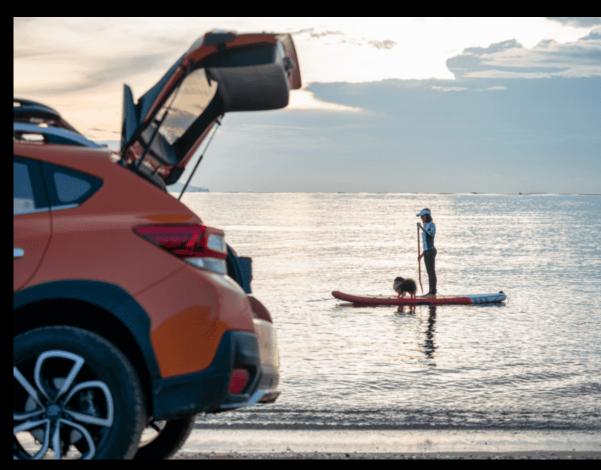


Global Auto Loan ABS: A Brief Market Update

Sept. 22, 2023





China: The delinquency rate trend, though elevated compared to 2021 and 2022 levels, was generally stable during the first half of 2023, with 60-day delinquencies at 0.34% as of June. We expect the rated transactions' overall performance to remain stable. Although arrears rose in 2022 largely due to the COVID-19-related issues, headwinds have since abated. Issuance was just under RMB 90 billion as of June 2023, compared with RMB 218 billion in full-year 2022 and a record RMB 264 billion in 2021. Coupons on the most senior tranches, which averaged around 2.3%-2.4% for the May to July 2023 period, have been trending downward as declining benchmark lending rates continue to drive down financing costs.

Japan: The annualized 12-month moving average default rate remains low and stable (below 0.5% per year) as it has over the past few years. We believe this is partly because many of the rated transactions are backed by loans extended to obligors with relatively high creditworthiness. We expect the default rate to remain low, given our forecast that unemployment will remain below 3% in 2023 and beyond. We also believe the auto loan default and unemployment rates are positively correlated. Auto sales have generally increased during the past 12 months. Auto loan ABS issuance has remained at about ¥1.0 trillion in recent years.

Australia: Auto loan delinquencies remain relatively low, underpinned by low unemployment rates. Cost-of-living pressures and higher mortgage repayments (given Australia's mostly variable rate mortgage market) are weighing on some households. However, most auto loan contracts are fixed rate, which help insulate borrowers from interest rate hikes. Structural protections within the transactions, including credit support and sequential pay structures, have kept Australian auto ABS performance resilient so far. Auto ABS issuance has been strong in the past 12-18 months, reflecting various factors such as investor preference for shorter weighted average lives and structural shifts in auto lending allowing greater non-bank participation in the sector.

U.S.: As of June 2023, prime and subprime net loss rates had both increased (normalized) back to the June 2019 pre-pandemic levels. Meanwhile, 60-plus-day delinquencies exceeded pre-pandemic rates for prime and subprime transactions (though more so for subprime). Sector issuance remains robust, with prime auto loan ABS volume through early September 2023 already exceeding the 2022 full-year figure. We believe this partly reflects higher vehicle prices, sales, and investor demand for shorter duration products, among other factors.

Europe: Credit performance has deteriorated since early 2022 amid challenging macroeconomic conditions. However, nominal delinquencies and defaults remain low and within our expectations, and net losses remain negligible. Issuance was about €12 billion as of early September 2023, compared with just over €13 billion for full-year 2022. Despite trending up recently, new vehicle registrations still haven't reached pre-pandemic levels and remain lower than 2019 levels.



Global Auto ABS Markets | Comparison Of Benchmark Metrics

Western Europe

Auto ABS issuance: €13.4 billion

- Auto sales: ~13 million units/year
- Benchmark class WAL: 2-3 years
- Yield: 1-month EU + 60 bps

U.S.

