

Global Structured Finance 2023 Outlook

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This report does not constitute a rating action



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Key Takeaways

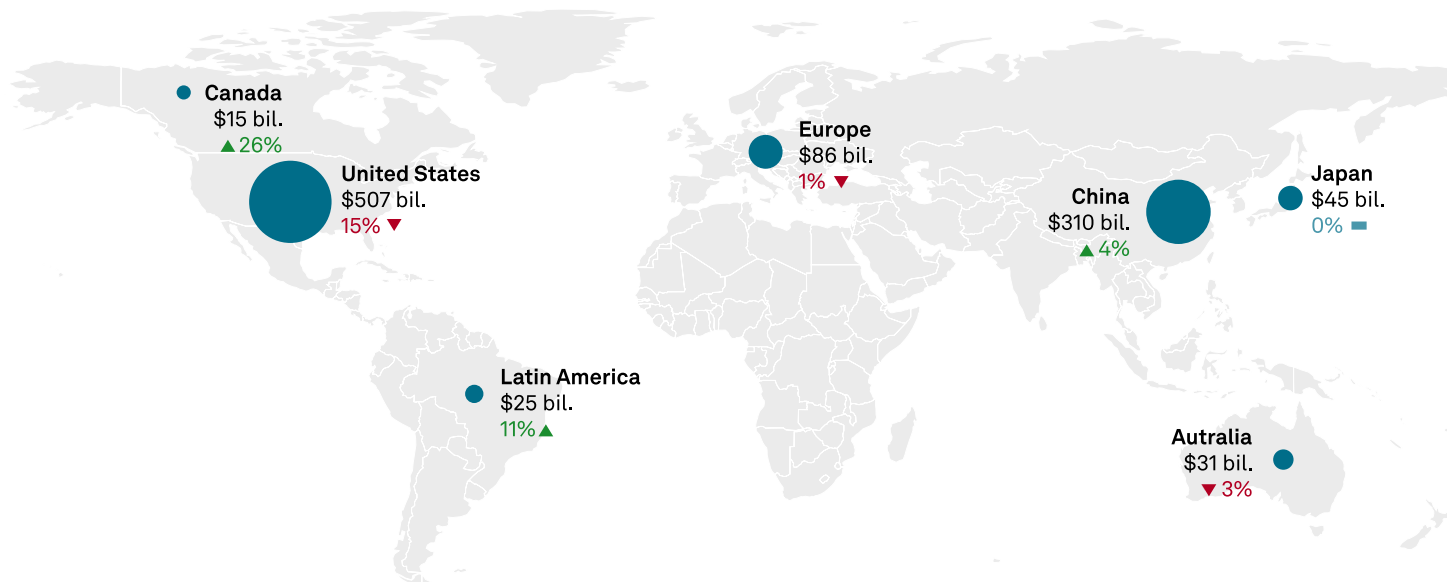
- Global structured finance issuance fell about 29% in 2022, and the declines were generally uniform in the largest global markets as high inflation, volatile interest rates, and geopolitical uncertainty kept issuers on the sidelines. We expect these conditions to continue to hamper issuance. Our 2023 global issuance forecast is down about 7% year-over-year.
- An expected slowdown in global economic growth, with a mild recession projected in the U.S. and EMEA, is likely to affect segments of both the consumer and commercial sectors underlying major structured finance asset classes.
- Throughout 2022, the largest global labor markets remained generally resilient, with unemployment in check. We did not observe meaningful weakening of collateral performance across most structured finance sectors. In 2023, we anticipate delinquency and net loss rates will trend upward from low bases across most asset classes as economic growth slows and unemployment rates edge higher.
- In 2023, we anticipate some ratings stress, albeit primarily in speculative-grade categories. A more severe than forecast recession, especially as it affects the employment picture, would naturally lead to more ratings movement higher up in capital structures.
- We also expect areas of focus to revolve around the strength of global housing markets and the potential magnitude of home price declines, the effect of the forthcoming economic slowdown(s) on leveraged loan and CLO credit quality, and the fundamentals of global office markets, to name a few.

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2023 Global Structured Finance Issuance Forecasts

2023f vs. 2022a



f—Forecast. a—Actual. Source: S&P Global Ratings.

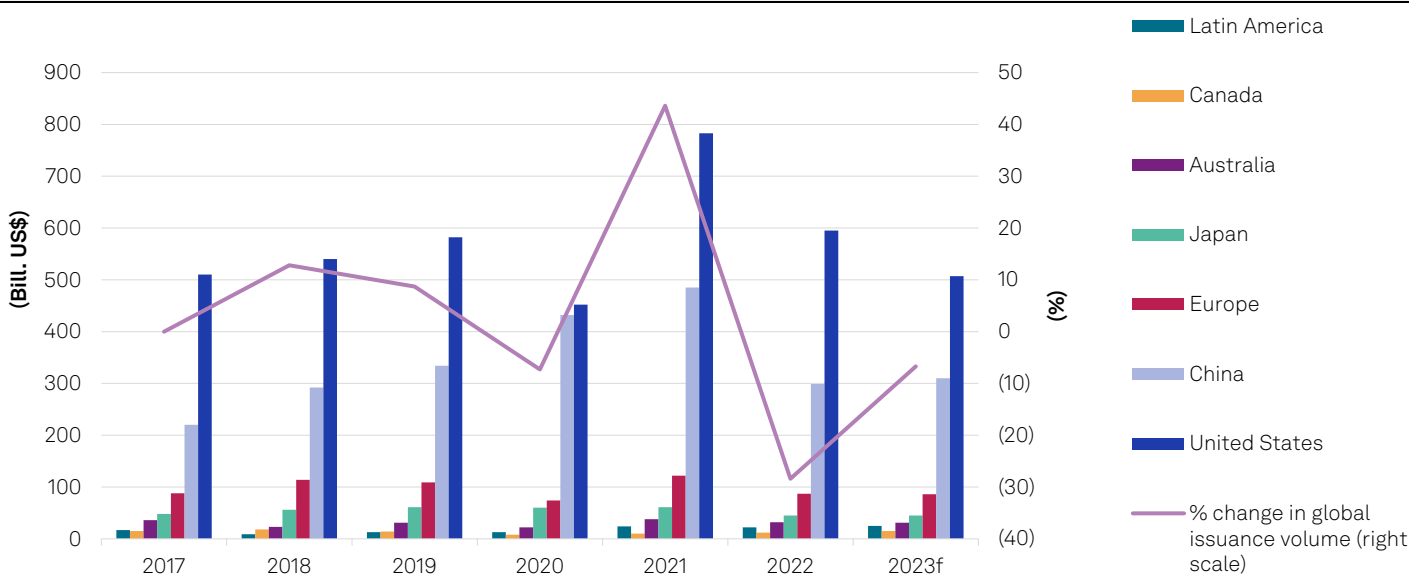
Introduction | Global Structured Finance Outlook

Overview

During 2022, global structured finance issuance totaled roughly \$1,092 billion, down from the 2021 post-Global Financial Crisis (GFC) record of about \$1,530 billion (see table and chart below). In 2022, the dip in global issuance volume was driven by a 24% year-over-year (y/y) decline in the United States, as market participants grappled with inflation and the interest rate hikes employed by central banks to fight it. Meanwhile, the Russia-Ukraine conflict continues to fuel supply-chain disruptions and cause uncertainty in the broader markets. The map on the previous page demonstrates that structured finance issuance forecasts for 2023 are mixed relative to realized values in 2022 as economic volatility persists, but the projected 15% decline in U.S. issuance drags our 2023 global issuance forecast down to \$1,019 billion (-7% y/y). With recessions forecast in various countries, the focus is on commercial and consumer credit, with some of the key themes listed on the following two pages.

Approximate Global Structured Finance New Issue Volumes(i)

(Bil. \$ unless otherwise noted)	2017	2018	2019	2020	2021	2022	2023f
U.S.	510	540	582	452	783	595	507
Canada (C\$)	20	25	19	11	14	17	21
Europe (€)	82	107	102	69	114	81	80
China	220	292	334	432	485	299	310
Japan	48	56	61	60	61	45	45
Australia	36	23	31	22	38	32	31
Latin America	17	9	13	13	24	22	25
Approximate global new issue total	930	1,050	1,150	1,070	1,530	1,092	1,019



(i) We reserve the right to periodically revise these estimates retroactively as new information becomes available. Covered bonds, agency RMBS/CMBS, ABCP, TOBs, CRE CLOs, and CLO refinancings and resets are excluded from new issue totals. The issuance figures shown are rounded. f—Forecast. ABCP—Asset-backed commercial paper. TOB—Tender option bond. CRE CLO—Commercial Real Estate CLO. CLO—Collateralized loan obligation. Sources: S&P Global Ratings, Bloomberg, Finsight.

Affordability And Inflation

With a mild recession likely in 2023 and inflation still well above average and expected to remain high into the new year, we anticipate that, globally, borrowers with lower incomes and weaker credit scores will be the most vulnerable to declining affordability. Sectors such as U.S. subprime auto are therefore expected to come into sharp focus. While not yet apparent in the data, rising credit card debt and higher unemployment—should they materialize—are expected to propel delinquency levels up from historical lows. Structured finance obligors aren't immune to worsening economic conditions, and we generally expect to see weakening of collateral pool asset quality. However, given the current strength of the labor markets in the U.S. and Europe, and with our base-case macroeconomic forecast showing only a limited increase in unemployment and a mild decline in GDP for certain countries, our structured finance ratings are poised to remain resilient, with the greater risk for negative effects on speculative-grade ratings. If macroeconomic conditions worsen—especially in the labor market—this would result in deeper deterioration in collateral and ratings trends. Despite growing economic headwinds, consumer health has been largely resilient across the major securitization markets in Asia-Pacific. This is largely due to low unemployment, a cornerstone of stable collateral performance in consumer-related securitizations. In Australia, household balance sheets have also been bolstered by a buildup in savings, delaying the impact of consecutive interest rate rises on debt serviceability.

Home Price Dynamics

After an increase of roughly 40% in the two years since the onset of the pandemic, U.S. home prices have started to cool, in large part due to the rapid rise in mortgage rates in 2022. While home prices are still supported by economic fundamentals, such as supply-demand imbalances, affordability is an issue that is impeding the purchase market. The consumer is in relatively good shape and unemployment remains low. Should this change in 2023; however, we may see some performance deterioration in lower-rated tranches of residential mortgage-backed securities (RMBS). In several European countries, house price inflation has been running high but looks set to normalize in 2023, as higher interest rates lower purchasers' borrowing capacity and their savings and disposable incomes are absorbed by the higher cost of living. That said, we only expect single-digit percentage corrections to nominal prices in the U.K. and Ireland in 2023, while other significant RMBS markets—such as Spain and the Netherlands—should see a more gradual slowdown. In 2024 and beyond, we expect house prices in major European RMBS markets to resume modest rates of growth. As savings are drawn down in the Asia-Pacific region, inflationary pressures build, and house prices fall, household resilience will be tested in the year ahead. These challenges will be heightened in Australia, where most mortgages are variable rate. Despite the increasing economic uncertainty, most structured finance ratings in the Asia-Pacific region are poised to remain resilient, underpinned by stable employment.

Commercial Real Estate

Property prices began to fall from their peaks in 2022, and we expect that trend to continue in both the U.S. and EMEA. Lodging is on the mend after suffering through the pandemic, and retail is mixed, with some idiosyncratic and downward U.S. mall appraisals occurring despite signs of a broader recovery in the sector. The office market remains the open question, especially in the largest coastal U.S. cities, such as New York, where utilization remains well below that of the pre-pandemic period and vacancy and availability (which includes sublease activity) are considerably higher.

Corporate Credit And CLOs

A mild recession may cause a significant portion of the 'B-' obligors—which now make up just over 30% of U.S. broadly syndicated loan (BSL) collateralized loan obligation (CLO) collateral and 25% in Europe—to move into 'CCC' territory, pressuring CLO credit. In the U.S., we've recently observed historical highs for exposure to lower-rated credits and falling recovery ratings. CLO performance depends on the severity of the potential downturn; something more in-line with the current economic base case of a mild recession will probably keep rating actions contained to the speculative-grade categories, but a more severe economic scenario could lead to some creep upward into investment-grade tranches (see "[How Resilient Are Middle-Market CLO Ratings \(2022 Update\)](#)", published Oct 19, 2022, "[How The Next Downturn Could Affect U.S. BSL CLO Ratings \(2022 Update\)](#)", Aug 4, 2022, and "[Scenario Analysis: How Bad Can It Get Before European CLO Performance Suffers?](#)", Nov. 17, 2022).

LIBOR Transition

In 2022, the U.S. LIBOR transition remained largely on schedule for this key lending rate to cease publication by June 2023. The usage of the Secured Overnight Financing Rate (SOFR) in new lending arrangements, including securitizations, took hold in 2022; however, widening market spreads have slowed the pace of transition. While new issuances of asset-backed securities (ABS) and residential mortgage-backed securities (RMBS) used compounded SOFR (backward-looking), and CLOs and single-asset, single-borrower (SASB) commercial mortgage-backed securities (CMBS) used term SOFR (forward-looking), the key question facing the securitization market is how easily the many legacy LIBOR transactions will transition to alternative rates.

Global Structured Finance | LIBOR

LIBOR Transition On Track, But Large Exposure In Securitization Market

The U.S. LIBOR transition largely remained on schedule in 2022 for the benchmark rate to cease publication by June 2023. The use of SOFR in new lending arrangements, including securitizations, took hold in 2022 as ABS and RMBS sectors employed compounded SOFR, while CLO and SASB CMBS sectors used term SOFR. The key question facing the securitization market, however, is how easily the many legacy LIBOR transactions will transition to alternative rates. At year-end 2022, S&P Global Ratings maintained ratings on approximately 4,210 U.S. securitization transactions that reference dollar LIBOR, with about 2,850 in low-balance legacy RMBS transactions, 900 in CLOs, 380 in ABS transactions (mostly student loan), and 80 in CMBS transactions.

Final Rules On LIBOR Act Recently Published

The final rules on how to implement the Adjustable Interest Rate (LIBOR) Act were released in mid-December 2022 and represent the last major element needed for transaction parties to move forward with their rate replacement plans. They specify different SOFR rates (board selected benchmark rates) for different contract types to achieve legal safe harbor where rates are changing by operation of law. Most legacy consumer and commercial contracts are specified to use a term SOFR rate, with a few exceptions. Compounded SOFR rates are to be used in most Federal Family Education Loan Program student loan ABS, contracts involving government sponsored enterprises like Fannie Mae and Freddie Mac, and derivatives. Eurodollar rate references are now deemed to represent "interbank lending", similar to bank polling, and contracts containing these references appear to be covered by the LIBOR Act. The synthetic rate may be preferable to the much higher prime rate, which is a common fallback in older floating-rate corporate loans, although some fallbacks refer to LIBOR as a bank-type rate and it may be challenging for a synthetic rate to fit that qualification.

Synthetic Dollar LIBOR Emerging

The likely publication of synthetic dollar LIBOR from July 2023 to September 2024 adds another variable to the LIBOR transition process; it is generally for those contracts that were not covered by the federal LIBOR Act. Synthetic dollar LIBOR was developed mainly to assist non-U.S. law contracts that reference dollar LIBOR and need additional time for transition. This rate equals CME term SOFR plus fixed spread adjustments (that match those recommended by the Alternative Reference Rates Committee [ARRC]), and it was discussed by the Financial Conduct Authority (FCA) in a November 2022 consultation, with final guidelines expected in early 2023. One noteworthy attribute is that the rate would be labeled "nonrepresentative" because of its methodology and, to that extent, some contracts and transactions since 2019 contain "nonrepresentativeness" triggers that would likely be tripped when that statement is made by the FCA. We believe the use of this rate for consumer contracts tied to LIBOR is less likely, given that rate replacement is easier under the loan terms and fallbacks under which the lender often has the unilateral right to change rates. Certain contracts may not be eligible for using synthetic LIBOR when references to LIBOR include a description of the rate involving interbank lending. Lastly, because synthetic LIBOR is not a board selected benchmark rate, a determining person implementing it does not appear to qualify for the safe-harbor protection.

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Keeping An Eye On Basis Risk

While the federal law should facilitate the transition for many legacy securitizations with minimal expected rating impact, there are smaller pockets of exposures that may not be completely addressed by this legislation. In these limited cases, there could be some basis risk from different types of SOFR rates used on assets, liabilities, and derivatives, as well as from extraordinary transition expenses that are senior in the priority of payments. This may include pockets of legacy RMBS together with a small number of FFELP student loan securitizations whose asset, liability, and/or hedge interest rates may no longer be match-funded. Some transactions may contain structural features that mitigate this risk, such as net-weighted average coupon caps in most legacy RMBS. Additional information and actions still need to be collected from determining persons, such as trustees and servicers. In other markets that have already experienced LIBOR transition, we have observed draws on cash reserve accounts, such as in U.K. RMBS, due to mismatches in asset and liability interest rates (although these have been limited and have not resulted in any rating actions).

Key Questions To Monitor In 2023:

- How far in advance of June 2023 will transaction parties on legacy securitizations notify the market of replacement rates (given ARRC's stated best practice of six months advance notification)?
- What portion of leveraged loans, or CLO collateral, will successfully transition off LIBOR before June, and will we see the prime rate used where amendments are not realized and synthetic LIBOR is not feasible?
- To what extent will we see basis risk arise when asset, liability, and/or hedge rates differ?
- How well are transaction parties prepared for significant operational work related to rate replacement, sending borrower notifications, and negotiating new rates and spreads?

Global Structured Finance | Environmental, Social, And Governance Factors

Transparency Key To Support Sustainable Issuance In 2023

In 2023, we believe sustainability initiatives could be put to the test by persistent inflation and economic uncertainty, and broader market conditions will continue to influence green, social, sustainability, and sustainability-linked bonds (GSSSB) issuance. As a result, notwithstanding clarifications for applying green and social principles for securitizations, we're not expecting significant changes in GSSSB issuance.

It will be a critical period for energy transition. We see Europe's gas and power markets both remaining very tight for at least two-to-three years. The energy price shock puts a green economy transition even more into focus. However, global decarbonization plans have major execution risks and need massive investment. Increasing the share of renewable power in the energy mix and overall production of electric vehicles certainly is a key pathway to reduce reliance on fossil-fuel imports, notably for Europe. Meanwhile, the protection gap between physical climate risks and insurance coverage continues to widen. Risks will increase even if progress on decarbonization is made, due to historical emissions and the lagging effects on the global climate.

The developments of the International Capital Markets Association's (ICMA) Green Bond Principles (GBP) and Social Bond Principles (SBP) in June 2022 will help support the sustainable securitization market going forward. "Use-of-proceeds" securitizations, in which the collateral is not made up of sustainable assets, may be aligned with ICMA's principles if the proceeds are deployed on eligible projects in line with ICMA's GBP. Meanwhile, an abundance of questions remain as to how the European Green Bond Standard (EU GBS) will be applied to securitizations and whether further flexibility may be needed. Until there is more clarity, issuers may grapple with the benefits of issuing labelled bonds under ICMA's GBP if there are concerns about future alignment with the EU GBS.

While progress has been made, challenges continue with a lack of sustainable collateral originations and the absence of standardized data, disclosures, and definitions for securitizations. Transparency will play a major role in the growth of this market.

