PIMCO

INVESTOR EDUCATION

Understanding Securitized Products

The $14-trillion securitization market finances millions of individual loans, homes, commercial properties, and businesses. While inherently complex, securitized products offer a vast array of attractive opportunities for investors who can thoroughly understand the market and how it works.

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Summary

WHAT ARE SECURITIZATIONS?

HOW DO SECURITIZED PRODUCTS WORK?

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WHAT ARE THE RISKS ASSOCIATED WITH SECURITIZATION?

WHAT HAPPENS WHEN UNDERLYING LOANS IN A SECURITIZATION DEFAULTS?

WHAT ARE THE TYPES OF SECURITIZED PRODUCTS?

What are securitizations?

Securitizations, also known as "securitized products," are bonds that are backed by pools of individual loans.

There are many types of loans that can be securitized, including mortgages, corporate and sovereign loans, consumer credit, project finance, lease/trade receivables, and individualized lending agreements. These loans are pooled and structured into interest-bearing securities and then sold in the bond market. The income generated for the securitization is created from the loan on the assets (for example, from a mortgage payment on a house) and passed on to the holder of the securities.

Individual loans are quite small relative to other types of bonds or loans in the bond market. Consider a typical auto loan, which could be $30,000, and far too small to create any sort of market or liquidity for an institutional investor. In contrast, securitization enables a large amount of similar loans to be pooled in one package, creating substantial market liquidity. For example, an auto loan securitization can pool together 20,000 or more individual auto loans in one securitization trust.

How do securitized products work?

The securitization process begins when loan originators/providers pool similar loans together, and then sell those pools in slices to investors , as shown in the illustration below.

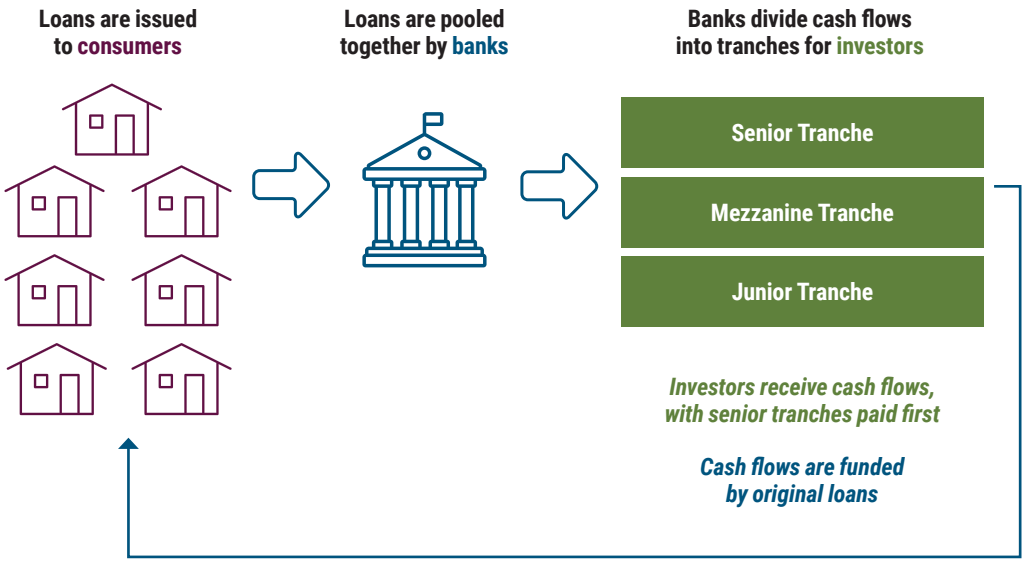
While the process can differ depending on the underlying collateral type, generally the process entails the following steps:

- Issuers accumulate similar loans that could be readily pooled together
- Once the amount of loan has grown to a sufficient size, the issuer can hire an investment bank, to start the process of creating, structuring and then selling the securitization.
- The issuer creates a trust that will hold the underlying loans, so they are no longer part of the issuers' or bank's balance sheet.
- To finance those loans, which are now an asset of the trust, the trust issues liabilities, which are the securitization bonds in question
- The bank/underwriter begins looking for investors in the public market to purchase those securitization bonds
- Depending on investor feedback / demand, the structuring bank will adjust terms as necessary

Through securitizations, loan originators can sell their existing loan exposure so they can free their capacity to make new ones. In turn, investors can benefit from the size and scale of the pooled loan to have adequate liquidity trade in the public market as needed.

