically noted otherwise where cited.

The external balance sheet data referenced in this report are derived from the international investment position dataset, as per our principal approach.



SOLICITATION & PARTICIPATION STATUS

For information on the solicitation status of the ratings included within this report, please refer to the solicitation status shown in the relevant entity's summary page of the Fitch Ratings website.

For information on the participation status in the rating process of an issuer listed in this report, please refer to the most recent rating action commentary for the relevant issuer, available on the Fitch Ratings website.

DISCLAIMER & DISCLOSURES

All Fitch Ratings (Fitch) credit ratings are subject to certain limitations and disclaimers. Please read these limitations and disclaimers by following this link: https://www.fitchratings.com/rating-definitions-document details Fitch's rating definitions for each rating scale and rating categories, including definitions relating to default. Published ratings, criteria, and methodologies are available from this site at all times. Fitch's code of conduct, confidentiality, conflicts of interest, affiliate firewall, compliance, and other relevant policies and procedures are also available from the Code of Conduct section of this site. Directors and shareholders' relevant interests are available at https://www.fitchratings.com/site/regulatory. Fitch may have provided another permissible or ancillary service to the rated entity or its related third parties. Details of permissible or ancillary service(s) for which the lead analyst is based in an ESMA- or FCA-registered Fitch Ratings company (or branch of such a company) can be found on the entity summary page for this issuer on the Fitch Ratings website.

In issuing and maintaining its ratings and in making other reports (including forecast information), Fitch relies on factual information it receives from issuers and underwriters and from other sources (fitch believes to be credible. Fitch conducts a reasonable investigation of the factual information relied upon by it in accordance with its ratings methodology, and obtains reasonable verification of that information from independent sources, to the extent such sources are available for a given security or in a given jurisdiction. The manner of Fitch's factual investigation and the scope of the third-party verification it obtains will vary depending on the nature of the rated security and its issuer, the requirements and practices in the jurisdiction in which the rated security is offered and sold and/or the issuer is located, the availability and nature of relevant public information, access to the management of the issuer and its advisers, the availability of pre-existing third-party verifications such as audit reports, agreed-upon procedures letters, appraisals, actuarial reports, engineering reports, legal opinions and other reports provided by third parties, the availability of independent and competent third-party verification sources with respect to the particular security or in the particular jurisdiction of the issuer, and a variety of other factors. Users of Fitch's ratings and reports should understand that neither an enhanced factual investigation nor any third-party verification can ensure that all of the information Fitch relies on in connection with a rating or a report will be accurate and complete. Ultimately, the issuer and its advisers are responsible for the accuracy of the information have provide to Fitch and to the market in offering documents and other reports. In issuing its ratings and its reports, Fitch must rely on the work of experts, including independent auditors with respect to financial statements and attorneys with respect to legal and tax matters. Further, ratings and forecast

The information in this report is provided "as is" without any representation or warranty of any kind, and Fitch does not represent or warrant that the report or any of its contents will meet any of the requirements of a recipient of the report. A Fitch rating is an opinion as to the creditworthiness of a security. This opinion and reports made by Fitch are based on established criteria and methodologies that Fitch is continuously evaluating and updating. Therefore, ratings and reports are the collective work product of Fitch and no individual, or group of individuals, is solely responsible for a rating or a report. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. All Fitch reports have shared authorship. Individuals identified in a Fitch report were involved in, but are not solely responsible for, the opinions stated therein. The individuals are named for contact purposes only. A report providing a Fitch rating is neither a prospectus nor a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of the securities. Ratings may be changed or withdrawn at any time for any reason in the sole discretion of Fitch. Fitch does not provide investment advice of any sort. Ratings are not a recommendation to buy, soll, or hold any security. Ratings do not comment on the adequacy of market price, the suitability of any security for a particular investor, or the tax-exempt nature or taxability of payments made in respect to any security. Fitch receives fees from issuers, insurers, guarantors, other obligors, and underwriters for rating securities. Such fees generally vary from US\$1,000 to US\$750,000 (or the applicable currency equivalent) per issue. In certain cases, Fitch will rate all or a number of issues issued by a particular issuer, or insured or guaranteed by a particular insurer or guarantor, for a single

For Australia, New Zealand, Taiwan and South Korea only: Fitch Australia Pty Ltd holds an Australian financial services license (AFS license no. 337123) which authorizes it to provide credit ratings to wholesale clients only. Credit ratings information published by Fitch is not intended to be used by persons who are retail clients within the meaning of the Corporations Act 2001.

Fitch Ratings, Inc. is registered with the U.S. Securities and Exchange Commission as a Nationally Recognized Statistical Rating Organization (the "NRSRO"). While certain of the NRSRO's credit rating subsidiaries are listed on Item 3 of Form NRSRO and as such are authorized to issue credit ratings on behalf of the NRSRO (see https://www.fitchratings.com/site/regulatory), other credit rating subsidiaries are not listed on Form NRSRO (the "non-NRSROs") and therefore credit ratings issued by those subsidiaries are not issued on behalf of the NRSRO. However, non-NRSRO personnel may participate in determining credit ratings issued by or on behalf of the NRSRO.

Copyright © 2023 by Fitch Ratings, Inc., Fitch Ratings Ltd. and its subsidiaries. 33 Whitehall Street, NY, NY 10004. Telephone: 1-800-753-4824, (212) 908-0500. Fax: (212) 480-4435. Reproduction or retransmission in whole or in part is prohibited except by permission. All rights reserved.