Auto ABS issuance: US\$111.0 billion

- Auto sales: ~15 million units/year
- Benchmark class WAL: 2-3 years
- Yield: 5%-6%, fixed-rate CPN

Japan

Auto ABS issuance: ¥1.0 trillion

- Auto sales: ~4.5 million units/year
- Benchmark class WAL: 2-3 years
- Yield: Not available

China

Auto ABS issuance: RMB 218.0 billion

- Auto sales: ~24 million units/year
- Benchmark class WAL: 1-2 years
- Yield: ~2.3%-2.4%, fixed-rate CPN

Australia

Auto ABS issuance: A\$1.7 billion

- **Auto sales**: ~1 million units/year
- Benchmark class WAL: 1-2 years
- Yield: 1-month BBSW + 160 bps

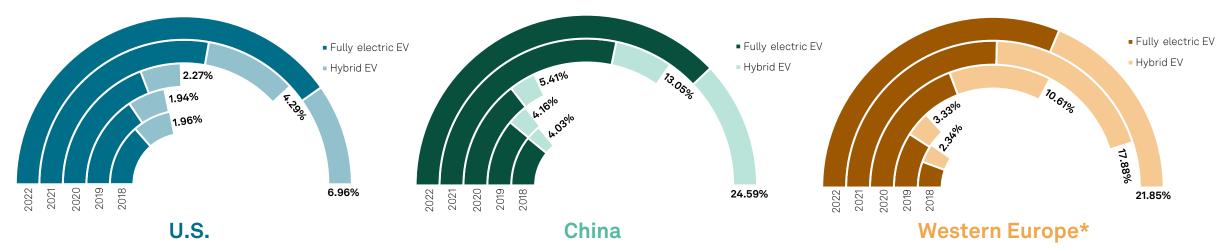
Auto ABS issuance as of full-year 2022. Yields and WALs reflect the benchmark tranche of auto ABS backed by prime collateral. For more in this series, see "How Does the Rising APAC Auto Loan ABS Market Compare with More Developed Ones?," published March 8, 2018, and "Exploring The Differences And Similarities Of Auto ABS In China And Other Developed Markets," published Feb. 8, 2017. EU—Euribor. CPN—Coupon. WAL—Weighted average life. BBSW—Bank Bill Swap rate. Sources: S&P Global Ratings, S&P Global Mobility, Japan Automobile Dealers Association, and China Association of Automobile Manufacturers.

S&P Global Ratings

Global Auto ABS Markets | A Closer Look At Electric Vehicles

- Electric vehicle (EV) penetration rates have risen rapidly in Mainland China and Western Europe, with the U.S. lagging behind.
- We expect the share of EVs in securitized pools to increase alongside the electrification of global auto industries, especially considering the host of favorable global government tax credits, manufacturer subsidies, and regulations enacted over the past few years.
- In March 2023, E.U. member states approved a new law that requires all cars sold in the E.U. to be zero-emission vehicles by 2035. Several U.S. states, led by California, have announced similar laws prohibiting the sale of new combustion engine vehicles by 2035.
- Some European countries have taken up the transition to EVs faster than others. Norway's EV penetration rate rose to 79% from 19% from 2015 to 2022. Meanwhile, Germany, the U.K., and France's EV penetration rates rose to 30%, 21%, and 19%, respectively, from about 1%; and Spain and Italy's increased to 9% and 8% from 0.2%.

EV penetration rate



*The Western Europe EV penetration rates comprise electric vehicle registration data from Denmark, France, Germany, Italy, the Netherlands, Norway, Spain, and the U.K. EV penetration rate = New electric vehicle registrations/total new light vehicle registrations. EV—Electric vehicle. Source: S&P Global Mobility.

S&P Global Ratings

Auto ABS Performance





Chinese Auto Loan ABS | Performance

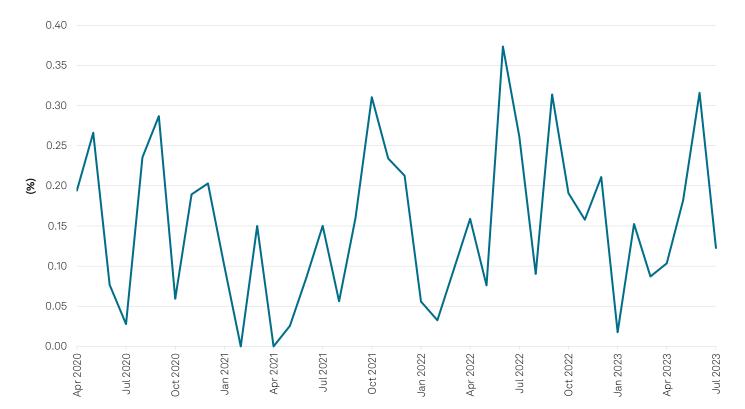


Chinese Auto Loan ABS Index: 60-plus-day delinquency rate

Source: Trustee reports published on ChinaBond's website; compiled by S&P Global Ratings.