ESG-related rating actions in structured finance significantly declined year-over-year as COVID related risks abated (see ESG credit factor chart on the following page). However, the lingering effects of COVID were key drivers of a handful of rating actions in the commercial mortgage-backed securities (CMBS) and non-traditional sectors (e.g., aircraft ABS) (see ESG rating actions by asset class chart on the following page).

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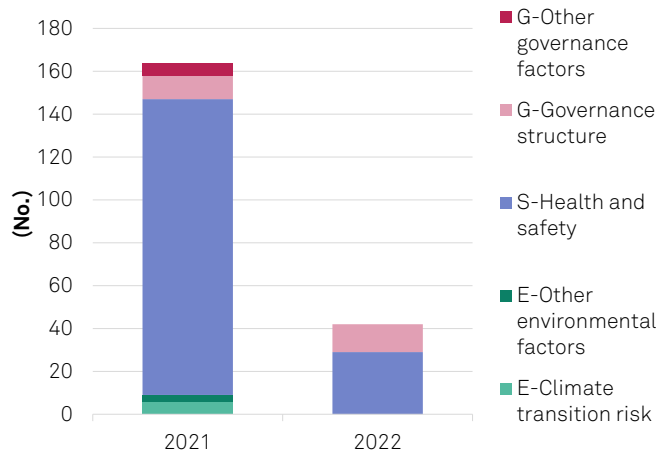


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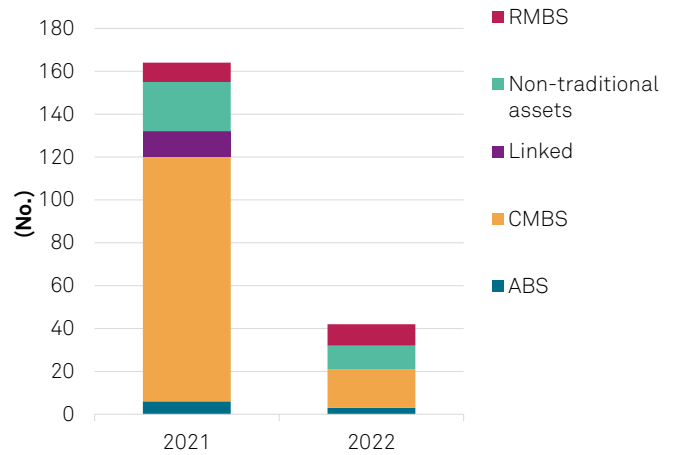
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ESG-Related Total Rating Actions

By ESG credit factor



By asset class



Source: S&P Global Ratings.

ESG-related rating actions are those for which ESG credit factors were a key driver of the decision to change a credit rating, outlook, or CreditWatch status. S&P Global Ratings considers ESG credit factors to be those ESG factors that may influence the capacity and willingness of an issuer to meet its financial commitments. Structured finance actions relate to ESG impacts by transaction (tranche).

U.S. | Auto Loan ABS

Issuance

U.S. auto loan ABS issuance declined 7.5% in 2022 to \$90.8 billion from \$98.4 billion in 2021 due to an 8.0% dip in retail auto sales to 13.7 million units from 14.9 million units and the spike in ABS funding costs. Not only did benchmark rates rise but spreads widened too, especially among subprime speculative-grade classes, as investors started preparing for a potential recession. Some issuers' weighted average cost of debt tripled during the year. As a result, subprime issuance declined to \$37.3 billion (41% of issuance) in 2022 from \$43.8 billion (nearly 45% of issuance) in 2021.

The captive finance companies of foreign auto manufacturers also reported a reduction in issuance. Their sales organizations were hampered by vehicle shortages, and borrowing costs were relatively more attractive in the unsecured market. Partially offsetting these declines was an uptick in issuance within the bank and credit union space.

We expect issuance to increase about 7% to approximately \$97 billion in 2023, driven by the higher forecasted retail auto sales of 14.7 million units. However, there is probably more downside risk to this forecast than upside, given that the Fed's continued effort to hike interest rates could restrict issuance because some highly-rated issuers may find ABS less attractive relative to unsecured funding. Further, higher auto loan borrowing rates, vehicle affordability concerns, as well as the recent tightening of credit standards among certain subprime lenders could reduce loan origination and securitization volumes.

Credit Outlook

We expect inflation to remain high during the first half of 2023 and unemployment to rise modestly as we enter a shallow recession. This will likely lead to higher credit losses on the collateral, with subprime auto ABS affected to a greater extent, given that these obligors generally have fewer resources to draw on in the event of job loss. We are already seeing weakness in the subprime segment's recent vintage static pool performance, with certain issuers reporting higher losses on their securitizations from the first half of 2022 than for their older pools going back to 2017 (see the subprime cumulative net loss chart). Subprime performance has deteriorated primarily due to the discontinuance of COVID-19-related stimulus payments (including the expanded child tax credit payments), rising inflationary pressures outstripping wage growth, and increasing competitive forces. In contrast, performance remains stable in the prime segment (see the prime cumulative net loss chart). New vehicle supply constraints (which are easing) and higher borrowing costs will likely dampen the demand for used vehicles and lead to slightly lower recovery rates this year. But this follows the unprecedented upward spike in 2021. Further, depressed new vehicle sales and leasing activity from 2020 through 2022 will likely keep used vehicle supply low for the next three to five years, which should prevent used vehicle values from tumbling to recessionary levels.

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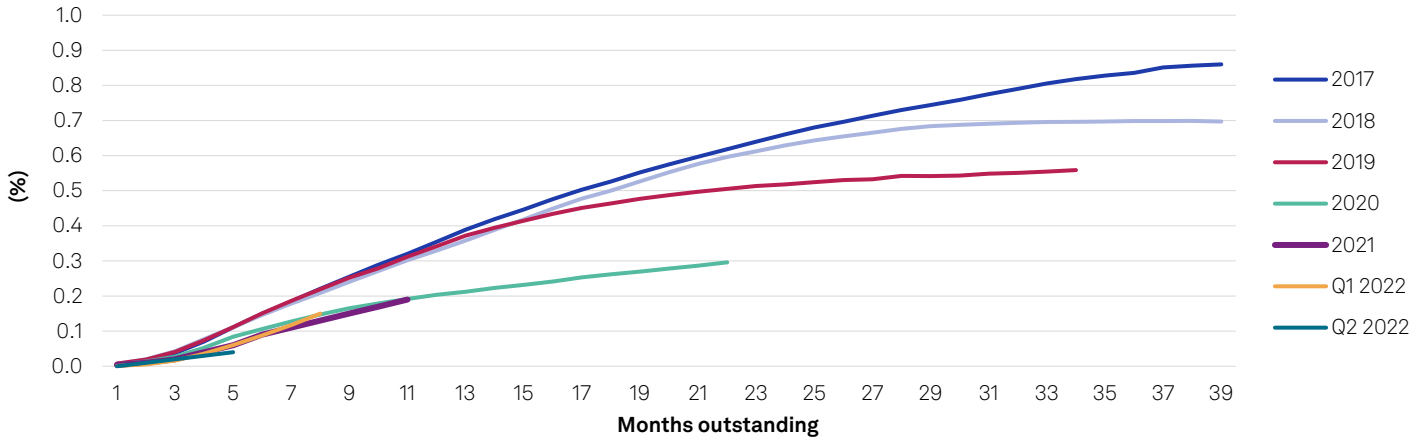


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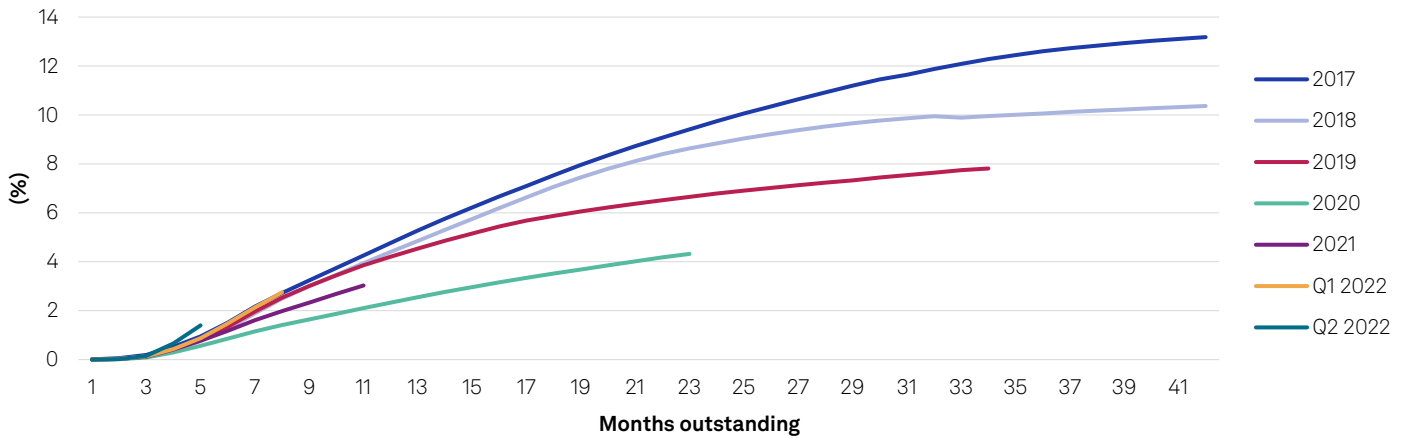
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Prime Auto Loan ABS Cumulative Net Losses By Vintage



Source: S&P Global Ratings.

Subprime Auto Loan ABS Cumulative Net Losses By Vintage



Source: S&P Global Ratings.

Scenario Analysis

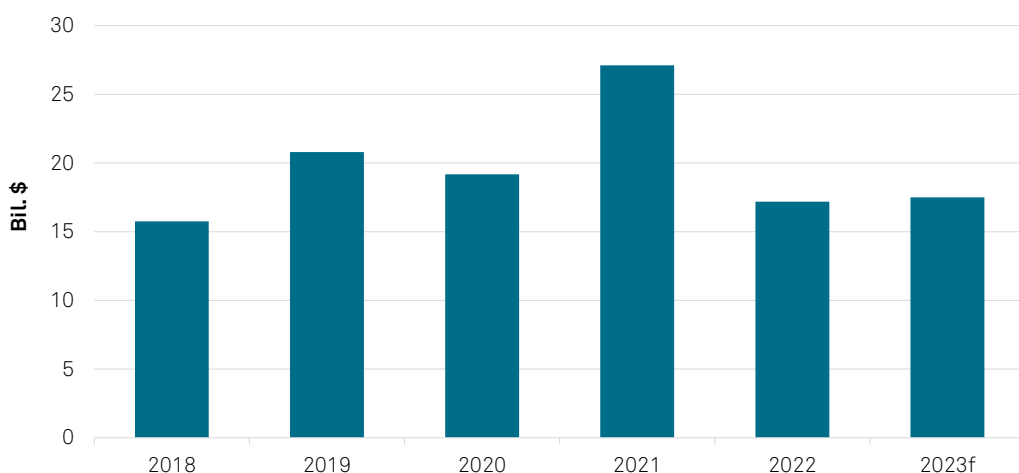
To assess the impact a recession could have on subprime auto loan ABS ratings, we completed a scenario analysis on nearly 50% of the outstanding subprime auto loan ABS we rate (see [“How The Next Downturn Could Affect U.S. Subprime Auto Loan ABS Ratings,”](#) published Dec. 8, 2022). We view this segment as more vulnerable to an economic downturn, given that these borrowers have more limited financial resources and this segment includes classes in the 'BB' and 'B' rating categories, which have substantially less credit protection than the investment-grade classes (rated 'BBB-' and above). Based on our forecast of a shallow recession, we believe most investment-grade auto loan ABS are well insulated from downgrades, but the speculative-grade classes (rated 'BB+' and below), which are concentrated in the subprime segment, are more susceptible to downgrades.

U.S. | Auto Lease ABS

Issuance

U.S. auto lease origination volume fell precipitously in 2022 due to production challenges, low new vehicle inventory, and lack of incentives. New vehicle leases as a percentage of retail sales dropped below 20% in 2022 (18% as of third-quarter 2022, according to Experian), compared with 30% in 2019 and roughly 27% in 2020 and 2021. Portfolio runoff also outpaced new lease originations, resulting in auto lease ABS volume falling 37% to \$17.2 billion in 2022 from the \$27.1 billion peak reached in 2021 (see chart below).

U.S. Auto Lease ABS Issuance



F—Forecast. Source: S&P Global Ratings.

While chip shortages continue to challenge vehicle production, the second half of 2022 saw some production improvements, and new vehicle inventory volume slowly but steadily increased. In 2023, we expect vehicle production improvements to continue, new inventory levels to increase but remain tight, and vehicle days' supply to increase slightly but remain far below historic norms. We also expect new vehicle sales to rise slightly by 7% to 14.7 million units from 13.7 million units in 2022.

We believe new vehicle inventory growth this year could lead to more incentive offerings and higher vehicle sales (especially certain models that haven't been selling as quickly), which in turn could result in a slight increase in lease share of retail sales. We forecast relatively flat year-over-year auto lease ABS volume in 2023 and expect portfolio pool runoff will continue to outpace new lease volume, at least through the first half of the year.

Credit And Collateral Performance Outlook

Vehicle and payment affordability will remain key industry concerns in 2023. New vehicle prices steadily increased year over year in 2022, further exacerbated by higher borrowing costs as SUVs and trucks increasingly dominate new vehicle offerings and sales. We expect recession fears will continue to dampen consumer confidence and spending this year. We also believe that, without incentives to lower monthly payments, leasing will remain a less affordable option for consumers.

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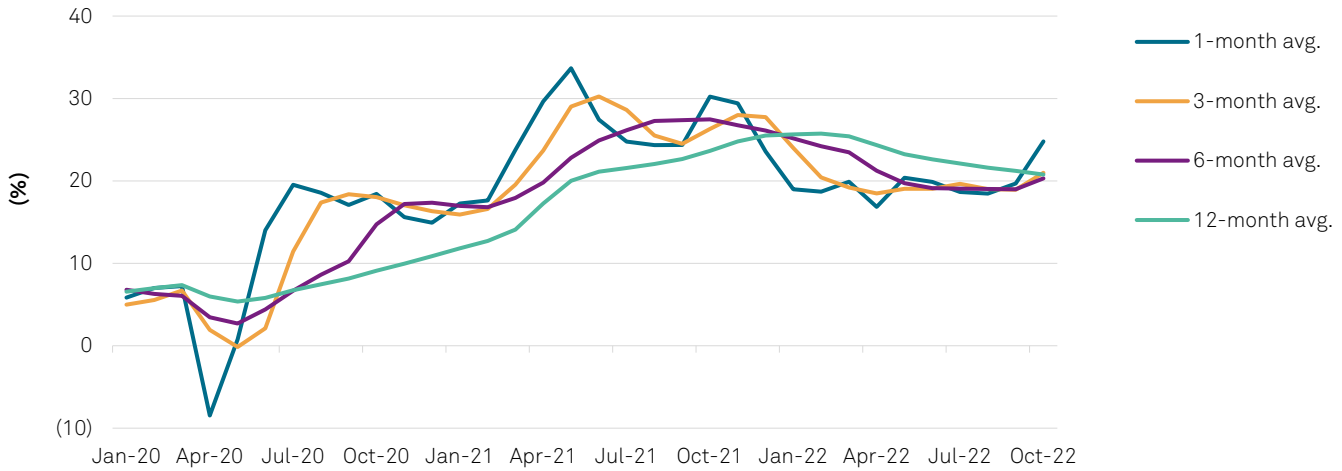


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Off-lease vehicle return rates will likely increase this year, compared with the historic lows in 2022. As demand for used vehicles slowly declines and values depreciate, albeit from the peak levels reached in 2022, we expect off-lease vehicle return rates to gradually increase toward normalization. The price consumers pay to retain the vehicle (i.e., the contract residual) may no longer be economical if the vehicle value depreciates below the contract residual.

Since the COVID-19 pandemic, we've observed strong residual performance on the auto lease ABS transactions we rate. All outstanding rated transactions are experiencing residual value gains due to limited supply and strong demand for used vehicles (see the chart below). In 2023, we expect these residual gains will likely decline from 2022 levels but remain positive as used vehicle values slowly moderate. The credit profile of the receivables in the auto lease ABS pools we rate is typically of high quality—that of a "super-prime" borrower—and we expect this trend will continue. Overall, we anticipate our auto lease ABS ratings will remain mostly stable in 2023.

S&P Global Ratings-Rated Auto Lease ABS Residual Value Performance



Source: S&P Global Ratings.

U.S. | Commercial ABS

Issuance

Commercial ABS issuance increased to \$28 billion in 2022, up 12% from 2021. This is in line with our forecasted range of \$26 billion-\$28 billion, and primarily due to favorable ABS funding costs for the first half of 2022 and continued pent-up equipment demand. Supply chain disruptions eased somewhat compared to 2021, which benefited equipment manufacturers in the agricultural and technology sectors as originations remained stable or increased despite soft GDP growth in 2022. Many captive finance companies—such as John Deere Capital Corp., CNH Industrial Capital America LLC, and Hewlett-Packard Financial Services Co—maintained a strong presence in the ABS market. Deliveries of new vehicles to fleet companies also increased as supply chain disruptions somewhat eased, leading fleet issuers such as Enterprise Fleet Financing LLC to increase their ABS issuance in 2022. The top five commercial ABS issuers in 2022 are listed below and consist of familiar names that typically lead the commercial ABS market.

Top Five Issuers In 2022

Primary originator	\$ total volume issuance (millions)	No. of transactions
Enterprise Fleet Financing LLC.	4,689	4
John Deere Capital Corp.	3,716	3
CNH Industrial Capital America LLC.	2,571	3
Hewlett-Packard Financial Services Company	2,478	3
Dell Financial Services LLC	2,231	2

Source: S&P Global Ratings.

Our economic outlook is for U.S. GDP to contract by 0.1% in 2023 (see "[Economic Outlook U.S. Q1 2023: Tipping Toward Recession](#)," published Nov. 28, 2022), and we forecast commercial ABS issuance to range between \$25 billion-\$27 billion in 2023, a decrease from \$26 billion-\$28 billion in 2022. Negative headwinds are expected to weigh on commercial ABS issuance in 2023, mainly due to threats of a recession and increasing ABS funding costs, some of which have nearly quadrupled when comparing issuers' first and last transactions from 2022. If the recession is more severe than expected or ABS funding costs continue their upward trajectory, issuance has the potential to be lower than \$25 billion.

We expect captive and independent issuers will experience a slight decrease in issuance volume as they consider the tradeoffs between ABS funding costs and alternative capital sources. The typical pricing gap between ABS funding costs and unsecured borrowing has narrowed significantly in the last few months. Captive issuers, who have an established unsecured platform, could turn to the unsecured market for capital. Independent issuers may look to warehouse financing as a more attractive alternative if they want to wait until the volatility in ABS funding costs subsides.

We believe fleet issuers, primarily led by Enterprise Fleet Financing LLC, will maintain their strong ABS presence in 2023 due to continued demand for fleet vehicles. Fleet companies are working through outstanding orders, and the expectation is that deliveries from the auto industry's original equipment manufacturers will increase as supply chain disruptions ease further in 2023.