WHAT ARE SECURITIZED PRODUCTS?

Securities constructed from pools of underlying loans



Source: PIMCO. **For illustrative purposes only.**

WHY DO SECURITIZED PRODUCTS EXIST?

- **Consumers benefit from increased access to credit**
- **Banks free up capital to use for additional lending**
- **Investors receive a return stream backed by real assets**

The conventional securitization structure assumes a three-tier security design – junior, mezzanine, and senior tranches. This structure concentrates expected portfolio losses in the junior, or first loss position, which is usually the smallest of the tranches but the one that is designed to bear most of the credit exposure and to receive the highest return. Portfolio losses are generally not expected in senior tranches, which, because investors often finance their purchase by borrowing, are very sensitive to changes in underlying asset quality.[1]

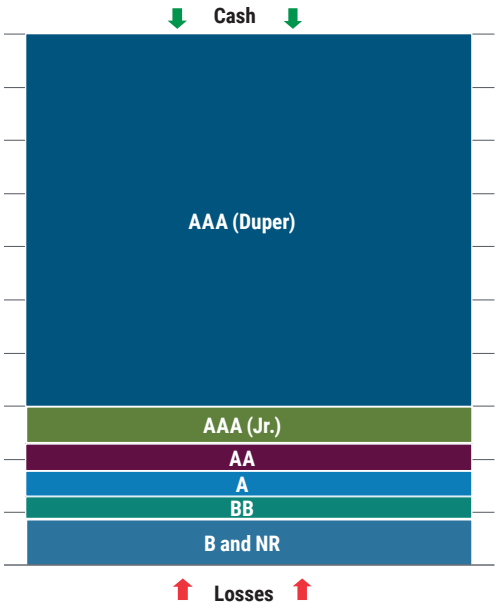
1 "What is Securitization" International Monetary Fund Finance & Development, September 2008, by Andreas Jobs

Securitized product tranching

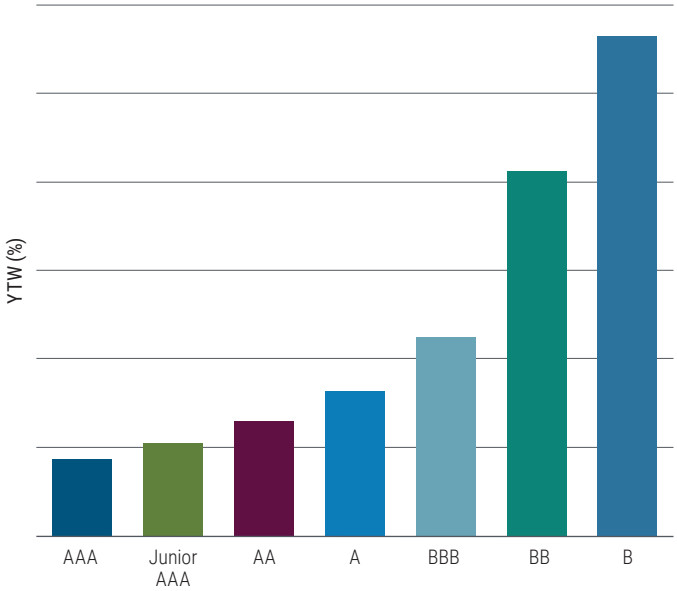
Securitized products are typically sold in tranches, where each tranche higher in the capital structure has a more senior right to the cash flows and principal payments of the underlying loans than tranches lower in the capital structure.

As shown in the left chart below, the securitization structure is designed to protect senior tranches (those with credit ratings of AAA, AAA (Jr.), AA, A, and BBB) from losses. However, junior tranches (those with credit ratings of BB and B) are compensated for taking additional risk, as shown in the chart below on the right.

Securitization structure protects senior tranches as lower tranches absorb first losses…



…but lower tranches are compensated for taking additional risk



Source: PIMCO. **For illustrative purposes only.**

Investors who take a higher risk when buying lower-positioned tranches (that receive cash flow last and absorb losses first) earn a higher level of compensation, and conversely, investors who purchase higher-positioned tranches (that receive cash flow first and are protected from losses by the more junior tranches) are compensated less. This system creates "credit support," or "credit enhancement," where the senior bonds have their credit risk supported or enhanced by having losses absorbed elsewhere in the capital structure.

Securitization tranches can carry a fixed interest rate or a floating interest rate. Typically, the interest rate of the securitization will match the interest rate of the underlying loans that are being pooled together.