- The 60-plus-day delinquency rate remained relatively high at 0.34% as of June 30, 2023, compared with 0.11%-0.29% in 2021 and 2022. Delinquency rates have been on a stabilizing trend since the second half of 2022 as COVID-19-related headwinds abate.
- Arrears rose across all delinquency buckets in 2022 following COVID-19 lockdowns in several regions in the first through third quarters and voluntary social distancing and surging infections in the fourth quarter.
- Auto loan recovery rates in China are mainly driven by borrower recourse rather than the repossessions of the vehicles backing defaulted loans. Historically, recovery rates tend to range from 10% to 30%, which is higher than our basecase assumption of 10% for the rated transactions.

Japanese Auto Loan ABS | Performance



Japanese Auto Loan ABS Index: Default rate*

*Annualized. Source: S&P Global Ratings

• The annualized 12-month moving average default rate remains low and stable (below 0.5% per year) as it has over the past few years. We believe this is partly because many of the rated transactions are backed by loans to obligors with relatively high creditworthiness.

• We believe auto loan default rates correlate with the unemployment rate, and we expect Japan's unemployment rate to remain below 3% in 2023 and beyond. Accordingly, we also expect the auto loan default rate to remain low.

Australian Auto Loan ABS | Performance

Australian Auto Loan ABS Index: 30-plus-day delinquency rate



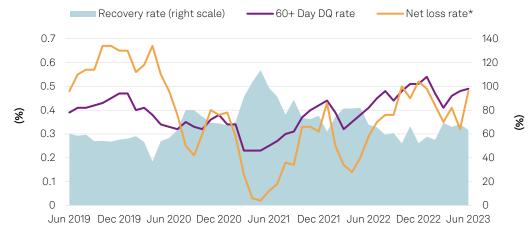
Auto ABS transactions in Australia comprise various asset types such as auto, equipment, and truck and bus loans, etc. Source: S&P Global Ratings.

- Auto ABS issuance rose (from low levels) as nonbanks pivoted to new loan segments beyond residential mortgage-backed securities (RMBS). Structural shifts in auto lending in Australia have also created opportunities for nonbanks to enter this space.
- Auto ABS issuance has been strong in the past 12-18 moths due to these trends and investor preference for loans with shorter weighted average lives.
- Auto ABS has been insulated from the consecutive interest rate rises due to the predominance of fixed-rate loan contracts.
- Post-pandemic new issuance has been mostly a nonbank affair, with limited issuance from banks. We expect this trend to continue in 2024, given the lower cost of funding available to banks in other markets.

U.S. Auto Loan ABS | Performance

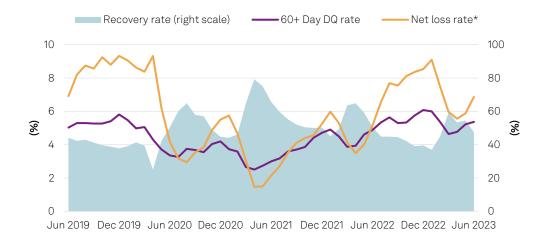
- In June 2023, prime and subprime net loss rates both increased to the June 2019 pre-COVID levels. The reversion to historical loss levels reflects consumers' depleted pandemic-era savings and reduced purchasing power, growth in origination volume (particularly in the subprime space) from 2021 through first-quarter 2022, and lower vehicle values and recovery rates. Meanwhile, prime and subprime 60-plus-day delinquencies exceeded pre-pandemic levels.
- Approximately half of the 2022 prime pools we rate are reporting higher-than-historical cumulative net losses (compared to the 2016-2021 levels). This is largely due to higher concentrations of used vehicles. However, the 2022 subprime vintage is exhibiting greater performance deterioration, with average losses exceeding those of the 2008 subprime pools.
- Notably, the average losses for the 2022 subprime vintage are still in-line with the 2008 vintage—even after removing the three deep subprime issuers (Exeter, Santander Drive, and American Credit Acceptance) from our index.

U.S. Prime Auto Loan ABS Index



^{*}Annualized net loss rate. DQ—Delinquency. Source: S&P Global Ratings.