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Dealer floorplan issuance is expected to slightly increase as non-diversified floorplan trusts re-enter the ABS market and diversified floorplan issuers continue their stable ABS issuance cadence in 2023. Non-diversified floorplan trusts have not issued in the ABS market since 2020, largely due to a shortage of new vehicles over the last two years. As supply constraints ease, new vehicle inventory grows, and average days-in-inventory increases beyond 30 days (this ratio was below 30 days for most of 2022), we expect about \$1.0 billion of new series term issuance for 2023 from issuers of non-diversified dealer floorplan ABS. Of the floorplan issuers that are rated by S&P Global Ratings, only NextGear Capital Inc., a diversified used auto floorplan company, issued debt in 2022 and 2021.

Credit And Ratings Outlook

In our view, despite the impending U.S. economic recession, overall rating performance and credit trends will continue to remain stable in 2023. Commercial ABS encompasses a wide range of industry and servicer types, from small-ticket independents to larger captive finance companies. Our expected drivers of credit trends for 2023 are listed below, detailed by segment for those issuers that we assign ratings.

Drivers Of Credit Trends For 2023

Primary segment	Drivers of commercial ABS credit trends
Agriculture	Agricultural markets are heading into 2023 on the heels of strong performance due to the run up of commodity prices for soybeans, corn, and wheat, which benefited farmers in 2022. Agricultural ABS collateral pools have seen their lowest level of losses in many years, but this trend is expected to normalize in 2023 as input costs such as fertilizer and feed continue to rise, and commodity prices ease off their historical highs.
Transportation	We expect the transportation sector to be only slightly negative in 2023 as continued consumer spending and demand from manufacturing could help offset any potential slowdown in housing-related end markets. However, higher fuel prices and an aggressive monetary policy by the Federal Reserve could elevate performance volatility in the sector. ABS transactions rated by S&P Global Ratings tend to exclude smaller owner-operator obligors, which typically are the first to come under stress during an economic downturn. Additionally, supply chain constraints due to the COVID-19 pandemic have limited the number of new trucks available for purchase, which in turn has supported the secondary market for used values.
Construction	Defaults on construction equipment loans are likely to increase in 2023 as higher interest rates and inflation stress housing affordability and slow the rate of new housing starts. In ABS transactions that are rated by S&P Global Ratings, we expect overall losses to remain relatively muted as solid equity positions in the equipment segment coupled with stable secondary market values continue to support strong recovery rates.
Small ticket	Small-ticket equipment ABS performance tends to generally track the overall economy due to the highly diversified nature of the obligor base. S&P Global Ratings expects a shallow recession in first-half 2023 with slightly negative GDP for the year due to inflation and tightening monetary policy. We expect the recent historically low losses in rated equipment ABS to trend higher toward more normalized levels.
Information technology	Despite the economic slowdown in business activity that is expected in 2023, these collateral pools are diversified across industries and have large concentrations of investment-grade commercial obligors. No material credit weakness is expected for these transactions in 2023.
Floorplan	<p>We expect non-diversified floorplan trusts to exhibit stable performance, with losses expected to remain near zero, primarily due to manufacturer support. We view the manufacturer's financial health, as well as the dealer's (as obligor of the floorplan loan), as the key credit factors for this sector. Our outlook is based on the expectation that manufacturers will likely continue to provide significant financial support to dealers and may repurchase inventory upon dealer termination. We expect monthly payment rates will stay elevated well above transaction triggers as pent-up demand continues.</p> <p>Diversified floorplan credit performance, among other factors, is tied to the health of small businesses as these collateral pools represent floorplan receivables originated by dealers to finance their vehicle inventories. Our analysis and credit enhancement incorporates historical loss-to-liquidation rates over multiple economic cycles. In our view, losses will not reach these economic stress periods given the limited GDP contraction that is expected for 2023.</p>

Source: S&P Global Ratings.

U.S. | Unsecured Consumer ABS

Student Loan ABS

A low interest rate environment spanning several years created an opportunity for a handful of refinance student loan platforms to produce high quality assets for the ABS market. The dramatic rise in funding costs during 2022 choked refinance student loan issuance to a few transactions totaling less than \$2 billion with little hope of issuance returning in 2023. Voluntary prepayment rates for refinance student loan ABS also saw a steep drop as rates rose. This shift will leave transactions exposed to potential losses for a longer time in the future compared to typical periods seen in the past. Higher unemployment levels forecasted for 2023 may also negatively impact refinance student loan performance. However, we believe the strong credit profile of these borrowers and loan performance trending below base case default assumptions should allow for some deterioration without any impact to ratings.

The in-school private student loan product was most active in 2022 with Sallie Mae bringing four transactions to market. This product has more flexibility to pass interest rate costs on to the borrower, so we expect it to be the primary issuance source for student loan ABS while rates are elevated. Performance for this highly co-signed product has been good but we are anticipating some stress to the borrower if inflation remains high and unemployment increases. Most of our ratings in this space are high investment-grade ratings which we expect to be stable in 2023.

Even with a lack of issuance in 2022, Federal Family Education Loan Program (FFELP) ABS remained a topic of conversation with the announcement of the federal loan forgiveness plan. Initially the plan appeared that it would lead to large full balance FFELP loan prepayments as borrowers consolidated to federal Direct loans. A subsequent release excludes FFELP borrowers from the federal forgiveness plan that now is suspended due to lawsuits. If the federal loan forgiveness plan does successfully find its way through the courts and somehow results in higher voluntary prepayments for FFELP ABS, we would see that as credit positive to offset slower payment rates placing pressure on meeting legal final maturities. We expect the more recent elevated prepayments to continue into next year as FFELP borrowers consolidate into the Direct program for a one-time benefit from the payment recount waiver for income-driven repayment plans. From a surveillance perspective, we continue to monitor our FFELP ratings with a focus on payment rates and we believe the credit quality of FFELP student loan ABS will remain stable due to the U.S. government's guarantee on the underlying loans.

We don't expect 2023 student loans ABS issuance to be much different than 2022 given the fundamentals in place. Issuance from the refinancing and FFELP products will be minimal, leaving in-school lenders as the major source for student loan ABS issuance, which we believe may reach \$10 billion in 2023.

Credit Card ABS

Our 2023 outlook for U.S. credit card ABS collateral performance is somewhat weaker than 2022, and our rating performance trend is stable. We expect credit card ABS volume of approximately \$27 billion in 2023, which is above expected maturities of \$17 billion.

Issuance volume of about \$29.3 billion in 2022 is in line with estimated maturities of \$29.5 billion, and a reversal of the meager issuance in the previous two years (see credit card ABS issuance chart below). A higher interest rate environment, increasingly costly deposits, and the relative funding advantage of credit card ABS contributed to the 2022 volumes. A continuation of this issuance momentum into 2023 is contingent upon two factors. First, a normalization of the yield

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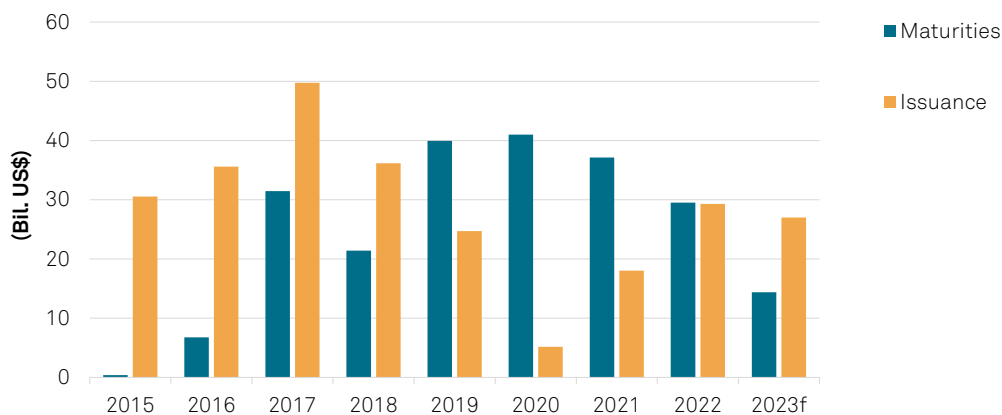
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curve inversion (yield on two-year treasuries and below are generally higher than 10-years and above) should help to preserve the relative all-in cost of funds advantage of credit card ABS over longer-term and alternative funding methods. Second, despite the prevailing economic environment, positive asset growth at bank originators should continue, albeit at a reduced pace. Lower yields in the long end of the yield curve demonstrate market participants' reduced expectations of inflation in the medium-term, which is encouraging.

Credit Card ABS Issuance Volume



f--forecast. Source: S&P Global Ratings.

Headwinds from high interest rates, the inflation expectation, and a mild recessionary outlook with elevated unemployment will increasingly weigh on U.S. consumer affordability and related economic activity. The initial reduction in U.S. revolving credit card balance outstanding as consumers scaled back spending and increased savings at the onset of the pandemic has reversed (see personal savings rate vs credit card debt chart below). U.S. credit cards balance outstanding was up 15% year-over-year at the end of third-quarter 2022. However, the utilization rate (balance divided by limit), at 21.5%, increased by 590 basis points over the same period, remaining below the 23.8% level in third-quarter 2019 (see credit card utilization chart below), which is a positive sign for consumer indebtedness. Moreover, 90-plus-day delinquencies, at 7.59% as of third-quarter 2022, are lower than the pre-pandemic level. Tightened standards for credit card loans by banks, according to the October 2022 Senior Loan Officer Survey, show that U.S. consumers are prudently adapting to the changing economic landscape, and performance is normalizing. The strength of the labor market and the length and depth of recession stress will be the ultimate arbitrator of performance.

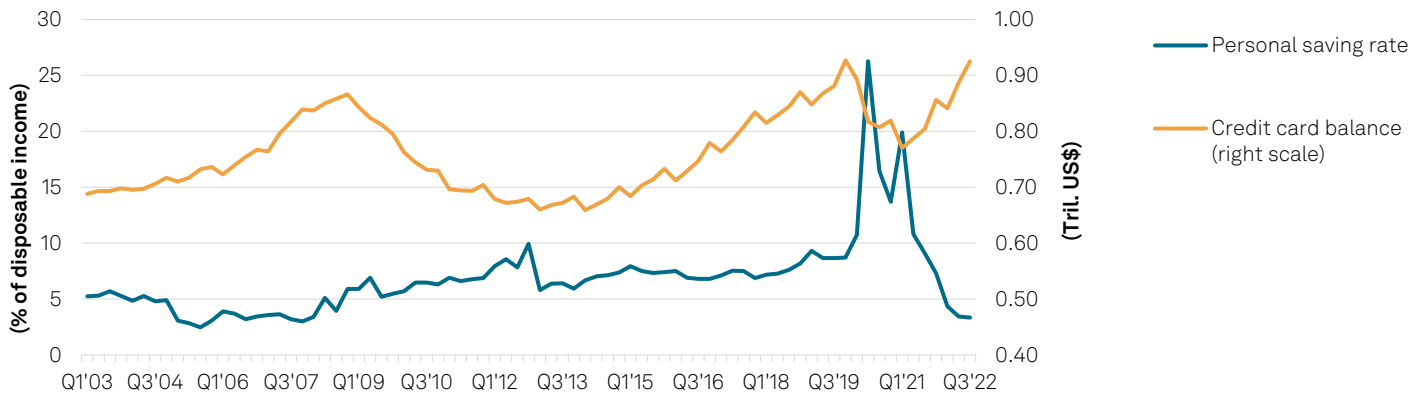


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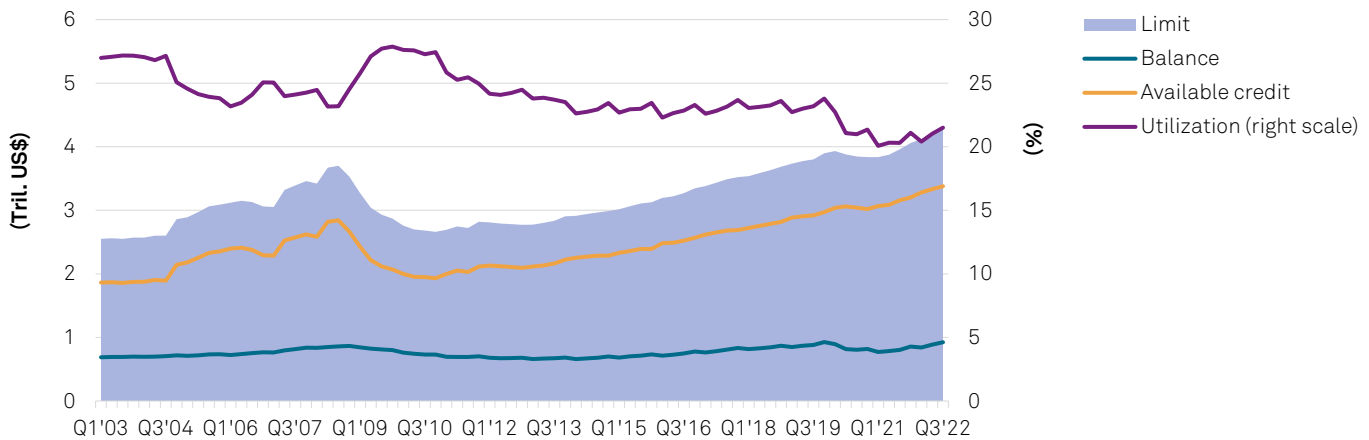
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U.S. Personal Saving Rate vs Credit Card Debt



Sources: Federal Reserve Bank of St. Louis, New York Federal Reserve Consumer Credit Panel.

U.S. Credit Card Utilization



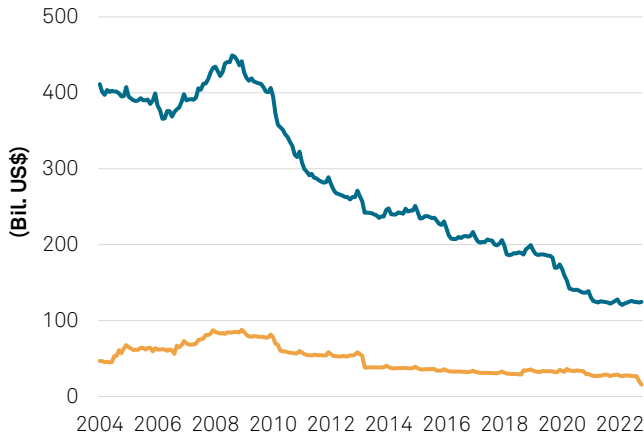
Source: S&P Global Ratings, New York Federal Reserve Consumer Credit Panel.

Receivables for the credit card trusts we rate (tracked in our U.S. Bankcard Credit Card Quality Index [CCQI] and U.S. Retail-Private Label CCQI), represent about 15%-20% of the U.S. credit cards balance outstanding and are generally of a higher credit quality than the broader U.S. credit cards market. Trust receivables continue to demonstrate strong credit metrics. On average, approximately 100% and 76% of bankcard and retail-private label receivables, respectively, are of accounts aged at least five years. About 73% of bankcard receivables are from accounts with FICO scores of at least 720, and only 7% have FICO scores of 660 and below. Retail private label trusts, which tend to have a weaker credit profile, have 45% of receivables with FICO scores above 720, and 27% with a FICO score less than 660. These strong credit metrics continue to influence CCQI performance, which remained strong through the market dislocation and now into economic headwinds. In 2023, we expect collateral performance to normalize and be somewhat weaker, and we believe ratings will generally remain stable.

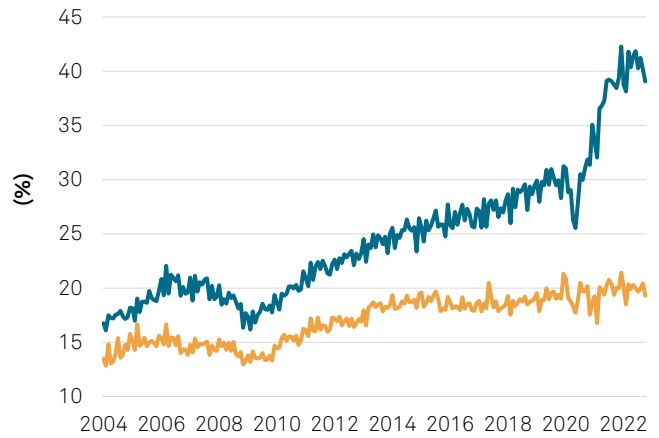
U.S. Credit Card Quality Index (CCQI)

— U.S. Bankcard CCQI — U.S. Retail-Private Label CCQI — Unemployment

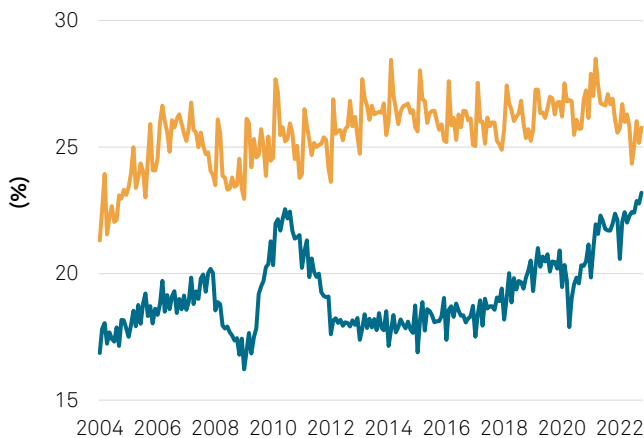
Receivables outstanding



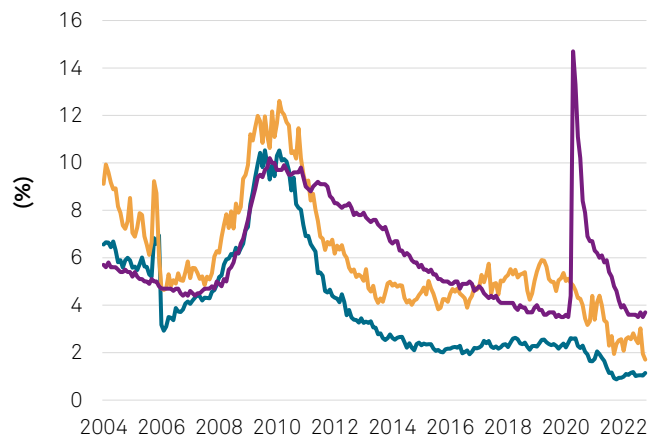
Payment rate



Yield



Net loss rate



Source: S&P Global Ratings.

Personal Loan ABS

Marketplace lenders continued the momentum created in the second half of 2021, remaining active in the personal loan ABS market during 2022. Branch-based lenders such as OneMain, Lendmark, Mariner, and Regional Management issued \$3.4 billion of the total issuance of approximately \$19 billion. Matching that issuance level in 2023 may be challenging with funding costs increasing sharply and the economic forecast of darker clouds on the horizon. For 2023, we forecast total issuance will reach \$15 billion.

The typical borrower in this market is likely struggling with inflation, and credit metrics are beginning to show stress. Layer on the economic forecasts for higher unemployment and we expect to see the tightening of underwriting leading to reduced originations. Loan servicing for

these borrowers is very important and becomes a differentiating factor in performance as the economy weakens. For the issuers we rate in this space, our base case loss is typically developed using performance data sets that went through economic downturns that show volatility with this type of borrower. The base case reflects a loss level that is higher than current performance and allows for some deterioration. For 2023, we expect lenders to be more prudent in the origination process and be more focused on credit quality. We believe our ratings will remain stable, but speculative-grade ratings may be pressured if loan performance deteriorates beyond our base case loss.