A securitization tranche's maturity schedule can be more complex than a typical Treasury or corporate bond that has a single stated maturity date when principal is repaid. Often, the underlying loans that back a securitized product are amortizing, meaning the original principal of the loan balance is paid back periodically over the life of the loan alongside interest.

This is especially true in the residential mortgage market, where monthly mortgage payments typically include both interest and principal amounts. As the underlying loans repay in part each month, the securitization tranches in turn also receive a partial repayment. As a result, instead of referencing a "maturity date," securitization investors will typically reference an expected "Weighted Average Life" of a tranche, which represents the weighted average maturity of all individual monthly principal repayments.

Who are the typical buyers of securitized products?

Securitized products are typically purchased by institutional investors, including banks, insurance companies, hedge funds, pension funds, and asset managers.

The type of securitized products will determine the primary buyer of these assets. Here are some examples:

- Central banks tend to invest primarily on very high-quality forms of securitized products, such as agency mortgage-backed securities (MBS), as a tool for monetary policy (such is the case with the U.S. Federal Reserve), or as a high-quality investment for excess U.S. dollars (for non-U.S. central banks).
- Commercial, private, and investment banks, as well as insurance companies tend to focus on the highest quality portion of the securitized space due to regulatory requirements.
- Hedge funds and other alternative asset managers tend to invest in the lower tranches of securitized products, using the higher returns of those bonds to meet their return targets.
- Investment managers tend to buy across the securitized credit market, although they typically focus on more liquid, higher-quality portions of the market to meet mutual funds' daily liquidity requirements.

How can investors benefit from buying securitized products?

Securitized products can provide many benefits to a portfolio, including:

- **Attractive risk-reward profile** – senior securitized products tend to offer an attractive level of compensation because of the additional levels of credit support underneath the senior-most tranche. Because they are less utilized than areas like corporate credit, AAA-rated securitized credit tends to offer relatively similar yields to A-rated corporate credit, despite the higher overall credit quality. For those looking to take additional risk, lower-rated subordinated securitized credit tranches can offer significantly higher yields than similarly rated high yield corporate bonds, though investors need to consider the higher risk embedded in those tranches as well (see "Securitized Product Tranching" above).
- **Portfolio diversification** – securitized products are typically made up of consumer or real estate risk, rather than corporate risk in corporate bonds. Securitized products offer a liquid option to express views in commercial or residential real estate credit, consumer credit, or other types of credit that may not be directly expressible in other parts of the fixed income market.

What are the risks associated with securitization?

Generally, the largest risks associated with securitized products are credit risk and interest rate risk. Additionally, investors should consider prepayment risk and liquidity risk.

CREDIT RISK

Credit risk is simply the risk that an investor will not get paid back the amount invested. Credit risk will vary among the types of securitized products, but generally, securitized products that are lower in the capital structure have higher credit risk (see "Securitized Product Tranching" above), and securitized products with lower quality underlying collateral have higher credit risk than higher quality underlying collateral.

INTEREST RATE RISK

This is the risk that the value of a bond will change given changes in prevailing interest rates. Interest rate risk will vary based on security type. Some securitizations pay a floating rate coupon, meaning their interest rate will change based on the overall market's prevailing interest rate. In this case, the floating-rate securitization tranche has no direct interest rate risk, and its price will not move because of changes in interest rates alone, though the underlying collateral may be impacted by the movement in interest rates (see "Prepayment risk" below) which could then indirectly impact the value of the securitization tranche due to changes in the principal repayment schedule.

PREPAYMENT RISK

Some securitized products carry what is known as prepayment risk. This is the risk of a premature return of principal on a fixed income security. When borrowers purchase a house and get a mortgage, they can pay that mortgage back whenever they like. Borrowers tend to prepay when it is preferable for the borrowers, not for the mortgage bondholders. For instance, borrowers tend to refinance homes when interest rates fall. This means their original, high interest rate mortgage is refinanced, creating a new, lower rate mortgage. A bondholder receives the money back when the higher rate mortgage is closed out and is now forced to reinvest that money in a lower- rate environment. This phenomenon is known as "convexity risk" or "negative convexity."

LIQUIDITY RISK

This is the risk that investors may not be able to sell their assets as efficiently as other investments in their portfolio (i.e., greater bid/offer spread). Because the non-agency securitized markets are less utilized than Treasuries or corporate bonds, securitized products tend to have more expensive transaction costs, and may have less buyers or sellers during volatile markets. Liquidity risk is one of the key reasons why investors tend to earn a similar spread on an AAA-rated securitized product and an A-rated corporate bond despite being higher rated. It should be noted that Agency MBS is the exception here since that market tends to have ample liquidity.