U.S. Subprime Auto Loan ABS Index

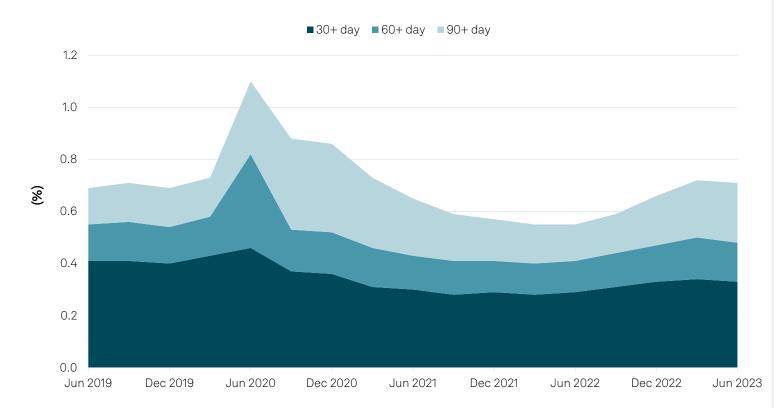


*Annualized net loss rate. DQ—Delinquency. Source: S&P Global Ratings.

S&P Global Ratings

European Auto ABS | Performance

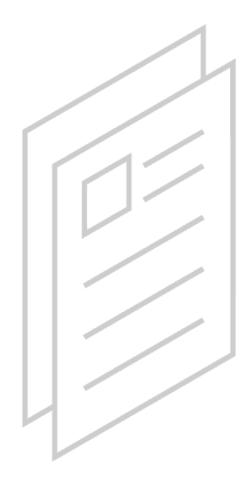
European Auto Loan ABS Index: Total delinquencies



- Credit performance has deteriorated since early 2022 amid challenging macroeconomic conditions. However, nominal delinquencies and defaults remain low and within our expectations.
- Delinquencies increased year over year, while net losses remained negligible at 0.02% as of June 2023.
- Four countries represent 91.6% of our index: Germany (50.5%), the U.K. (29.1%), Italy (7.3%), and Spain (4.7%). The Volkswagen group continues to have the largest distribution by volume—its share of originations increased to 62.1% of the securitized assets' current volume.

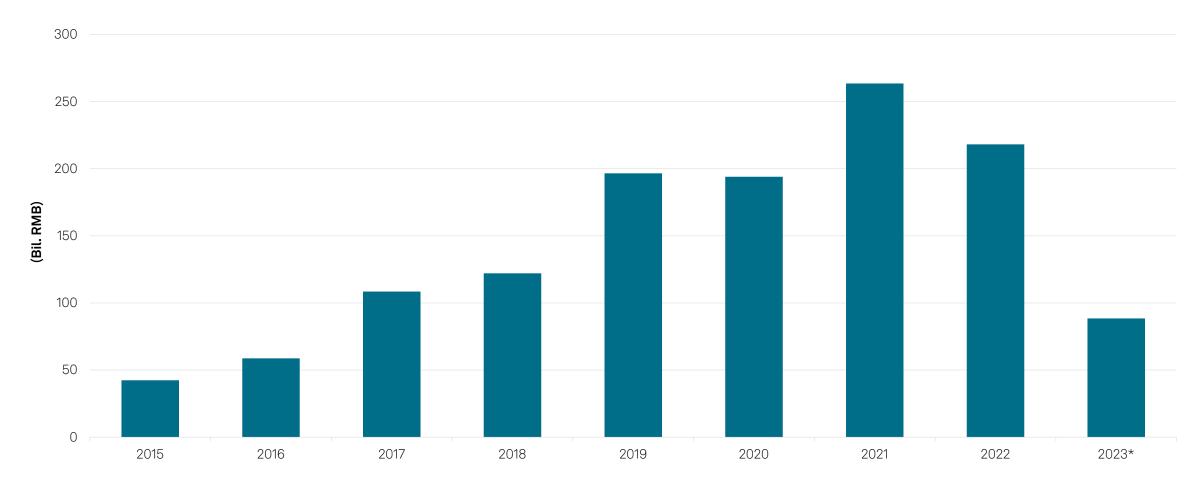
Source: S&P Global Ratings.