U.S. Mobile Handset ABS

As we enter 2023, Verizon continues its steady issuance of ABS bonds backed by device payment plan agreements (DPPAs) from its Verizon Master Trust after issuing \$17.6 billion of ABS notes from 2016-2020 from 13 discrete trust transactions. The three outstanding VZOT 2019-C, 2020-A, and 2020-C transactions have all concluded their revolving periods and are in their amortization phases with pool factors of 17%, 30%, and 88%, respectively. The prior 10 transactions were redeemed in the 15th or 16th month of amortization.

Verizon issued \$3.1 billion from two series issuances in 2021 and \$4.7 billion from seven series issuances in 2022 from the Verizon Master Trust. Verizon continues to migrate the term of its DPPA portfolio and ABS collateral pools from 24-month to 30-36 terms and include up to 10% business DPPAs as eligible collateral in its transactions. Eligibility criteria and concentration limits and the transaction capital structures for these master trust-backed issuances remain essentially unchanged over the last several years.

Verizon's transactions emerged unscathed from the COVID-19 pandemic in terms of losses. Cumulative losses in Verizon's nine completed transactions, the most recent being 2019-B, have been very consistent, averaging about 2.3%, and ranging from 2.1%-2.6% of their initial pool balances. We upgraded the subordinate classes in all of Verizon's discrete transactions to 'AAA' as or shortly after each transaction reached amortization. We project Verizon's annual issuance volume for 2023 to be \$5.0 billion. We also expect the credit performance of DPPA loans and DPPA-backed ABS bond transactions to remain stable going forward.

U.S. | Non-Traditional ABS









U.S. Non-Traditional ABS: Ratings Relatively Stable Across Most Sectors

New issuance volume in U.S. non-traditional ABS declined in 2022, but ratings remained relatively stable across most sectors. We expect new-issuance volume to be relatively stable, with a slight decline possible, depending on market conditions. Investors' need for diversification and higher yields will likely support issuance of new asset types.

In 2022, we rated 58 transactions across 15 sectors, an 18% decrease from 2021 but nearly equal to the number of transactions rated in 2020. We also reviewed 450 of our outstanding bond ratings in the sector, resulting in 386 affirmations, 39 upgrades, and 25 downgrades (see table below).

The majority of negative rating actions were in the aircraft/aircraft engine lease securitization sector. These transactions first came under pressure during the pandemic when aircraft market values and rental collections dropped significantly. Many transactions were further strained by the impact of the Russia-Ukraine conflict.

2022 Rating Actions By Non-Traditional ABS Sector

Sector	Upgrade	Downgrade	Affirmation	Total bonds
 Aircraft/aircraft engine lease securitization		23	27	50
 Container lease			2	2
 Corporate securitization		1	5	6
 Private equity CFOs	1		1	2
 Gas prepay	1			1
 Leveraged fund		1	18	19
 Railcar lease			2	2
 Tobacco settlement	37		331	368
Total	39	25	386	450

Data does not include classified ratings. Source: S&P Global Ratings.

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Aircraft

Performance: Many transactions issued prior to 2021 continue to struggle from the impact of the COVID-19 pandemic. Although we observed a moderate increase in rental collections in 2022 and a shift away from power-by-the-hour agreements, many transactions remain behind in payment of scheduled principal on the notes and, in some cases, continue to defer interest on junior notes. As a result, loan-to-value ratios continue to increase, while debt service coverage ratios (DSCRs) decline.

As the airline industry was recovering from the COVID-19 pandemic, the Russia-Ukraine conflict erupted. Following the start of the conflict, we took negative rating actions on 28 tranches from seven aircraft ABS transactions with exposure to Russian airlines. The rating actions reflected the termination of leases with Russian airlines, the uncertainty of the timing and payout amounts under the insurance claims, and the notes' credit enhancement. In terms of overall air travel, global traffic recovery has varied by region. Certain areas, such as Southeast Asia, have lagged in recovery due to the implementation of COVID-19 lockdowns.

On Oct. 4, 2022, we published a request for comment for our proposed update to our criteria, "Criteria: Global Aircraft ABS Methodology and Assumptions" (see "[Request For Comment: Global Aircraft ABS: Methodology And Assumptions](#)"). Our overall framework is the same, but the proposal seeks to enhance transparency and update certain assumptions.

New issuance: After a relatively strong year of issuance in 2021, when we assigned ratings to five transactions, the impact of the Russia Ukraine conflict and rising interest rates put a damper on new issuance in 2022. In 2022, we rated one new transaction, Business Jet Securities 2022-1 LLC. The collateral consists of loans and leases related to business jet aircraft.

Rating actions: We reviewed 50 bonds from 15 deals, resulting in 27 affirmations and 23 downgrades.

Outlook: We believe global air traffic is unlikely to return to 2019 levels until at least 2024. We expect aircraft ABS lease transaction performance may be vulnerable if macroeconomic challenges, rising interest rates, and geopolitical concerns strain the airline industry and result in diminished transaction collections and potentially lower lease rates.

Manufacturer delays in production of new aircraft supported strong demand for older aircraft models in 2022. However, we expect that the eventual full recovery and growth of air traffic, as well as the desire for newer, more fuel-efficient aircraft, will precipitate the need for new additional aircraft and the replacement of existing aircraft. The desire for airlines to remain flexible in their fleet strategies, among other things, will likely continue to support the leasing of aircraft and drive future securitizations.

Container And Railcar

Performance: The container lease market benefited from record high utilization following the worst of the pandemic due to the recovery of global trade, limited container production from manufacturers in China, and port congestion. Utilization and lease rates have since moderated but remain at relatively high levels. Most of the outstanding ABS transactions continue to pay down according to schedule. In the railcar sector, transactions showed pockets of weakened performance (i.e., falling behind in payment of scheduled principal), but they continue to perform in line with our expectations.

New issuance: S&P Global Ratings-rated container and railcar ABS issuance in 2022 was down from 2020 and 2021 when many issuers took advantage of the low interest rate environment. In the container ABS sector, in 2021, we assigned ratings to 10 transactions, In 2022, we assigned

ratings to two transactions. Similarly, in the railcar sector, we assigned ratings to eight transactions in 2021 and three transactions in 2022.

Rating actions: In the container sector, we affirmed ratings on two notes from one deal totaling \$636 million, representing 5% of our rated book. In the railcar sector, we affirmed ratings on two notes from one deal totaling \$453 million representing 6% of our rated book.

Outlook: While shipping rates have eased from their peak values, they remain well above pre-pandemic levels, as does profitability for shipping companies. We expect performance for the container sector to remain strong into next year, with delinquency rates at low levels and utilization and lease rates generally above historical averages. Many of the container and railcar ABS transactions benefit from long lease terms and are somewhat protected from a decline in demand and a dip in lease rates. In the railcar sector, despite somewhat weakened performance, we expect transactions to continue to perform in line with our expectations.

Data Centers

Performance: Among the S&P Global Ratings-rated outstanding transactions, the aggregate appraised value of collateral was in line with or slightly above 2021 values, and interest-only debt service coverage ratios (DSCRs) were generally above 2.0x.

New issuance: In 2022, we assigned ratings to four series of notes issued from three existing master trusts with an aggregate issuance amount of approximately \$821million. This represents a decline in issuance from 2020 and 2021.

Rating actions: We took no rating actions on the data center transactions in 2022.

Outlook: In our view, exponentially increasing data usage, a broad migration to the cloud, and a transition to a fully digitized economy will continue to shape demand for third-party operated data centers. Overall supply and demand is relatively balanced as new data center development has been constrained in certain markets by site availability, lingering supply chain issues, and more recently, power capacity constraints. We believe the critical nature of data centers somewhat mitigates industry cyclicalities, but we expect data centers to see some growth deceleration in a recessionary environment. We believe long-term industry risks include, among others, shifting technology, cloud service provider in-sourcing their data center needs, tenant concentration, and weaker pricing trends in hyperscale segments.

Small Business Loans

Performance: Securitizations collateralized by SBA 7(a) loans benefitted directly from the government support package during COVID-19, which covered principal, interest, and fees on Small Business Administration loans starting from April 2020, and through subsequent rounds of aid and incentives. Collateral performance has been relatively stable with some spikes in delinquencies throughout 2022.

New issuance: We rated one new transaction in 2022.

Rating actions: We took no ratings actions in 2022.

Outlook: Collateral performance in 2023 depends in part on the macroeconomic environment. We believe some retail borrowers may come under stress as record high inflation pressures consumers to cut back on discretionary spending. Structural features, including liquidity reserves, may mitigate the risk of weakened performance. We expect relatively stable issuance in 2023.

Solar

Performance: Performance among S&P Global Ratings-rated solar loan ABS transactions (all originated and serviced by GoodLeap) was stable in 2022. The transactions that closed in 2021 and 2022 had low cumulative net loss rates, all below 1%. The performance of SolarCity LMC Series I LLC, a solar lease transaction, was also stable throughout the year with a DSCR above 1.5x.

New issuance: We rated three solar ABS transactions in 2022 with an aggregate issuance amount of approximately \$926.44 million. The transactions are collateralized by loans backed by residential solar energy and storage systems. In comparison, in 2021, we rated two solar loan backed transactions with a total issuance amount of \$607 million.

Rating actions: We took no rating actions in 2022.

Outlook: We expect the U.S. residential solar market to grow steadily throughout 2023 fueled by the Inflation Reduction Act and retail utility price increases. The Solar Energy Industries Association (SEIA), the national trade association for the U.S. solar industry, expects the two-year extension of the federal, solar investment tax credit through 2023 to drive double-digit growth for the next two years. Additional growth drivers may include California's transition to net billing for distributed solar as early as mid-2023, and President Biden's infrastructure plan and policies, which aims to increase the use of distributed solar generation.

Utility-Related Securitization

Performance: Performance has been stable primarily due to the transactions' true-up mechanisms and the uncapped, irrevocable, non-bypassable nature of the charge.

New issuance: New issuance spiked in 2022. There were 12 S&P Global Ratings-rated utility securitizations in 2022, compared to five in 2021 and none in 2020. Issuance was primarily driven by the recovery of storm-related and wildfire charges.

Rating actions: We took no rating actions.

Outlook: We expect another strong year of issuance in 2023. We believe that severe weather events and the environmental efforts, particularly efforts to decarbonize the energy sector, as well as refinancing needs, may continue to drive the need for alternative funding and, hence, securitization. Many states have already adopted legislation enabling utility companies to securitize. We continue to pay close attention to the charge and the percentage it represents of the overall bill.

Timeshare

Performance: In 2022, timeshare collateral performance reverted to pre-pandemic levels and showed historically seasonal performance patterns with an expected uptick in delinquencies in the latter part of the year. Timeshare operators continue to benefit from pent-up demand for travel even as consumer confidence has declined in recent months. We expect there may be a small increase in delinquencies due to the severe hurricanes that affected certain regions this year.

New issuance: In 2022, we rated eight new issuances totaling \$2.0 billion, compared with \$2.2 billion in 2021. We removed the 1.25x stress to our base-case default assumptions, which we introduced in 2020 and maintained through 2021 to address the uncertainty and risks related to COVID-19. Instead, our analysis considered the timeshare originators' historical static pool performance with a focus on more recent origination vintages (generally, 2016–2020). We

observed that the later vintages show higher default propensity compared with prior more benign periods.

Rating actions: We took no rating actions in 2022.

Outlook: We expect there may be some weakening in borrower performance if consumers continue to be strained by rising costs and the threat of a recession materializes. At the end of 2022, many timeshare operators continued to experience strong demand as evidenced by elevated upgrade activity and increasing new buyer interest. We expect the timeshare securitizations we rate to maintain stable performance trends in 2023. We also expect steady issuance in 2023.

Triple-Net Lease

Performance: DSCRs and fixed charge coverage ratios across most of the outstanding S&P Global Ratings-rated transactions were generally stable in 2022. The impact of the high inflationary environment on collateral pools is partially mitigated by the structure of triple-net (NNN) leases, which generally require the tenant to pay all operating and maintenance expenses of the properties, shielding the issuers from any related inflationary impact.

New issuance: We rated two series of triple-net ABS from existing issuers. Total S&P Global Ratings-rated issuance amount was approximately \$1.5 billion, significantly lower than 2021 S&P Global Ratings-rated issuance, which was in excess of \$7.5 billion.

Rating actions: We took no rating actions in 2022.

Outlook: We have a stable outlook for the triple-net lease securitization sector. We believe that some retail tenants may experience weakened performance as near-record high inflation pressures consumers to cut back on discretionary spending, while non-discretionary retail tenants are expected to better withstand potential downturns. We expect industrial properties to remain resilient despite weakening economic conditions. Although e-commerce growth has slowed a bit after the pandemic acceleration, the tailwind from e-commerce outpacing brick-and-mortar sales will continue to drive demand for industrial properties.

Whole Business

Performance: 2022 was another strong year for corporate securitization transactions, with all but three systems (Domino's, Sonic, and Jack-in-the-Box) posting positive year-over-year growth in system-sales. Because Domino's, Sonic, and Jack-in-the-Box all experienced double-digit percentage sales growth the year prior, the small system contraction for this year is not viewed negatively. DSCRs were somewhat volatile in the last year, but this is mostly due to an increase in total debt outstanding.

New issuance: We rated 10 transactions in 2022, compared to 11 transactions in 2021. However, the total rated amount in 2021 was nearly twice as large, driven by the DB Master, Domino's and Taco Bell issuances, each of which exceeded \$2 billion.

Rating actions: In addition to our regular periodic surveillance, we performed a full review of six bonds from four deals, with a current balance of \$1,476 million, representing 4% of our rated book in this sector. We affirmed our ratings on five bonds and downgraded our rating on one, based on the respective transactions' brand strength, cash flow coverage, and liquidity, among other factors.

Outlook: Quick-service restaurants have proven resilient during economic downturns and other stressful periods as value and convenience are critical for their customers. In addition, consumers tend to trade down to less expensive options during periods of economic stress. The casual dining sector is more vulnerable to weakness during recessionary periods because it does not offer the same value proposition. So, if purse strings do tighten, we expect casual dining concepts may be impacted more than quick-service restaurants. We expect company-owned store revenue and product revenue to decline. As a result, transactions with a higher exposure to these non-royalty revenue streams may be more severely impacted by inflationary pressures and increases in labor costs, which compress margins. We will continue to monitor transactions closely for the impact on securitization net cash flow.

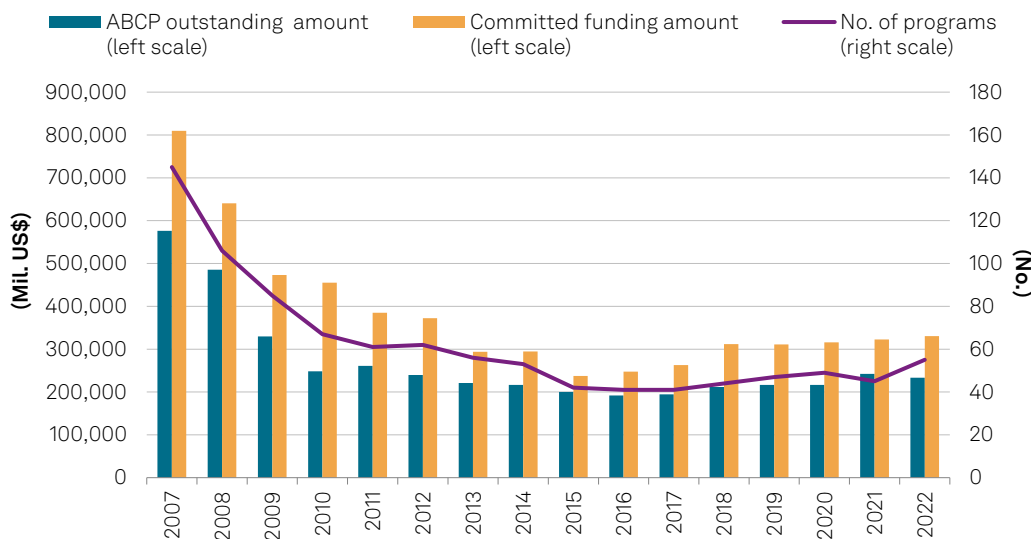
U.S. | ABCP Muni-Structured

ABCP

We forecast U.S. asset-backed commercial paper (ABCP) outstanding will remain around \$280 billion to \$290 billion for 2023, slightly lower than \$309.3 billion outstanding as of December 2022. Higher utilization levels (about 70% during 2022 for programs rated by S&P Global Ratings) were supported by increased corporate and bank borrowings under derivative-backed financing arrangements. Issuance in 2023 could be negatively affected by several factors we expect to materialize: U.S. GDP shrinking by 0.1%, the unemployment rate peaking at 5.6%, and inflation remaining high from continued supply-chain disruptions. However, as the Fed maintains a tight monetary policy, ABCP issuance will continue to be buoyed due to attractive short-term rates and potentially lower bank deposits (see "[Economic Outlook U.S. Q1 2023: Tipping Toward Recession](#)," published Nov 28, 2022).

Currently, we rate ABCP issued by 59 programs in the U.S. Of these, seven are rated 'A-1+', 48 are rated 'A-1', and four are rated 'A-2', whereas 86.6% are fully supported programs and fully supported transactions funded in partially supported programs, and 13.4% are partially supported programs (as of September 2022). We expect stable ratings supported by stable bank fundamentals and stable collateral performance with robust credit enhancement multiples. On one hand, financial institutions supporting ABCP programs remain in good shape and are likely to be resilient and manage downside risk due to uncertainties in domestic and global economies (see "[Global Bank Outlook 2023](#)," published Nov 22, 2022). On the other hand, while somewhat weaker collateral performance for consumer assets funded in partially supported ABCP programs is expected (given high inflation leading to lower purchasing power and an expected increase in unemployment leading to higher delinquencies and net losses), exposure to the somewhat weaker sectors in ABS is less than 3% of the invested amount as of September 2022. Moreover, loss coverage multiples remain robust for assets funded in partially supported ABCP programs, with an additional fungible layer of program-wide enhancement benefitting them.

Historical ABCP Market Trends(i)



(i) Data depicted through December for each year prior to 2022. 2022 data as of September 2022. The program count excludes Podium Funding Trust, Resolute Funding Co. LLC, Cabot Trail Funding LLC, and Saugatuck Funding Co. LLC, which we rated in November and December 2022. ABCP—Asset-backed commercial paper. Source: S&P Global Ratings.

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Variable Rate Demand Obligations (VRDO)

As conditions changed in spring of 2022, we saw a renewed interest in tax-exempt variable debt, including some conversions from bank direct purchase. Overall VRDO new issuance totaled approximately \$6.4 billion in par for the year, a jump of 52% over 2021’s approximate \$4.2 billion in new issuance. Letter of credit-backed commercial paper issuance likewise saw a bump in 2022 as several large programs reissued and relaunched during the year. We expect current issuance trends toward variable rate debt to continue in the near-term as tax-exempt variable rate debt remains an attractive alternative for issuers. We do not expect a significant shift from bank direct financing and, moreover, we could see an expansion of such financing later in the year. As financial institution ratings go, so go VRDO ratings. Ratings on banks supporting VRDOs in 2022 remained stable throughout the year, and we expect that to continue.



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Tender Option Bonds (TOB)

TOB new issuance soared as interest rates rose during 2022. New issuance increased approximately 274% year-over-year to 640 new trusts rated by S&P Global Ratings as of December 2022, compared with 171 new TOBs rated in 2021. Total TOB new issuance par reached \$11.6 billion, which represents a 66% increase from 2021. The sharp increase in TOB volume was largely due to rising interest rates. Some issuers took advantage of the higher rates of the underlying municipal bonds by collapsing existing low-yield TOB trusts and creating new ones. Add-on activity also increased as issuers added more underlying bonds and issued more TOB certificates to existing trusts. We expect TOB issuance volume to remain steady or increase slightly given the relatively stable credit conditions of underlying municipal bonds, public finance sectors, and the liquidity banks, along with the rising interest rate environment.



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ABCP And Muni-Structured Issuance

	2022	2021	YoY change
ABCP			
New programs/conduits (no.)(i)	6	5	20%
New issuances (no.)(i)	29	16	81%
Outstanding amount (bil. US\$)	309.3	281.4	10%
VRDO			
New issuances (no.)	119	112	6%
Par VRDO (bil. US\$)	6.4	4.2	52%
TOB			
New sales (no.)	640	171	274%
Par TOB (bil. US\$)	11.6	7.0	66%

(i) Programs rated by S&P Global Ratings. ABCP—Asset-backed commercial paper. YoY—Year-over-year. VRDO—Variable rate demand obligation. TOB—Tender option bond. Source: S&P Global Ratings

U.S. | CLO

CLO Issuance Down, But Not Out

After record issuance volume in 2021, the U.S. CLO market experienced increasing headwinds in 2022 as the macroeconomic outlook clouded over and prospects for speculative-grade loan issuers became uncertain. The year began slowly as the market worked to find its footing amidst the requirement for new issue CLOs to be benchmarked to a rate other than LIBOR. Then, it faced increasing challenges after late February when the Russia-Ukraine conflict began and spreads on new issue CLO transactions widened significantly along with spreads on other asset types. Given the increase in spreads, resets and refinancings of CLOs slowed and then subsequently grounded to a near-complete halt, with the last refinancing and reset for the year going out in May and June, respectively, save for a single middle-market CLO that reset in December. Despite the increase in CLO tranche spreads—by July, the average CLO new issue 'AAA' was at nearly SOFR plus 220 basis points, up from around SOFR plus 130 basis points in February—new CLO issuance continued at a fairly robust pace until slowing down in the fourth quarter. Total U.S. CLO new issue volume for 2022 was \$129.32 billion, far short of the all-time record \$187 billion seen in 2021 but just edging out 2018 for the second-highest issuance year in the U.S. CLO market's history.

We believe new issuance volume in 2023 will be in a range of \$100 billion to \$120 billion, as CLO tranche spreads (especially for 'AAA' notes) tighten somewhat from their current levels but remain much wider than historical levels. U.S. bank treasury departments, which in 2021 bought new issue CLO 'AAA' notes by the tens of billions, were mostly absent from the market in 2022. They seem likely to re-enter gradually given relative value versus other asset types and competing demands for money inside the banks. Demand from Japanese banks could increase somewhat depending upon the dollar-to-yen exchange rate, but it is unlikely in 2023 to get back to the levels seen before the pandemic. U.S. insurance companies, which are major buyers of CLO mezzanine notes, may be keeping an eye on potential changes to the National Association of Insurance Commissioners (NAIC) CLO capital charges as soon as the start of 2024. Current open CLO warehouse lines may provide some support for CLO new issuance in the first half of 2023, especially if loan prices rally. CLO resets and refinancings are difficult to predict, but they will be constrained until CLO tranche spreads narrow significantly. We think reset/refi issuance will be a modest \$25 billion for 2023, about the same as it was for 2022.

LIBOR Transition: Slow At First, Now Much Faster

The transition to SOFR from LIBOR for both corporate loans and CLO notes has gone much more slowly than we expected at the start of 2022, given the modest level of corporate loans being issued or refinanced amidst this year's high credit spread environment. We also note that the LIBOR-to-SOFR basis has been variable, but much of the time SOFR plus a credit spread adjustment of even 10 basis points has still been higher than LIBOR, providing a financial disincentive for issuers to switch. At year-end 2022, less than 20% of leveraged loans in the U.S. market (by par) were indexed to SOFR, and only a dozen or so legacy CLOs have transitioned. All new issue CLO transactions in the U.S. market in 2022 had notes benchmarked to SOFR, but of the 1,050 U.S. CLOs we rate, more than 900 will need to transition in the first half of 2023 ahead of the deadline for these transactions. The remaining LIBOR-indexed corporate loans will also need to transition over the same period, although some loans with legacy benchmark transition language could effectively get a reprieve via a synthetic version of LIBOR, derived from CME term SOFR plus a credit spread adjustment (CSA). This would effectively allow certain corporate loans without robust benchmark transition language to switch to SOFR (plus a CSA) even as the

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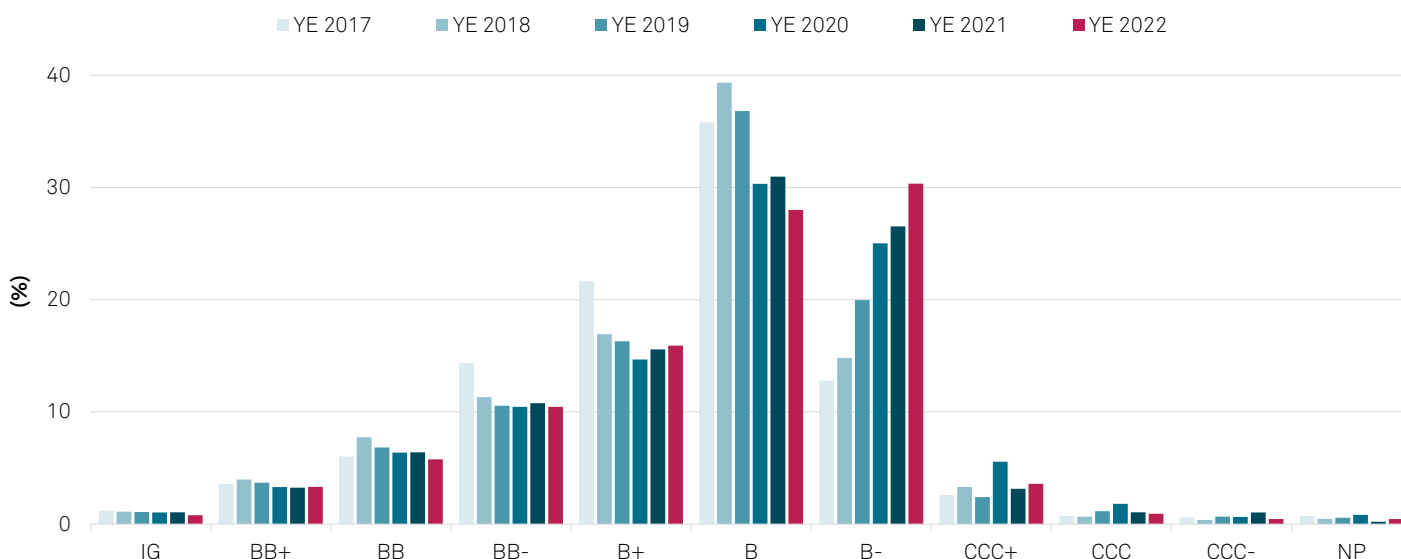
underlying loan documents continue to reference LIBOR that is defined as a number found on a specific Bloomberg screen.

Clouds On The Horizon For Leveraged Finance, But Most CLO Ratings Should Remain Stable

From a credit standpoint, we think conditions for leveraged loan issuers will likely remain under stress and worsen further given our expectation for a shallow economic recession in early 2023, with risks firmly weighted to the downside. The positive momentum that had been carrying speculative-grade corporate ratings coming out of the pandemic has largely been spent, and since May 2022, corporate ratings downgrades have exceeded upgrades. With interest rates rising and earnings growth slowing, we expect continued pressure on corporate ratings and an increase in downgrades.

Loans from obligors rated ‘B-’ remain a focus. The tally of these loans now stands at just over 30% of U.S. broadly syndicated loan (BSL) CLO collateral pools by par, up from less than 13% just five years ago (see chart below). This change in CLO collateral mirrors the ratings composition of the overall loan market and isn’t the result of a bias towards ‘B-’ assets by CLO managers. However, if just 20% of these loans were to see a downgrade next year, the average BSL CLO ‘CCC’ basket could increase to more than 11% of total CLO assets, up from the current 5.2%. This would put pressure on CLO junior tranche overcollateralization (O/C) rate test cushions, which at year-end 2022 stood at a relatively healthy level of just under 4.5%. Since most U.S. BSL CLOs haircut the value of ‘CCC’ assets above a 7.5% threshold for purposes of calculating the O/C tests, any increase above that level will start to erode O/C test cushions, and it seems likely we’ll see more junior O/C test failures next year. It’s also worth noting that the averages mask significant differences between CLOs originated before the arrival of the pandemic versus those originated since, with the pre-pandemic CLOs having higher exposure to ‘CCC’ assets and tighter O/C test cushions than those originated after.

Reinvesting U.S. BSL CLO Collateral By Obligor Rating (2017-2022)



YE—Year-end. IG—Investment-grade. NP—Non-performing. Source: S&P Global Ratings.

We also forecast a moderate increase in U.S. CLO asset default rates next year. For speculative-grade corporate debt companies, including both bond and loan issuers and both payment defaults and selective defaults, we expect the 12-month trailing default rate to reach 3.75% by the end of third-quarter 2023 (see [“The U.S. Speculative-Grade Corporate Default Rate Could Reach 3.75% By September 2023,”](#) published Nov. 21, 2022). For the LSTA Leveraged Loan Index, we expect a payment default rate of 2.5% over the same period (see [“The Morningstar LSTA U.S. Leveraged Loan Index Default Rate Could Rise To 2.5% By September 2023,”](#) published Dec. 7, 2022). Despite the negative bias of our economic outlook, both forecasts are relatively modest, and neither is higher than its long-term historical average. This is largely a function of the loan maturity wall that got pushed out significantly amidst heavy issuance and refinancing volumes in 2021.

Finally, obligors in U.S. BSL CLO collateral pools with a negative rating outlook continue to creep upward, increasing to 15.18%. Combined with ratings on CreditWatch negative (currently 0.14%), the proportion of CLO assets with a negative rating bias is 15.32%, up from just over 11% back in May 2022. We view rating outlooks and CreditWatch placements as important forward-looking indicators of potential shifts in CLO collateral credit quality, and this increase in ratings with a negative bias in the second half of 2022 points to a potential shift in leveraged credit since the middle of the year, although still less than historical averages.

Credit Metrics For Reinvesting BSL CLO Transactions In 2022

As of date	'B-' (%)	'CCC' category (%)	Nonperforming assets (%)	SPWARF	WARR (%)	Watch neg. (%)	Negative outlook (%)	WAPP	Jr. O/C cushion (%)	% of target par	Turnover (%)
1/1/22	26.41	4.94	0.17	2700	60.44	0.88	12.33	98.79	4.37	99.68	0.00
2/1/22	27.16	4.27	0.37	2708	60.43	0.28	11.94	98.83	4.41	99.68	5.68
3/1/22	27.09	4.26	0.39	2708	60.41	0.11	11.35	98.02	4.40	99.68	8.15
4/1/22	27.44	4.17	0.13	2690	60.45	1.06	10.86	97.88	4.31	99.69	11.35
5/1/22	27.76	4.26	0.14	2700	60.45	1.20	9.83	97.57	4.30	99.70	14.46
6/1/22	27.70	4.14	0.20	2706	60.48	1.27	10.46	94.60	4.39	99.71	16.66
7/1/22	28.59	4.01	0.35	2720	60.27	1.35	11.08	92.19	4.45	99.74	19.55
8/1/22	28.70	4.00	0.34	2726	60.32	1.46	11.53	93.81	4.47	99.78	21.86
9/1/22	29.00	4.21	0.59	2754	60.24	1.03	12.20	94.85	4.50	99.81	23.61
10/1/22	28.85	4.40	0.50	2751	60.16	1.16	13.36	92.12	4.50	99.82	25.58
11/1/22	28.85	5.02	0.40	2754	60.13	0.59	14.46	92.40	4.47	99.84	27.05
12/1/22	29.50	4.95	0.34	2749	60.15	0.32	14.62	93.08	4.44	99.85	28.39
1/1/23	30.03	5.23	0.50	2764	60.20	0.14	15.18	92.88	4.45	99.85	30.55

SPWARF—S&P Global Ratings' Weighted Average Rating Factor. WARR—Weighted average recovery rate. WAPP—Weighted average price of portfolio. O/C—Overcollateralization. Source: S&P Global Ratings.

Despite the shift in credit sentiment, our outlook for U.S. CLO ratings remains relatively benign under our current base case economic forecast. We think there may be limited numbers of subordinate tranche ratings that see downgrades, with most of these coming from CLOs originally issued prior to the arrival of the pandemic, due to the higher 'CCC' exposure and tighter O/C test cushions on these CLOs. Among these, the most likely candidates for a downgrade would be tranche ratings that made it through the pandemic without being lowered, since these presumably have tighter rating cushions. If the economy underperforms our base-case forecast and places more strain on leveraged loan issuers, then a larger number of corporate rating CreditWatch negative placements and downgrades could affect more CLO tranche ratings;

Global Structured Finance 2023 Outlook

although even under a negative scenario, we expect a large majority of the downgrades to affect tranches at the 'BBB' level and below. We note that in 2020, which saw 'CCC' and default exposures across reinvesting U.S. BSL CLO portfolios peak at 12.3% and 1.6%, respectively, the vast majority of CLO rating downgrades (96.2%) were on tranches rated 'BBB' and below.

U.S. | RMBS

Interest Rate Uncertainty Continues To Weigh On Markets

The rapid increase in U.S. home prices that began at the onset of the COVID-19 pandemic started to change course in the second half of 2022 as mortgage rates rose to levels not seen since the turn of the millennium. The 30-year fixed rate mortgage not only increased over 300 basis points, but did so within a span of six months—a pattern that resembles the early 1980s experience. Such a shock to principal and interest payments on new mortgages might have had greater impact upon home prices were it not for solid market fundamentals, including limited new home supply and household formation among the millennial generation. Our 2023 outlook for residential mortgage-backed securities (RMBS) is somewhat pessimistic, market fundamentals notwithstanding. Given the rapid rise in rates and impending economic headwinds, home price growth has stalled and even started to decline in many regions. Although we don't believe the U.S. is experiencing a housing bubble, in our view, the pace of home price appreciation over the past two years was unsustainable and a correction was overdue.

In addition to our expectation that securitization issuance remains volatile until the Federal Reserve (the Fed) pivots in its battle against inflation, we are also forecasting origination activity across the country to be substantially lower than it was in 2022, thereby reducing the volume of assets eligible for securitization issuance activity. Moreover, if the risk of rising unemployment materializes in 2023, we could see performance deterioration of residential mortgage credit. However, we believe this downturn will differ from that of the Global Financial Crisis (GFC) of 2008 because of stronger home equity positions, better underwriting, and historically low, locked-in, financing costs for most mortgagors. Further, our base case forecast of a 5.6% unemployment rate by fourth quarter 2023 is milder than GFC-era unemployment, which peaked at 10% in October 2009 and remained between 9% and 10% until October 2011.

Although issuance for non-agency RMBS took a nose-dive in the second half of 2022, annual volume still finished on firm ground at roughly \$140 billion. Had it not been for the rapid increase in rates, 2022 issuance could have outpaced the strong 2021 footprint of around \$190 billion. We forecast that non-agency U.S. RMBS issuance will be roughly \$85 billion in 2023. This estimate incorporates the expected 6.7% average of the 30-year fixed-rate mortgage for 2023 (see "[Economic Outlook U.S. Q1 2023: Tipping Toward Recession](#)," published Nov 28, 2022); the projected decrease in mortgage originations (the Fannie Mae forecast is roughly \$1.7 trillion in 2023, down from approximately \$2.3 trillion in 2022); interest rate volatility until the Fed pivots; an atypically large spread of the 30-year fixed-rate mortgage to the 10-year Treasury note; behavioral aspects of consumers and housing markets in a post-COVID-19 pandemic world; and the convexity profile of RMBS in light of current interest rate levels. Even though an overall issuance cooldown is expected, some sectors may be more immune to annual changes. However, most sectors are expected to undergo material reductions in issuance (see chart below).

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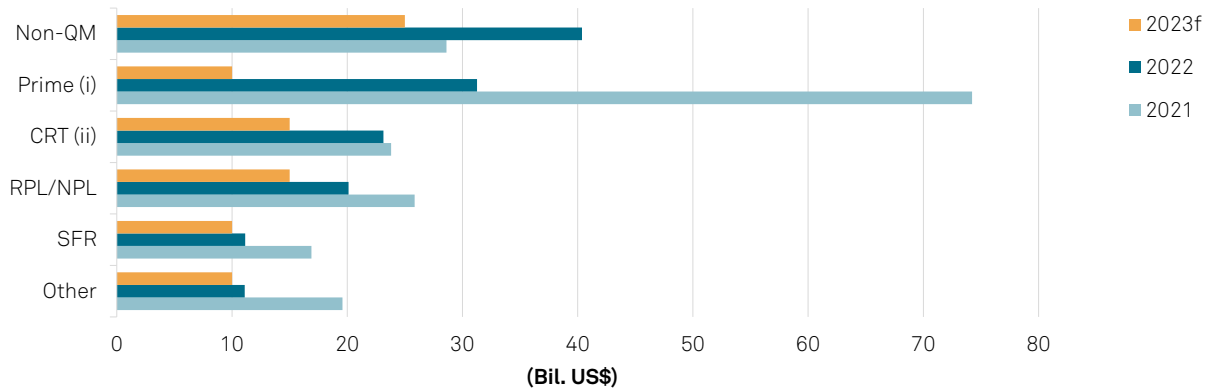
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U.S. Non-Agency RMBS Issuance

2021 and 2022 actuals vs 2023 forecast



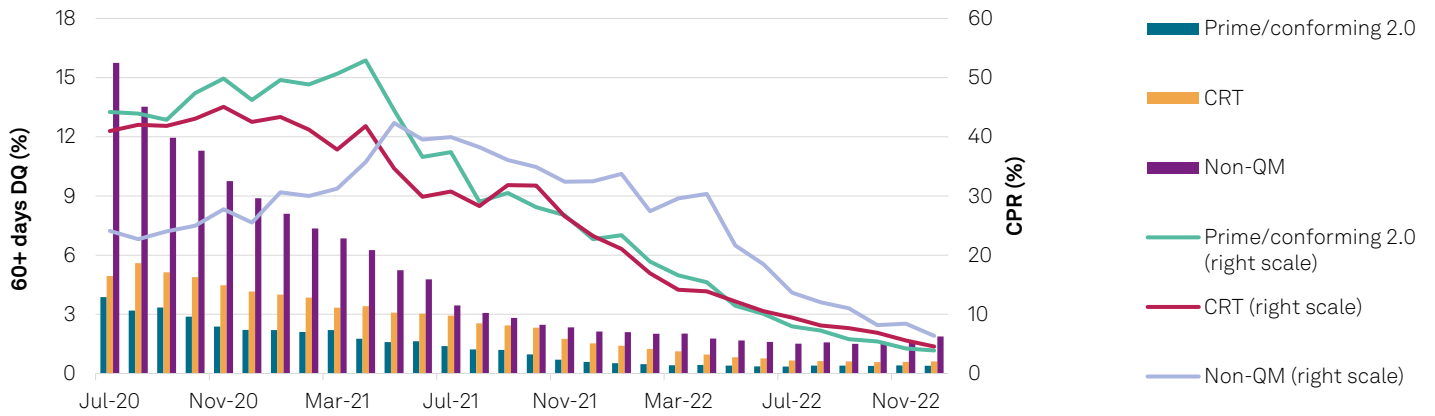
(i)Prime jumbo and conforming. (ii)Includes mortgage insurance CRT. f—Forecast. QM—Qualified mortgage. CRT—Credit risk transfer. RPL—Re-performing loan. NPL—Non-performing loan. SFR—single family rental. Source: S&P Global Ratings.