Auto ABS Issuance





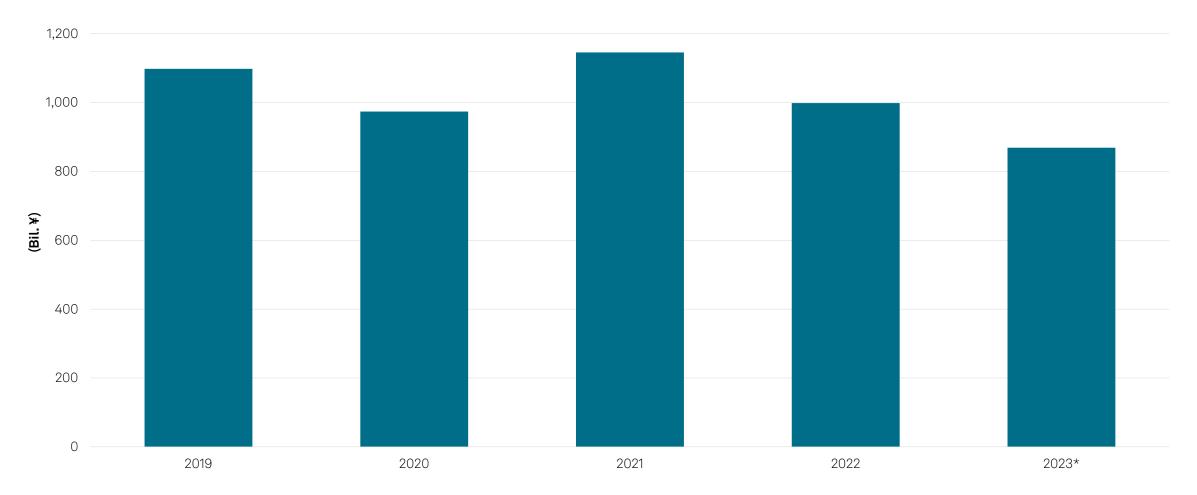
Chinese Auto ABS | New Issuance Volume



*As of June 2023. Data include ABS issued under the credit asset securitization scheme managed by the National Administration of Financial Regulation (formerly known as the China Banking and Insurance Regulatory Commission) and the People's Bank of China. Sources: ChinaBond, Shanghai Clearing House, and WIND; compiled by S&P Global Ratings.

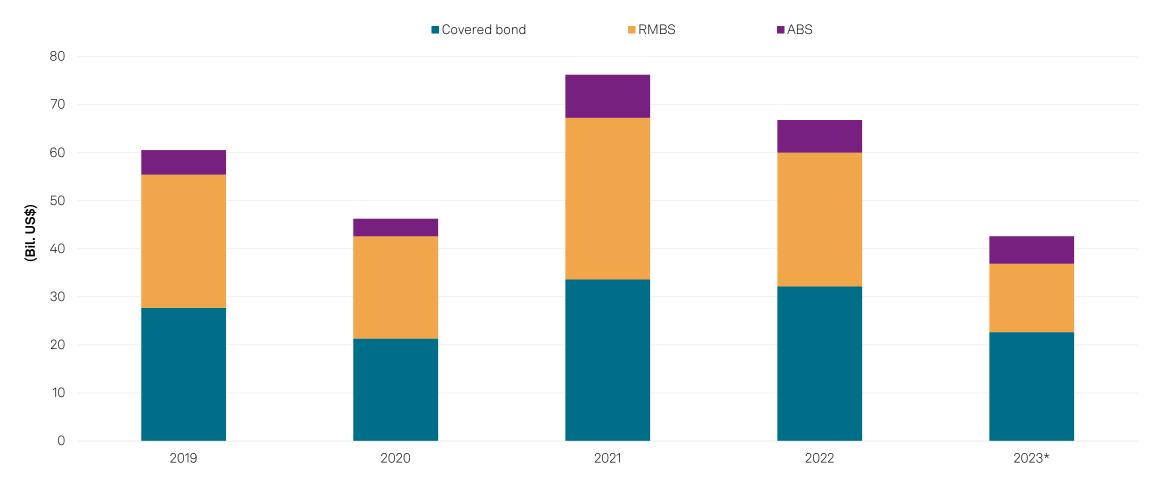
S&P Global Ratings

Japanese Auto ABS | New Issuance Volume



Issuance volumes are derived from public information published by rating agencies. *Data as of August 2023. Source: S&P Global Ratings.