One of the factors that affects residential borrower credit performance is downward pressure on home prices. Another potential driver of delinquencies that could emerge this year, is the likely increase in the unemployment rate at the end of 2023, which our economists expect could reach 5.6% in fourth quarter 2023 from the current level of 3.5%. The trailing impact of inflation could also weigh on obligor performance, although the chart below shows that it has so far had a minimal impact since the summer of 2022. Much of the recently strong consumer performance is attributable to government stimulus programs and strong household balance sheets that were built up during the COVID-19 pandemic. Whether this holds up during 2023 remains to be seen.

Historically low prepayment speeds continuing through the year will extend bond lives and dampen the deleveraging effects observed during the past several years. However, more recently originated assets in securitizations could experience some prepayment jumps if the 30-year fixed-rate mortgage level starts to come down from recent highs.

Although we expect an uptick in delinquencies in 2023, these should be well-below previous spikes given the generally strong home equity positions and the large share of homeowners benefiting from low fixed-rate mortgage financing (which acts as a natural inflation hedge); the relatively low expected unemployment rate; strong mortgage underwriting over the past 10 years; and the increased utility of housing attributable to post-COVID-19 pandemic remote-work arrangements.

One-Month CPR And 60+ Days Delinquency Rate By Sector



CPR—Conditional prepayment rate. DQ—Delinquency (rate). QM—Qualified mortgage. CRT—Credit risk transfer. Source: S&P Global Ratings.

U.S. | CMBS

Issuance And Sector Fundamentals

We expect \$60 billion in private-label U.S. CMBS issuance in 2023 (not including commercial real estate [CRE] CLOs). In 2022, issuance was down roughly 36% year-over-year to \$70 billion.

2022 was a mixed year for the private-label CMBS market. While pandemic uncertainties eased, multi-decade record inflation, rising interest rates, and the uncertainty brought on by the Russia-Ukraine war led to tighter financing conditions. Issuance volume ended the year at around \$70 billion, down from 2021's post-Global Financial Crisis (GFC) high of \$110 billion. The total would have been notably lower if not for the record amount of loan originations in the fourth quarter of 2021, which contributed to a post GFC record \$29.2 billion of first-quarter 2022 issuance volume. The single asset single borrower (SASB) sector continued its trend of leading issuance accounting for approximately 65% of total volume. While we had anticipated fixed-rate conduit volume to pick up for 2022 given the expectation of higher interest rates and asset purchase tapering by the Federal Reserve, the uncertainty brought on by the Russia-Ukraine war meant that credit spreads widened along with rising benchmark rates. In such an environment, the preferability of more prepayment flexibility offered by shorter-term floating-rate debt allowed the SASB market to continue dominating issuance volume, a trend unlikely to change in 2023. Looking ahead, we see current and evolving headwinds that could continue challenging issuance volume.

The question of how high (and for how long) interest rates may rise is chief among these challenges. Moreover, the unpredictable timeline and outcome of the Russia-Ukraine war suggest that credit spreads may remain elevated for at least the first half of 2023, if not longer. The concern here is twofold: a market with reduced liquidity (a particular concern for a sector characterized by interest-only loans with balloon maturities) and growing risks of a recession in 2023 as successive rate hikes take hold. Immediate effects are already clear: loan coupons have effectively doubled in the last 12 months from roughly 3% to over 6%, stressing loan debt service coverages (DSCs), and the cost of interest rate caps for floating-rate debt has skyrocketed. On a more hopeful note, recent inflation indicators have shown signs of easing in terms of year-over-year growth and may allow for a lower than previously anticipated terminal fed funds rate.

Another challenge for the year ahead is our base-case economic view, which includes a shallow recession in 2023. Consumer-facing asset types such as lodging and retail properties have historically been first to show distress in such periods. However, signs indicate the office sector, facing the post-pandemic reality of reduced office space demand, may be more vulnerable than in prior downturns. Viewed collectively, the balance of probabilities suggests to us private-label CMBS issuance volume will be down in 2023; however, with perhaps somewhat higher SASB and somewhat lower conduit issuance.

Sector Contacts

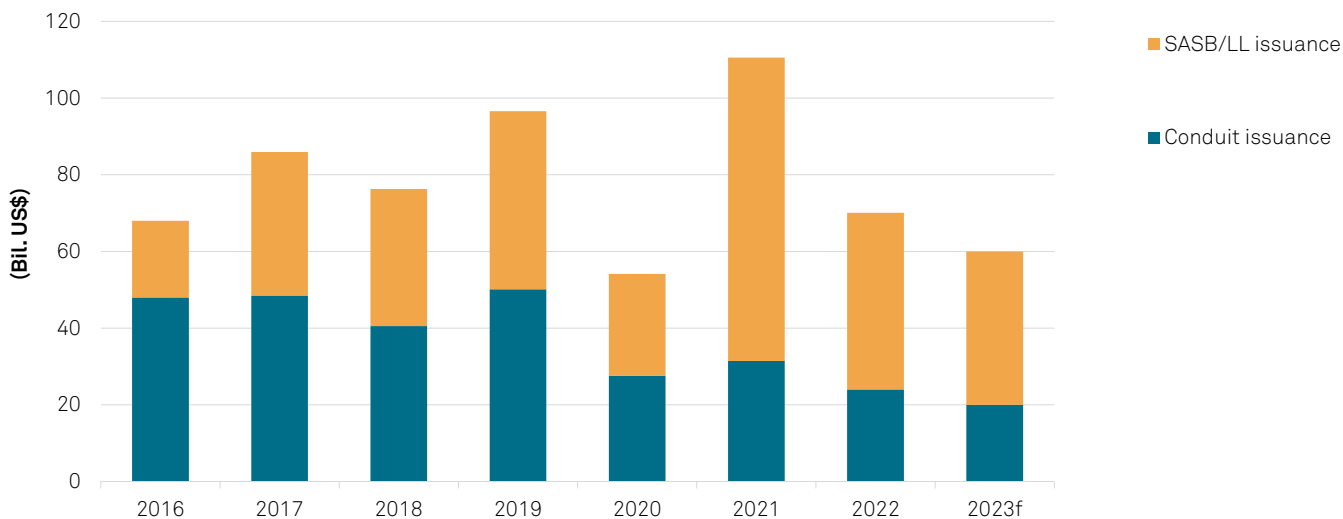


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U.S. CMBS Issuance



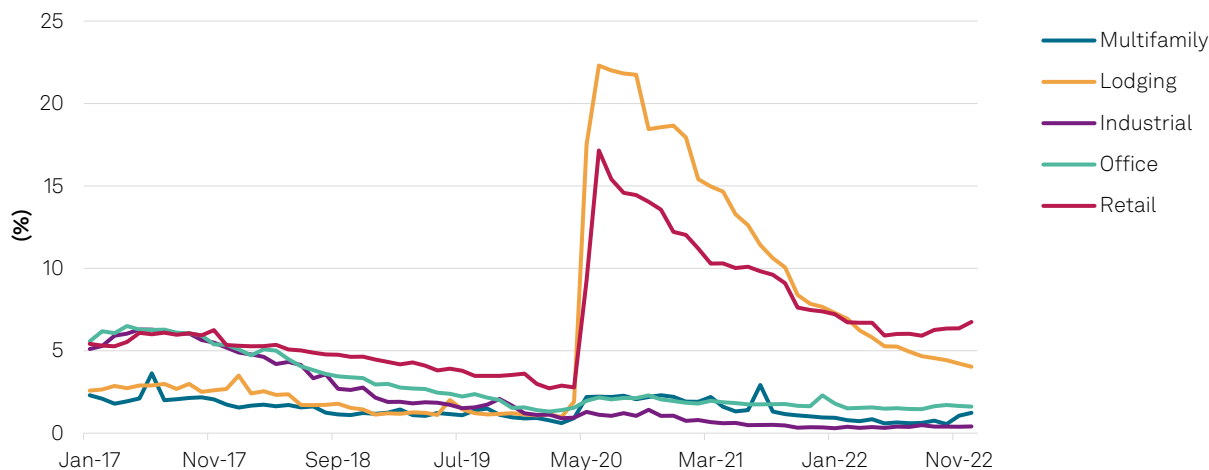
SASB—Single asset single borrower. LL—Large loan. f—Forecast. Sources: Commercial Mortgage Alert, S&P Global Ratings.

Credit And Collateral Performance Outlook

After a decade of significant price appreciation and strong fundamentals across most sectors, valuations have come under pressure mainly due to rising rates. While all sectors are confronting a tighter financing market, retail malls and office assets have been under acute pressure given their cloudy outlooks. According to Green Street's Commercial Property Price Index (CPPI), aggregate property prices as of November 2022 had decreased 13% from recent peaks. Lodging was down 5%, office was down 14%, and retail malls were down 21%. Historically low cap rates have also started to rise but with a notable lag relative to benchmark rates, leading in some cases to negative leverage, though only for assets with relatively stronger fundamentals (i.e., multifamily, and industrial).

On the performance side, as of January 2023, the overall CMBS delinquency rate was around 2.6%, with uneven credit performance by property type. The chart below shows that lodging late payment rate reached a recent peak over 20%, and now sits at around 4.0%, while retail now stands higher at around 6.7%. Office, multifamily, and industrial, the other three major areas, remain below 1.6%. Though the overall delinquency rate is down, 92.9% of delinquent loans are 60-plus days delinquent and 27.8% are 120-plus days delinquent. In addition to the delinquency rate, 4.4% of loans were also classified as being with the special servicer. Like delinquency trends, retail and lodging had the highest special servicing rates at 10.7% and 6.2%, respectively, followed by office at 3.6%. Multifamily and industrial are 1.3% and 0.4%, respectively. While the special servicing rate has been increasing since midyear, we anticipate the delinquency rate to follow suit in the year ahead given the expected rate and spread environment and our expectation for a shallow recession. We remain focused on multiple areas, though ratings closely tied to lodging, retail, and near-term loan maturing office collateral, especially in SASBs, remain priorities.

Delinquency Rate By Property Type



Source: S&P Global Ratings.

Lodging

In the year-to-date (YTD) period ended September 2022 versus the same period in 2021, U.S. RevPAR increased 34.9% due to occupancy gains stemming from continued strength in leisure demand, the return of group business, and a nascent (and limited) recovery of corporate travel. ADR also improved significantly during the same period, placing it about 13% (or about \$17) above pre-pandemic levels in 2019. As a result, RevPAR in the YTD period ended September 2022 exceeded 2019 levels by 6.4%, despite occupancy rates (63.6% versus 67.4%) remaining below those in 2019. While the improvement in RevPAR is favorable, ADR remains below 2019 levels when adjusted for (recently high) inflation, and ADR gains will likely moderate if the threat of recession lingers and if consumers pull back on the room rates they are willing to pay for lodging.

As for issuance, lodging-backed conduit collateral remained muted in 2022 with roughly \$1.6 billion of issuance, though already above 2021's total of \$940 million. For SASB issuance, lodging transactions in 2021 and 2022 totaled \$12.3 billion and \$10.5 billion, respectively. While SASB issuance has rebounded since 2020, we believe issuance volume will likely remain muted in the near-term because of rising interest rates and, to a lesser extent, the recent increased cost for interest rate caps (see "[Rising Rates Amid Looming Balloon Dates: Performance Update And Scenario Analysis For Lodging-Backed CMBS](#)," published Nov. 16, 2022).

Retail

The retail sector continued rebounding in 2022 from its pandemic lows, with strong sales and rent growth. The broader retail environment also thrived on the back of pent-up consumer demand for unique shopping experiences and consumers' relatively healthy balance sheets. Interestingly, the decline of e-commerce's share of total retail sales in the last year suggests a renewed balance may be forming between online and brick and mortar sales. The pandemic forced retailers to innovate and refine their fulfillment strategies to accommodate unrelenting customer demand for a flexible, multi-channel shopping experience. As the line between physical and pure online retail continues to blur, their coexistence may emerge as powerful complements rather than substitutes in a retail space where consumers desire increasing flexibility.

Nonetheless, with record high inflation and accompanying interest rate hikes; retail demand will likely experience a pull-back due to increased debt and living costs. In addition, retail sales comparison increases are expected to slow as they go up against recent periods supercharged by stimulus and pent-up demand. Lastly, a notable amount of retail malls continues to be burdened with maturing loans, which are unable to be refinanced, leaving mortgage servicers few options aside from loan modifications and extensions, a trend we expect to be even more common in the year ahead.

Office

Although it has been about two and a half years since the onset of the COVID-19 pandemic, there is growing conviction that the office sector may remain relatively more impaired than any other CRE sector, even as social distancing measures have been largely removed. Many office buildings, both in central business districts (CBDs) and suburban settings, remain deeply underutilized, suggesting that once-deemed "temporary" workplace arrangements have become more permanent (or at the very least hybrid) in nature.

Office buildings enjoy some of the longest tenant lease terms in CRE—often 10 years or more—which likely masks the true scale of their current underutilization. These longer lease terms have given office landlords time and been key in keeping overall CMBS office loan special servicing and delinquency rates at relatively low levels. Despite this advantage, U.S. office vacancy rates have increased steadily, to a pandemic-era high of 17.8% as of third-quarter 2022, according to Cushman & Wakefield. In New York City's three main Manhattan office markets, which collectively account for 11% of the total U.S. office market, the overall vacancy rate stood at 21.9% for the third quarter, compared to the historical average of 11.5%. Much of the increase in vacancy rates is being driven by increased supply in the form of new developments that were in the pipeline prior to the pandemic. However, a certain percentage of office tenants, including tech and media sector companies, have begun to give up space as they "right-size" their real estate footprint to account for business headwinds and employees continuing to work remotely. This will add pressure in the form of lower renewal rates, which translate to higher vacancy rates and, eventually, lower asking rents. This new equilibrium will take years to fully form as larger shares of leases reach their expiration dates.

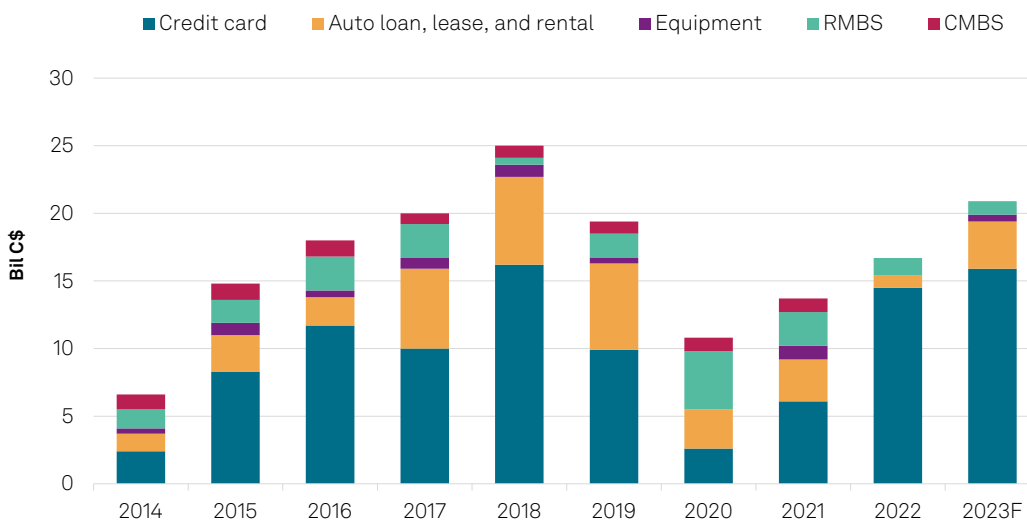
On a more positive note, many office buildings and most in CBD markets are multi-tenanted, meaning lease expiration or rollover schedules are often staggered, allowing landlords time to secure new tenants. In addition, many loans require excess cash flow to be escrowed for releasing purposes if major tenants have given notice that they will not renew. Office buildings, especially in primary markets, are major assets, often with significant land value given their proximity to transit infrastructure, suggesting landlords have every incentive to protect their equity. Lastly, many companies have started mandating return-to-office policies ranging from hybrid to full-time, increasing office utilization rates. Cities less dependent on public transportation, such as those in the Sunbelt, have experienced higher office utilization rates throughout the pandemic than their mass-transit-dependent counterparts, and this trend may very well continue. Still, considering the headwinds affecting the office property sector, we conducted various scenario analyses to test the resilience of our U.S. conduit CMBS ratings to potential adverse value movements. Super senior classes, on average, appear relatively insulated to our stresses, with more potential downward rating movement present in 'A' and 'BBB' rated classes in our more severe scenarios (see ["Exploring The Potential Impact Of Office Value Declines Beyond The Base Case In U.S. Conduit CMBS,"](#) published Oct. 2022).

Canada | Structured Finance

Issuance

Our 2023 outlook for Canadian ABS collateral performance is somewhat weaker, but ratings in 2023 are likely to remain steady. We expect a Canadian term ABS volume of approximately C\$21 billion in 2023, driven by an estimated C\$16 billion in credit card ABS issuance and C\$3.5 billion in auto ABS issuance (see chart below). We estimate that approximately 25% to 30% of Canadian credit card and auto loan ABS will be cross-border issuance into the U.S. market. RMBS volume is estimated at C\$1 billion, and commercial equipment ABS at C\$0.5 billion.

Canadian Term ABS Issuance(i)



(i) Public Issuance. F—Forecast. Source: S&P Global Ratings.

Credit Card ABS

The Issuance volume of about \$14.5 billion in 2022 exceeded estimated maturities of about C\$5 billion and was a reversal of the scarcity of issuance in the previous two years (see chart below), driven in part by approximately C\$6.4 billion in credit risk transfer ABS. Our 2023 forecast of C\$16 billion, a net new issuance of approximately C\$11 billion, is contingent upon Canadian bank originators maintaining diversified funding platforms, the relative all-in cost of funds advantage of credit card ABS relative to longer-term and alternative funding methods, and positive asset growth in need of funding. General market conditions and investor preference will continue to influence U.S. cross-border volume in 2023. We estimate that about 25% of credit card ABS will be cross-border transactions.