Australian Structured Finance | New Issuance Volume



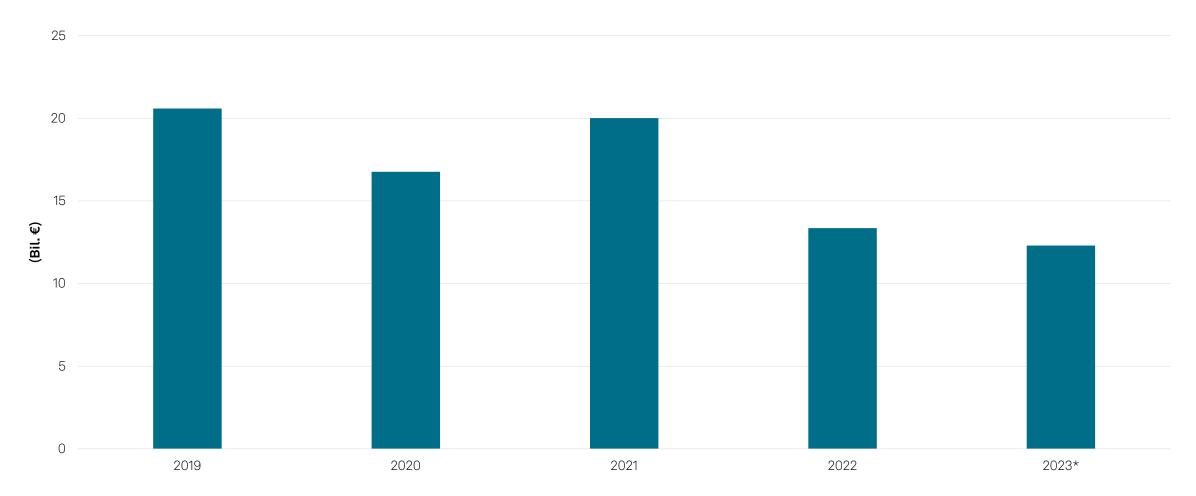
*Data as of July 2023. Issuance volumes include rated market-wide new issuance. Sources: S&P Global Ratings, Deal Logic, and SDC Thompson.

U.S. Auto ABS | New Issuance Volume



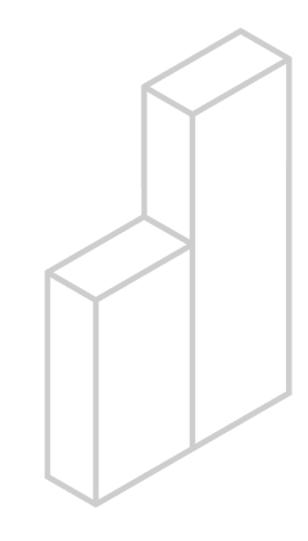
Marketwide issuance. Issuance volumes are rounded and exclude dealer floorplan ABS. *As of Aug. 31, 2023. Sources: S&P Global Ratings, Bloomberg, Finsight, and Green Street.

European Auto ABS | New Issuance Volume



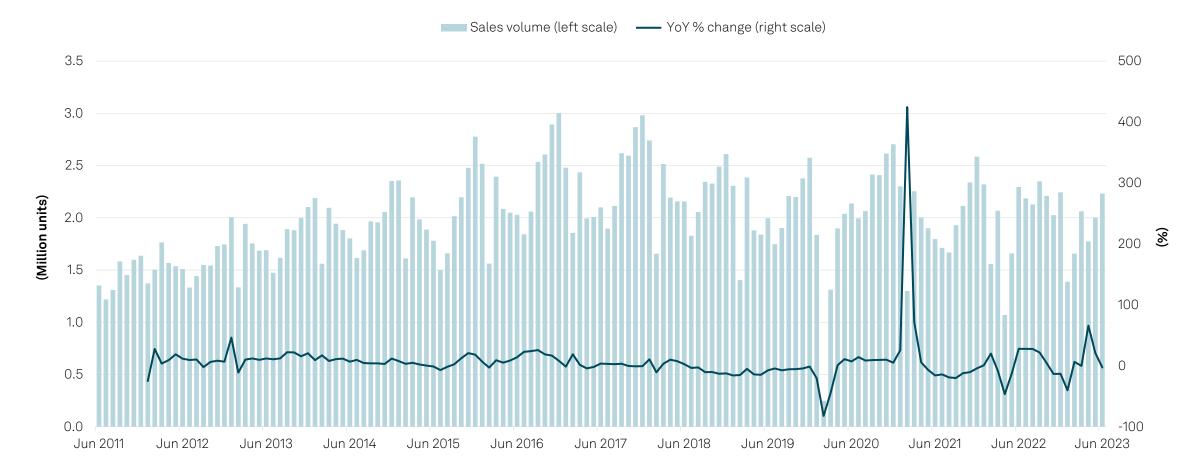
Marketwide issuance. Issuance volumes exclude dealer floorplan ABS. *As of Sept. 5, 2023. Source: S&P Global Ratings.

Auto Sales





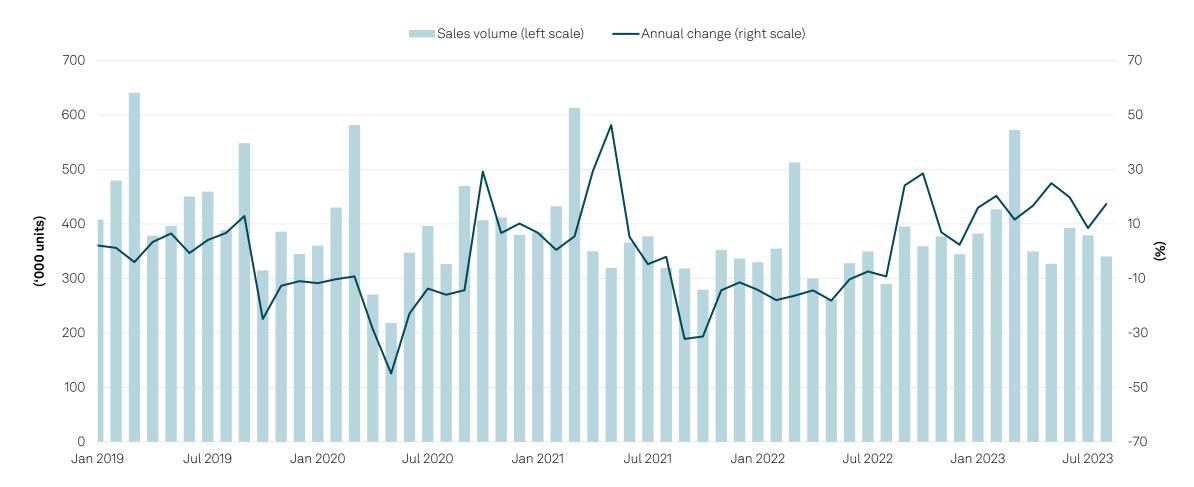
Chinese Auto Market | Light Vehicle Sales Volume



Sources: S&P Global Mobility, China Association of Automobile Manufacturers (CAAM).

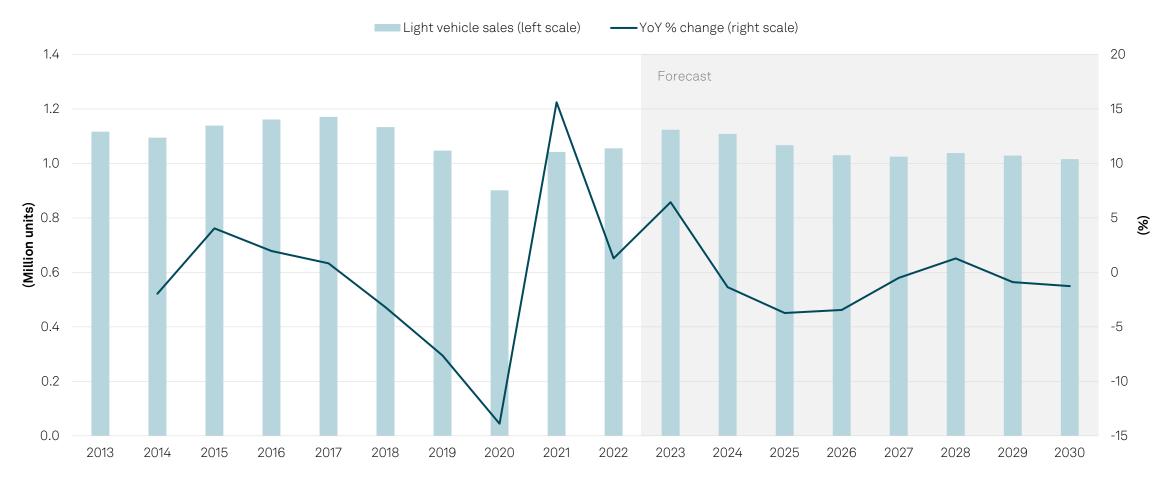


Japanese Auto Market | Total Automobile Sales Volume



Data through August 2023. Source: Japan Automobile Dealers Association.