Sector Contacts

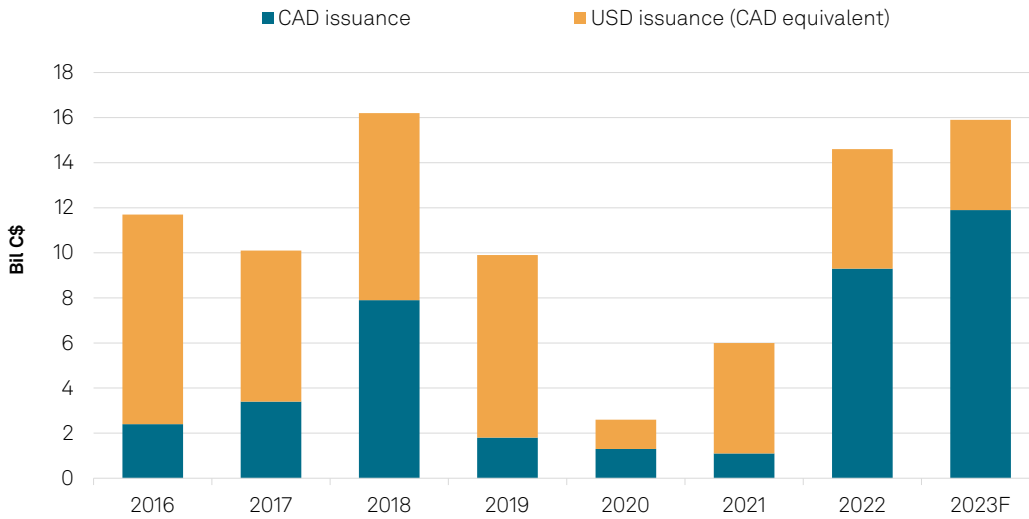


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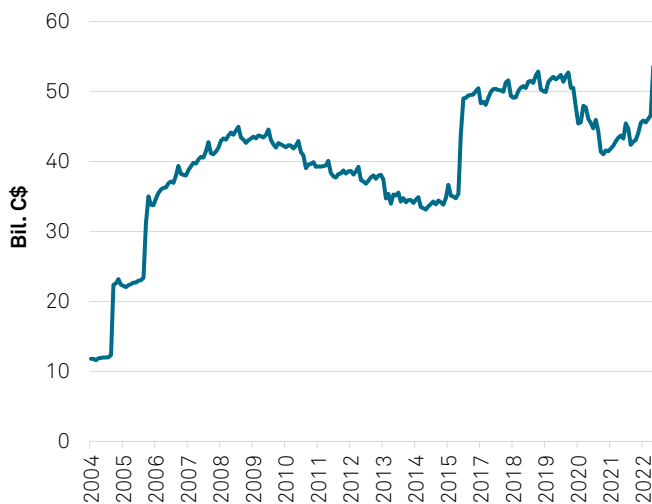
Canadian Credit Card ABS: Domestic And Cross-Border Issuance(i)



(i)Public Issuance. F—Forecast. Source: S&P Global Ratings.

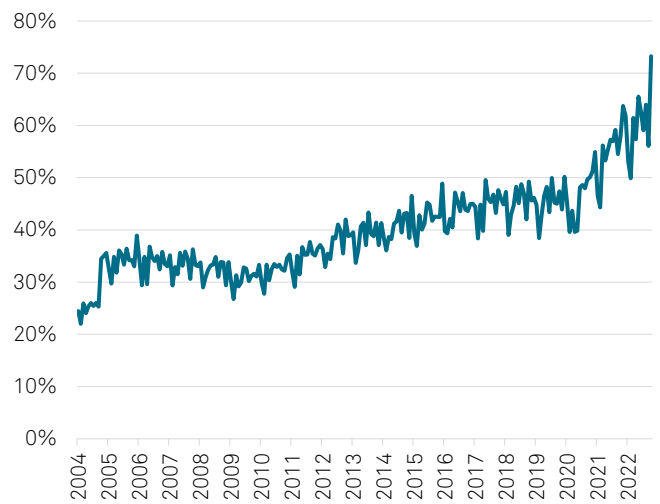
Receivables for the credit card trusts we track in our Canada Bankcard Credit Card Quality Index (CCQI) are generally of a higher credit quality than the broader Canada credit cards market. On average, approximately 84% of the receivables are from accounts that are at least five years old. Accounts with credit scores of 700 and above make up approximately 75% of receivables, and the receivables are also geographically diverse, with province exposure consistent with the nation's population distribution. These strong credit metrics continue to influence Canada CCQI performance, which remained strong throughout the market dislocation and into current economic headwinds (see charts below). In 2023, we expect collateral performance to normalize and be somewhat weaker, and we believe ratings will generally remain stable.

Canadian CCQI: Receivables Outstanding



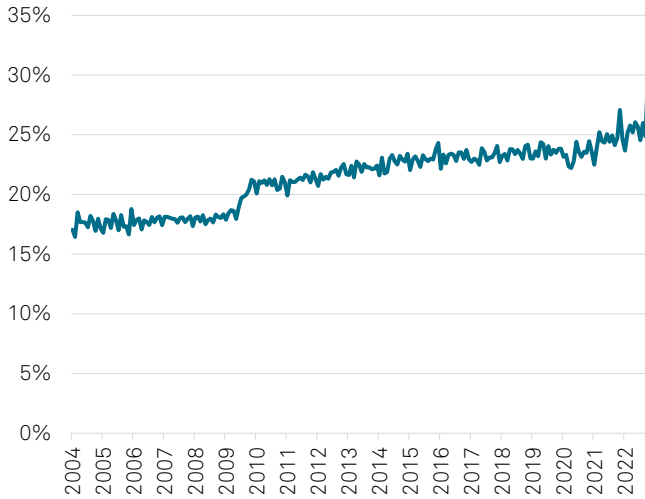
CCQI—Credit Card Quality Index.

CCQI: Payment Rate



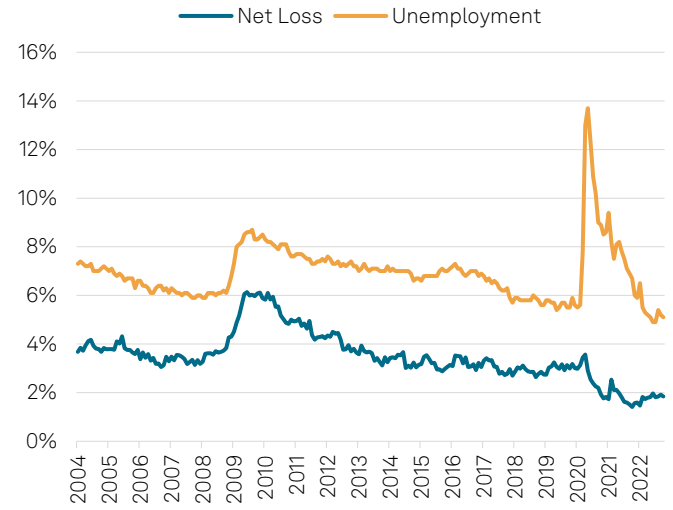
CCQI—Credit Card Quality Index.

Canadian CCQI: Yield



CCQI—Credit Card Quality Index.

CCQI: Net Loss Rate

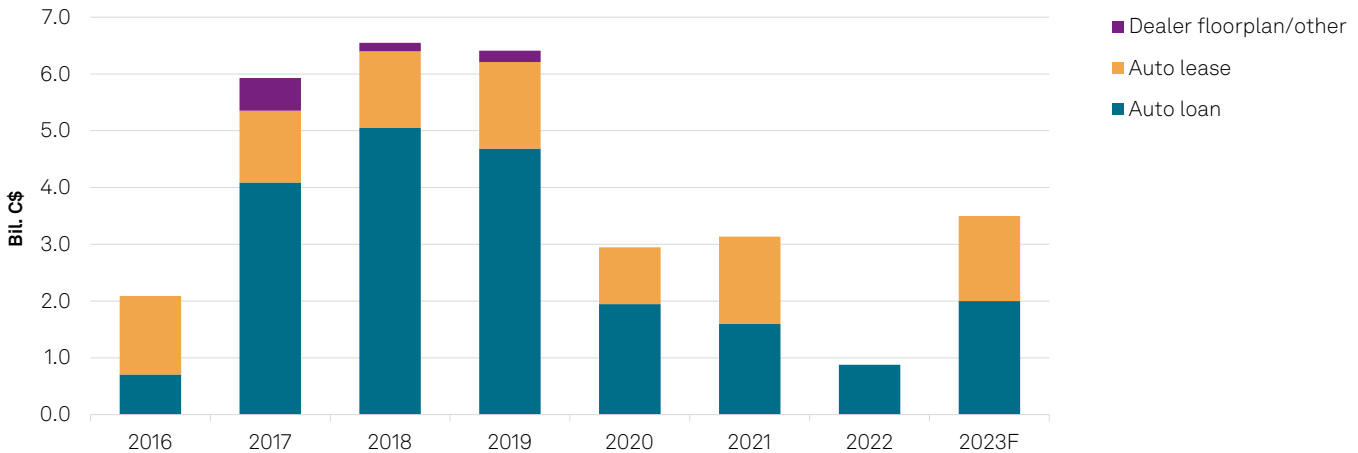


CCQI—Credit Card Quality Index.

Auto Loan, Lease, And Dealer Floorplan ABS

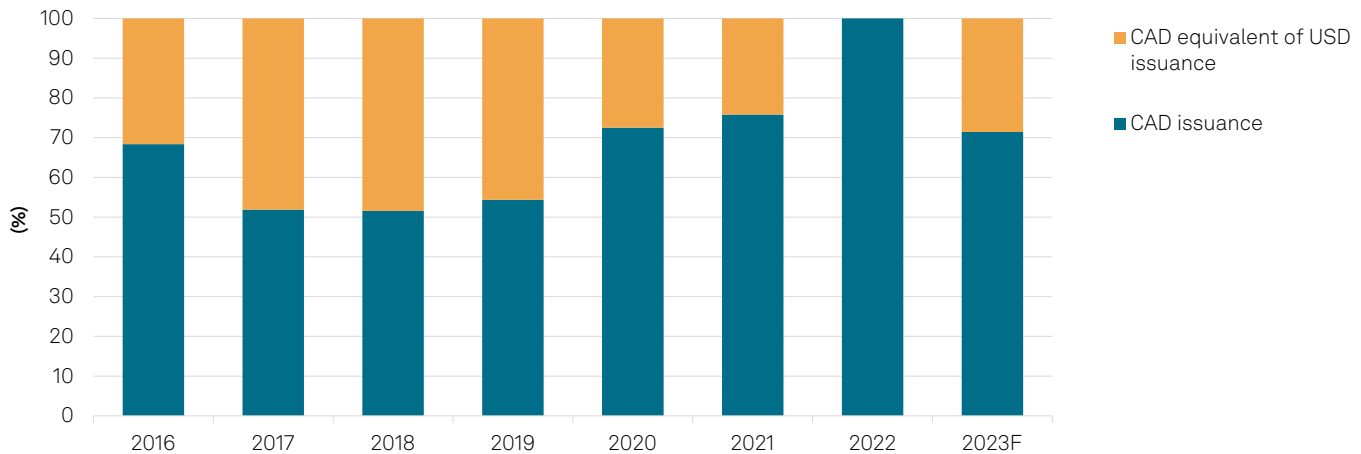
Our forecast for auto ABS in 2023 is C\$3.5 billion, split between term loan (60%) and lease ABS (40%) (see Canadian term auto ABS issuance chart below). Our expectation for increased auto loan ABS volume is predicated upon issuers reverting to their typical issuance patterns in 2023. The normalization of vehicle wholesale prices, residual values, and the easing of supply constraints along with higher consumer affordability and job market strength, should allow investors to reassess their risk-return requirement and issuers to attain cost-effective funding. We estimate that approximately 70% of issuance will be in the Canadian domestic market (see Canadian domestic and cross-border auto ABS issuance chart below), with the U.S. market remaining an attractive option for bank originators.

Canadian Term Auto ABS Issuance(i)



(i)Public Issuance. F—Forecast. Source: S&P Global Ratings.

Canadian Term Auto ABS: Domestic and Cross-Border Issuance(i)

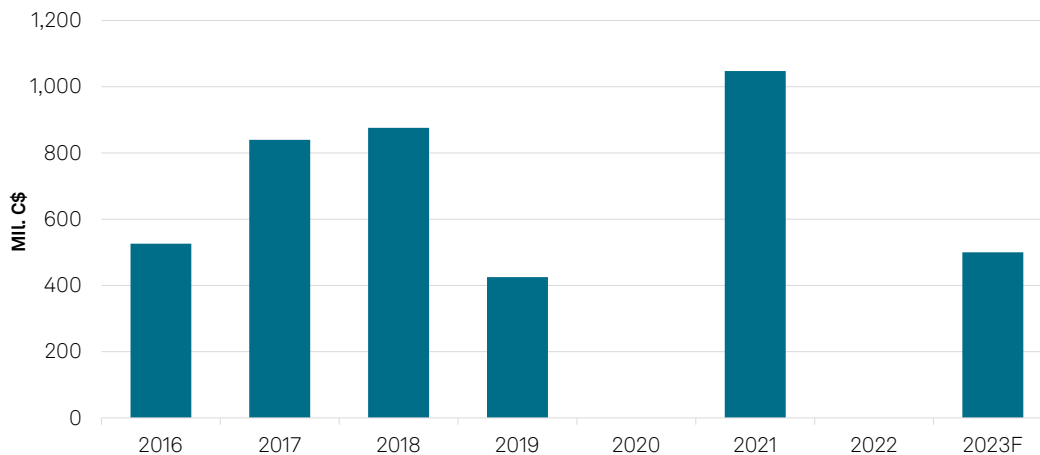


(i)Public Issuance. F—Forecast. Source: S&P Global Ratings.

Commercial Farm Equipment ABS

Despite higher crop prices, supply constraints, and other factors, which are beneficial to agricultural-related equipment, spread volatility constrained issuance in 2022 (see chart below). In 2023, we estimate at least C\$0.5 billion, assuming issuers return to their typical issuance cadence and market spread volatility eases.

Canadian Term Equipment ABS Issuance(i)



(i)Public issuance. F—Forecast. Source: S&P Global Ratings.

RMBS

We expect non-insured RMBS volume to be C\$1 billion in 2023. Higher interest rates, consumer indebtedness, and deteriorating affordability are risks facing the housing market and will continue to influence the RMBS issuance volume. National home prices, despite a recent retreat, remain elevated. Canadian lenders' capital levels and credit underwriting, including borrower stress tests, remain robust. These lenders are primarily banks, which originate approximately 75% of residential mortgage credit. Borrowers' equity, stable debt servicing levels, savings levels, and unemployment will continue to impact collateral performance.

Europe | Structured Finance

Collateral Performance And Credit Outlook

Higher prices and interest rates will put pressure on European structured finance credit performance in 2023. Despite targeted fiscal measures providing some relief, headline inflation has repeatedly hit multi-decade highs during 2022, which is credit-negative for collateral in consumer-related securitizations. While we expect base effects to gradually lower inflation through 2023, wages will take longer to adjust, and consumer confidence is close to record lows across Europe. We expect policymakers to pause rate tightening by early 2023, and longer-term market benchmarks have already stabilized, but at levels that are likely to cause a significant "payment shock" for borrowers on floating-rate loan contracts or at refinancing.

That said, the European labor markets look set to remain unusually resilient during the coming economic contraction. This is a significant supportive factor and a major reason why our overall economic outlook is for a moderate recession and not much worse. Even though double-digit inflation will squeeze consumer incomes, most households will still be able to rely on a steady stream of wages, which has often not been the case in previous recessions. We expect both eurozone and U.K. unemployment rates to edge higher in 2023, but to average only 7.0% and 4.6%, respectively. If unemployment were to remain this stable, it would bode well for structured finance ratings migration, despite high inflation. In the past 20 years, rating movements have shown a 77% negative correlation with unemployment but a limited correlation with inflation.

For corporate-backed transactions, credit prospects will also be dimmer in 2023, as European companies grapple with the effects of the Russia-Ukraine war, the energy transition, and supply chain vulnerabilities. Energy-intensive, consumer discretionary, and leveraged corporate sectors will likely be hit hardest. Broadening input cost pressures, rising funding costs, and potential contractions in demand will increasingly weigh on earnings, particularly in more competitive sectors that lack pricing power.

We expect a moderate increase in the annualized default rate for speculative-grade corporates to 3.25% by September 2023--slightly higher than the 10-year average. That said, the previous spike in default rates in 2020-2021 had little effect on European collateralized loan obligation (CLO) ratings, as collateral managers were able to mitigate credit deterioration through trading activity.

In 2022, we lowered fewer than 2% of our ratings on securitizations in Europe. Commercial mortgage-backed securities (CMBS) backed by retail assets were most affected, but this sector constitutes a small portion of our European securitization ratings. For most asset classes, the 12-month trailing average change in credit quality has been positive for several years, indicating aggregate upward rating movements (see average change in credit quality chart on following page). Although the trend weakened during the COVID-19 pandemic, it has since reversed. CMBS ratings continued to fall by an average of 0.2 notches in the 12 months ended September 2022, but other sectors saw net upgrades, and overall, our European structured finance ratings rose by an average of 0.2 notches.