Australian Auto Market | Light Vehicle Sales Volume

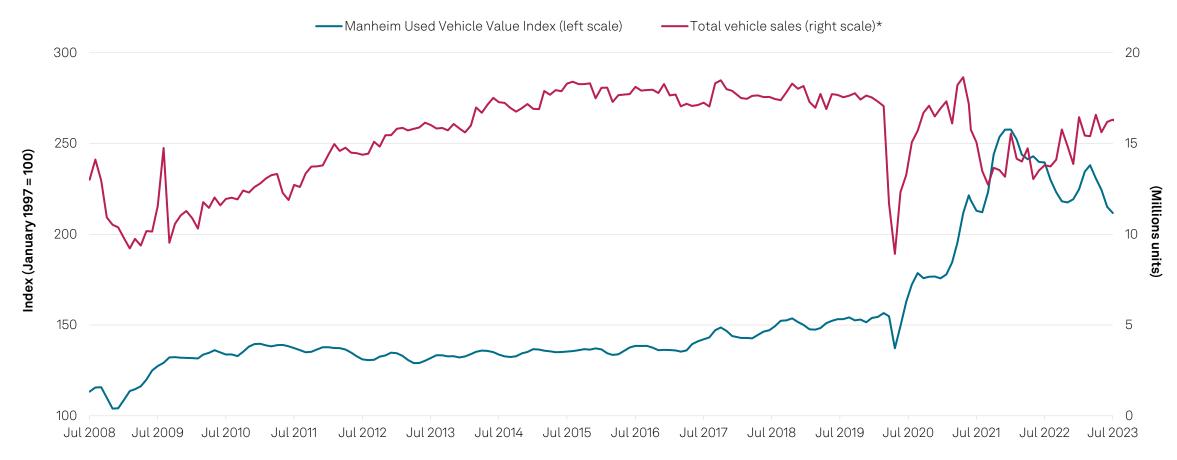


Forecast sales volume can be revised upon receipt of new data/information. Source: S&P Global Mobility.



U.S. Auto Market | Used Vehicle Prices And Total Vehicle Sales Volume

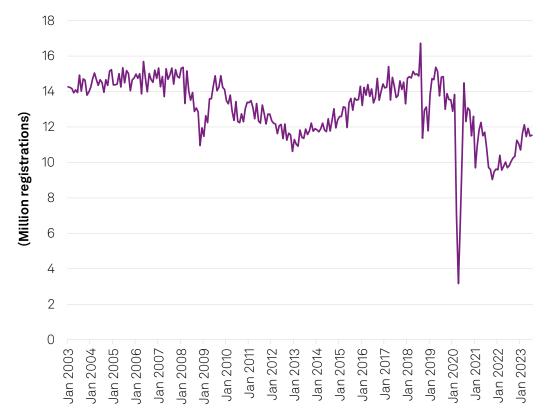
Manheim Used Vehicle Value Index versus total vehicle sales



^{*}Seasonally-adjusted annual rate. Sources: Cox Automotive Group and St. Louis Federal Reserve.

European Auto Market | New Car Registrations

New car registrations*

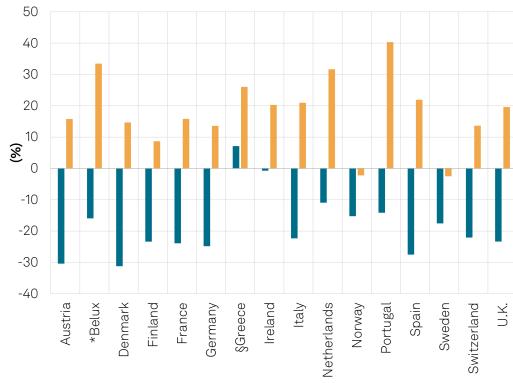


*Seasonally-adjusted annual rate. Countries include Austria, Belgium, Luxembourg, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, U.K. Source: S&P Global Mobility.

Change in new car registrations (YOY as of July 2023)

vs Jul 2022 YTD

vs Jul 2019 YTD



Percent changes reflect shifts in new car registration volume in each jurisdiction from July 2019 to July 2023. *Belgium and Luxembourg are combined. §Greece data are estimates. YOY—Year over year. Source: S&P Global Mobility.



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