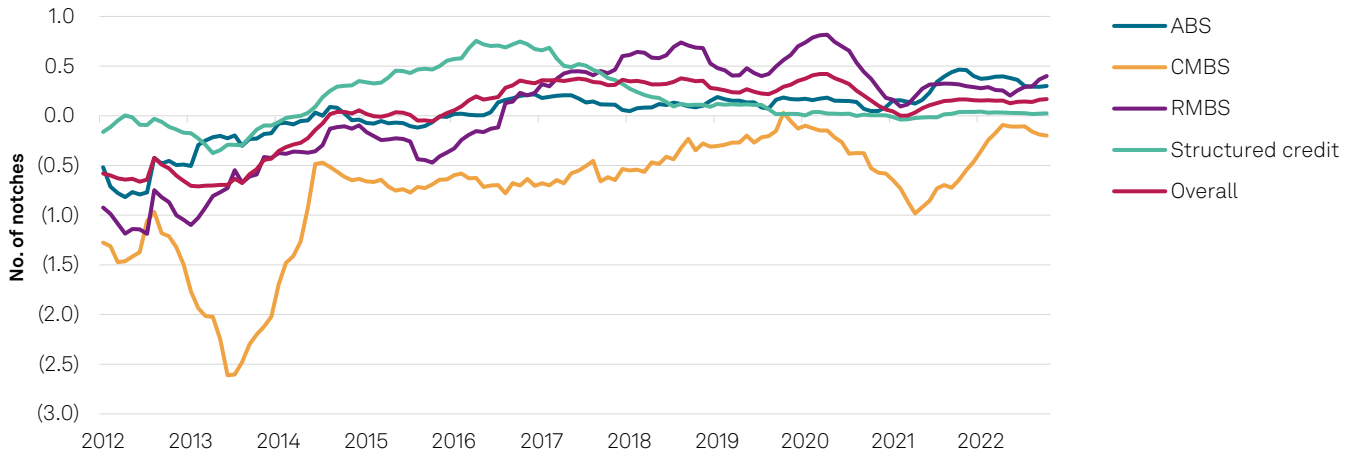
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European Structured Finance Average Change In Credit Quality

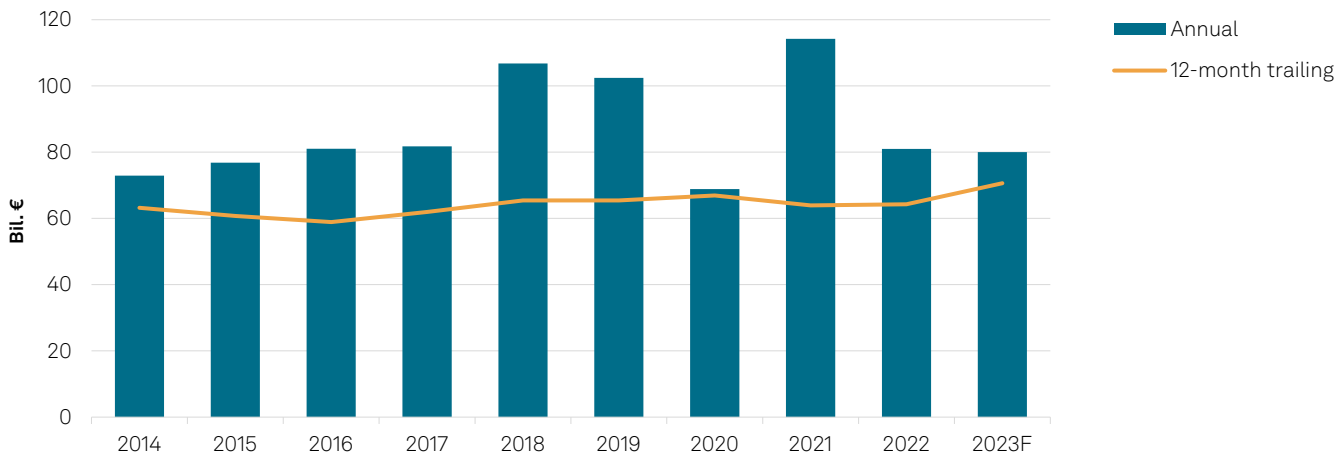


Data as of October 2022. Average change in credit quality = the average number of notches by which ratings across all tranches in each sector changed on a trailing 12-month basis. Securities whose ratings migrated to NR (not rated) during the sample period are classified based on their rating prior to NR. Source: S&P Global Ratings.

Issuance

After a buoyant start to 2022, investor-placed European securitization issuance slumped in the second half of the year, ending 30% down on 2021 volumes, at €81 billion. This was only modestly higher than in the pandemic-stricken year of 2020, and below the annual average of the prior decade (see chart below). Issuance may remain flat at about €80 billion in 2023, due to a smaller volume of legacy transactions with upcoming call dates and muted underlying credit origination, especially for leveraged loans that back CLOs. That said, we expect the uncertainty surrounding the path of spreads and underlying interest rates to gradually ease, allowing both originators and investors to recalibrate. Looking ahead, bank-originated securitization issuance is a potential bright spot after a decade of stagnation. Central bank liquidity schemes that have helped fund financial institutions for many years are now in the early stages of wind-down, which, together with slowing rates of deposit growth, could slowly bring more bank securitizers back to the market.

European Investor-Placed Securitization Issuance



F—Forecast. Source: S&P Global Ratings.

European securitization volumes declined across most countries and sectors in 2022, but new issuance generally remained diverse. The two largest sectors experienced mixed fortunes, with CLO issuance declining substantially, while U.K. residential mortgage-backed securities (RMBS) volumes held up, increasing that sector's share of total issuance to more than 30%. That said, these figures are distorted by a handful of unusually large transactions refinancing U.K. mortgage collateral that was originated before the financial crisis. Together, the CLO and U.K. RMBS sectors accounted for almost two-thirds of European issuance, but a broad mix of other areas remained active, with auto and consumer asset-backed securities issued from nine different countries, for example. The CMBS and Dutch RMBS sectors saw the largest relative declines in volumes, accounting for less than 5% of overall issuance.

An entrenched spread-widening trend since the beginning of 2022 and persistent volatility throughout the year proved to be major obstacles for the smooth functioning of the primary market. With originators facing high execution risk and investors facing the prospect of ongoing mark-to-market value declines, both supply and demand were curtailed. Although the deteriorating credit backdrop may have partly contributed to this spread widening, most market participants suggest that technical factors--such as liquidity and fund flows--have been a more significant driver than fundamentals. Securitization markets were not immune to the volatility in the wider fixed-income market that followed the U.K. government's fiscal announcement in late September 2022, when a sharp sell-off in U.K. gilts sparked a "doom loop" of forced sales to collateralize rising derivatives liabilities for some pension funds. That said, recent weeks have seen some calming in spread volatility across both the securitization and the more mainstream corporate credit markets, which could support 2023 issuance.

Securitization issuance has historically been linked to the levels of activity in the underlying lending markets. These activity levels depend on both lenders' appetite for risk and balance-sheet expansion, as well as borrower sentiment and willingness to take on leverage. In this regard, conditions are at a low ebb. In the underlying credit markets that tend to be most strongly linked to securitization issuance, activity levels have generally been declining over the past 12 months. The slowdown in lending to speculative-grade corporate issuers has been particularly sharp, and this is closely linked to the rate of new CLO formation. Consumer confidence measures are at all-time lows in both the U.K. and the EU, likely due to the combination of sharply rising prices and interest rates, suggesting that borrowers are less inclined to make discretionary purchases funded with credit.

As part of their policy response to the pandemic, central banks revived liquidity schemes to provide credit institutions with cheap term funding, and borrowings under these facilities were still close to all-time highs throughout 2022. However, in the eurozone, the European Central Bank recently changed the terms of its outstanding targeted long-term refinancing operations (TLTROs), even incentivizing some banks to repay the funds earlier than the scheduled maturity date and giving them additional opportunities to do so. By the end of 2022, banks had already repaid about €750 billion of borrowings under the scheme, which, at its peak, had more than €2 trillion outstanding. In general, eurozone banks have ample liquidity to make these repayments without turning to the capital markets for more funding. However, the TLTRO wind-down nonetheless signifies a normalization of monetary policy that could eventually increase banks' appetite for issuance. Similarly, in the U.K., the Bank of England's Term Funding Scheme with additional incentives for small-to-midsize enterprises closed to new drawdowns in late 2021, but borrowings of about £190 billion remain outstanding. Although the first scheduled maturities are not until 2024, some banks may turn their attention to refinancing the four-year funding that they tapped under this scheme several months before maturity.

Latin America | Structured Finance

Issuance And Collateral Performance

We expect GDP growth in Latin America to slow significantly to 0.7% in 2023, from 3.4% in 2022, as external demand weakens, tighter financial conditions squeeze investments, and domestic demand softens after a remarkably strong performance in 2022. Based on our expectations of low single-digit growth across the region, we believe that structured finance issuance in Latin America could increase slightly in 2023 (to \$24.5 billion from \$22.0 billion).

Amid low economic growth, a lack of visibility about the fiscal response could generate investor uncertainty, especially in economies that have recent changes in government, such as Brazil. Nevertheless, we expect that the Brazilian market will continue to account for the bulk of issuance in the region, particularly through repackaged securities or corporate-backed agribusiness receivables certificates (CRAs) and real estate receivables certificates (CRIs).

The default of the largest Mexican non-banking financial institution remains a challenge for the ABS equipment sector. However, the general performance of securitizations has been solid, and we observed a couple of issuances in fourth-quarter 2022. Therefore, we believe that originators should be able to continue to tap the securitization market in 2023.

Despite the very challenging economic environment, we continue to observe steady ABS issuance in Argentina and solid collateral performance. Derived from our observations during the last two years, we have raised the maximum potential rating in some asset classes.

Based on our market interactions, we believe that there is potential for new transactions and more complex structures in the cross-border market, particularly assets related to infrastructure projects in the region.

Finally, ratings performance was stable in 2022 and there are few ratings on CreditWatch. Nevertheless, we are on the lookout for potential weakness given the challenging macroeconomic environment. We also maintain our related current base-case adjustments in the ABS asset classes and maintain our foreclosure frequencies in the RMBS asset classes.

Sector Contacts

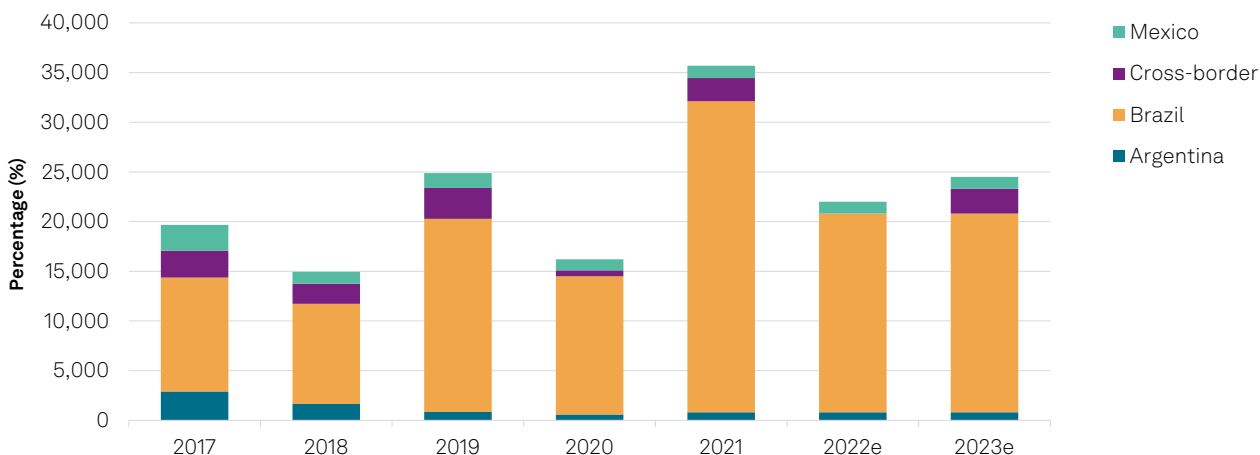


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Latin American Structured Finance Issuance



e—Estimate. Source: S&P Global Ratings.

Australia | Structured Finance

Issuance

We expect nonbank issuers to continue to issue transactions in the first half of 2023 to term out warehouses. However, origination volumes are likely to fall in the second half of 2023 as the impact of higher funding costs constrains overall lending activity and new issuance prospects. We anticipate 2023 issuance will be relatively flat to 2022 levels (0% to -5% change from 2022 volume of about 32 billion US\$). Nonbank originators have adapted so far to higher funding costs by modifying structures and responding quickly to windows of opportunity in funding markets.

Competition for prime borrowers is expected to be strong, particularly those with modest loan-to-value (LTV) ratios. As nonbank originators do not have the same funding cost advantage as larger banks, this will necessitate a diversification in loan product offerings for many issuers. We expect this to alter the credit profiles of new issuance with a greater skew toward more specialized loan products and higher credit risk borrowers, including the self-employed and those with higher leverage and more complex income sources.

We also expect increased ABS issuance from nonbank originators, particularly auto loan ABS. This is due to the pent-up demand for autos in Australia following pandemic-induced supply constraints and structural shifts in the auto finance sector. An extended period of monetary policy tightening could see some consolidation in the securitization sector as new entrants with less warehousing capacity struggle to continue issuing at elevated spreads.

Collateral Performance

Collateral quality is expected to remain relatively stable for most transactions despite the rapid increase in interest rates over a short period of time. To date, we have not observed any material deterioration in asset performance in most structured finance transactions despite the high variable mortgage rate exposure across the Australian RMBS sector. Lenders are passing on official cash rate increases but arrears increases have been delayed by a lagged impact of those increases on borrowers, buildup in household savings, repayment buffers, equity built up in home loans following the large property price gains during the pandemic, and historically low unemployment.

A small cohort of borrowers are likely to struggle with higher mortgage repayments. Borrowers who purchased properties at the peak of the property cycle at elevated LTV ratios, for instance, could struggle. The high proportion of fixed rate loans in the broader mortgage market that are due to convert to variable rate loans in the second half of 2023 will likely create a large uptick in refinancing activity as borrowers search for competitive mortgage rates to help alleviate potential debt serviceability pressures. This will probably cause prepayment rates to rise above long-term averages in the short term, particularly in the prime sector. While the exposure to fixed rate loans across the Australian RMBS sector is less significant, at around 16%, competitive dynamics in the market will alter prepayment rate activity across originators. Yield strain is also a rising risk as increasing funding costs erode available excess spread in some transactions. Despite these challenges, we expect ratings to be broadly stable in 2023, underpinned by low unemployment and the credit support available in most transaction structures.

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China | Structured Finance

Issuance

We expect Chinese structured finance issuance volume to increase about 4% to Chinese Renminbi (RMB) 2.1 trillion (US\$ 310 billion) in 2023 from RMB 2.0 trillion (US\$ 299 billion). RMBS volumes will probably remain minimal – China’s property market remains lackluster despite government endeavors to revive it. Banks will likely strive to originate a higher volume of mortgage loans to achieve growth, and they will have little need to offload those loans from their books in 2023.

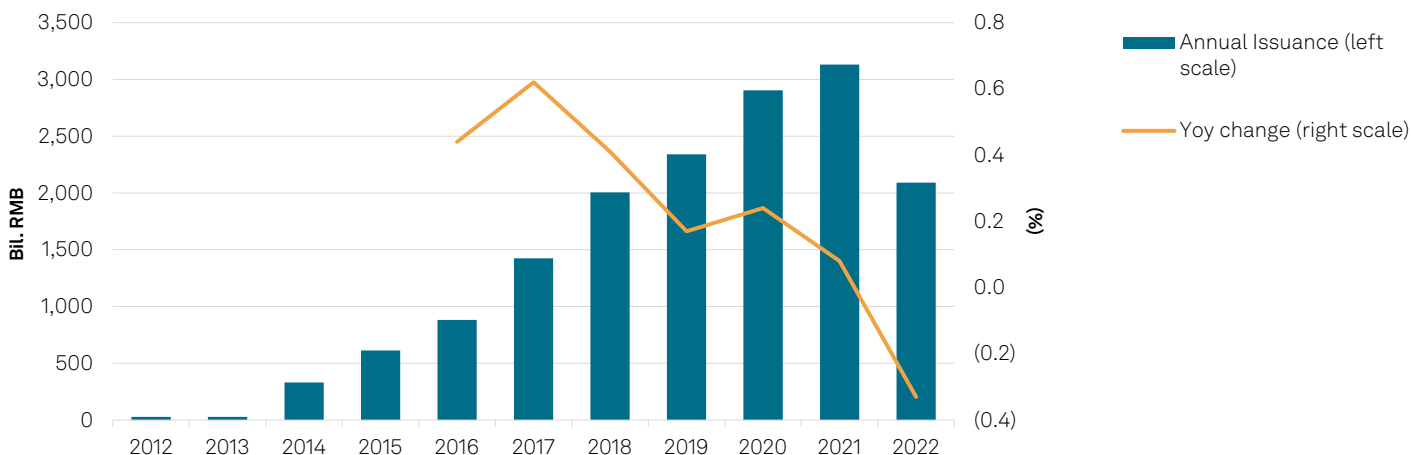
We expect flat-to-modest growth in auto loan ABS, supported by the projected 2% growth in light vehicle sales for China in 2023 and a steady auto loan penetration rate. That said, any increase in auto loan ABS issuance volume could be offset by heightened utilization of facilities that employ revolving structures.

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Chinese Securitization Issuance Saw First Year-Over-Year Fall



Yoy—Year-over-year. Sources: Chinabond, WIND; compiled by S&P Global Ratings.

Collateral Performance

Our rated Chinese auto loan ABS and RMBS continue to demonstrate strong and stable credit metrics. These include low and stable delinquency rates since the first-quarter of 2020. Stable collateral performance can be mainly attributed to the high diversity of the securitized pools and favorable loan attributes such as low loan-to-value ratios. However, we observed slightly higher volatility in delinquency rates was seen in the fourth quarter of 2022, mainly driven by widespread COVID-induced lockdowns.

Although the rapid loosening led to hopes that the worst of lockdown conditions are behind China, spikes in infections will weigh on collateral performance in the following two to three months. This is because voluntary social distancing may limit economic activity and impede in-person collection of delinquent loans. In our view, the volatility of delinquency rates for our rated transactions may remain elevated until a month or two after COVID waves subside.

Ratings Outlook

We expect Chinese auto loan ABS and RMBS ratings to remain stable for 'AAA' rated tranches and stable to positive for other investment-grade ('AA+' through 'BBB-') rated classes. This is based on our expectation for stable collateral performance and increased credit enhancement support for most of the static pool-backed deals — because the rated notes amortize over time.

We also expect our ratings outlook on Chinese credit card ABS to remain stable for two reasons. First, we expect collateral performance, as measured by various delinquency rates, to remain stable. Second, we forecast an unemployment rate in China of 5.3% in 2023, which compares favorably with our projection of 5.6% for 2022.

Sector Highlights

Seven green auto loan ABS were issued in 2022, up from three in 2021. We expect the robust momentum to continue in 2023. Many auto finance companies have started to originate more green auto loans backed by new energy vehicles (NEV). It may take another 12 to 18 months to see meaningful growth of NEV-backed loans and the issuance of green auto loan ABS.

In absence of meaningful RMBS issuance, market participants are likely to seek opportunities in sectors such as consumer finance ABS, auto lease ABS, and equipment lease ABS, in addition to continuing to participate in the crowded auto loan ABS space.

Japan | Structured Finance

Issuance And Market Fundamentals

In 2023, we expect Japanese structured finance issuance to be on par with that of 2022. In 2022, Japanese securitization issuance declined by more than 10%.

RMBS and ABS continued to be the dominant asset classes in the Japanese securitization market. While the majority of Japanese RMBS transactions are backed by fixed-rate mortgages, the total issuance amount of RMBS transactions fell, as many mortgagors opted for lower-cost, floating-rate loans. This resulted in reduced fixed-rate loan origination. Japanese residential mortgages usually have high LTV ratios, partly due to tax incentives. Many debtors who took out loans with high-LTV ratios tended to choose variable-rate mortgages to minimize their immediate repayment burden amid climbing interest rates. In ABS, the global shortage of semiconductors affected domestic car sales, resulting in a decline in the total value of auto ABS issued. In 2023, total Japanese securitization issuance volume should remain in the same range as it was in 2022, but factors such as future interest rate trends and supply chain conditions are likely to have a significant influence.

Japanese Securitization Issuance

Issuance volume (trn. ¥)	2021	2022	2023E
RMBS	2.7	2.5	2.5
ABS	3.9	3.1	3.1

RMBS—Residential mortgage-backed securities. ABS—Asset-backed securities. E—Estimate. Source: S&P Global Ratings.

Collateral Performance

We expect the performance of loans backing S&P Global Ratings-rated Japanese structured finance transactions to remain generally stable in 2023. Transactions we rate in Japan are usually backed by residential mortgages and auto loans extended to individual borrowers. We expect Japan's unemployment rate to remain below 3% from 2023 onward, and thus expect the performance of such loans to remain largely stable. However, collateral performance may be adversely affected if there is downward pressure on consumer debt serviceability from factors such as a larger-than-expected increase in inflation without corresponding wage increases.

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