What happens when underlying loans in a securitization defaults?

In a securitization with many underlying borrowers, a default of one specific borrower in a pool of a thousand borrowers will not necessarily constitute a default for the securitized products themselves. The first line of defaults is absorbed by the equity tranche of the securitization, and each subsequent default will be absorbed by every subordinated tranche first before those defaults impact the senior tranche. When it becomes clear that the senior tranche will have to absorb losses, this is when a securitized product is considered in default.

On the underlying loan side, the individual borrower will typically go through a workout or "loan modification" process if the borrower defaults, where the original lender will work with the borrower to restructure the terms of the loan that may be more affordable to the borrower. That may include extending the loan further out, in exchange for a higher interest payment to compensate for the higher risk of the loan.

Some securitizations, such as specific types of Commercial Mortgage-Backed Securities (CMBS), will only have one borrower. In this case, a default on the loan typically involves a more direct modification process, in which securitized product holders work with a third party (known as a "special servicer") to work out a solution on default that is most advantageous to the borrowers.

Agency MBS do not carry default risk. When an underlying mortgage in an Agency MBS pools defaults, the loss is absorbed by the issuing Agency, and the loan is taken out of the pool at par. In essence, a default on a loan in an Agency MBS pool acts like a prepayment.

It should be noted that impairment (or permanent losses) of the senior-most holders is quite rare given the healthy levels of subordination in securitized products today.

Types of Securitized Credit

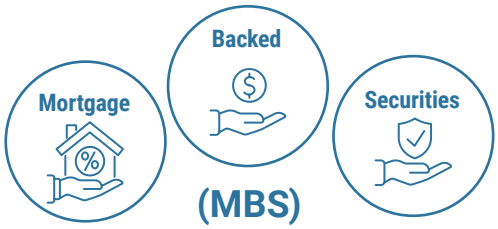
Securitized products offer investors a variety of risk exposures

	Agency RMBS	Non-Agency RMBS	CMBS	ABS	CLOs
Collateral	Residential Real Estate		Commercial Real Estate	Consumer Loans	Corporate Loans
Driven by	Interest Rate Cycle	Housing Markets Cycle	CRE Cycle	Consumer Cycle	Corporate Cycle
Key Risk	Prepayment Risk	Credit Risk			
Fixed or Floating	Mostly Fixed	Fixed and Floating	Fixed and Floating	Fixed and Floating	Floating
Weighted Average Life	4-6 years	4-6 years	4-5 years	4-5 years	3-4 years
Credit Enhancement	Government Guaranteed	High	Medium	Medium	Varied
Examples	FNMA GNMA	Jumbo Non-QM	Hotel SASB Agency Multifamily Conduit	Credit Cards Student Loans Aircraft Leases	Bank Loans Middle Market

April 30, 2025. Source: PIMCO. **For illustrative purposes only.**

MORTGAGE-BACKED SECURITIES

MBS are debt obligations representing claims to the cash flows from pools of mortgage loans, most commonly on residential property. There are several types of MBS, each defined below.



AGENCY MORTGAGE-BACKED SECURITIES

Agency MBS are mortgage bonds guaranteed by one of three U.S. federal agencies:

The Federal Home Loan Mortgage Association ("Freddie Mac")	The Federal National Mortgage Associate ("Fannie Mae")	The Government National Home Loan Association ("GNMA", or "Ginnie Mae")

The guarantee attached to MBS issued by these entities means owners of these bonds are not subject to any impairment if mortgage borrowers were to default on their loans. Since these bonds do not carry any risk of default, they are typically considered void of credit risk, and are thought of as one-step up from U.S. Treasury bonds in terms of risk. The extent to which these bonds are guaranteed will vary by agency, as explained below:

- GNMA is a government-owned corporation that guarantees loans with the full faith and credit of the U.S. government, the same as the guarantee on U.S. Treasury bonds.
- Fannie Mae and Freddie Mac are considered government-sponsored enterprises, separate from but the conservatorship of the U.S. government. Their bonds are guaranteed by each entity, meaning any losses will be absorbed by Fannie Mae's and/or Freddie Mac's balance sheet. Fannie Mae and Freddie Mac themselves are assumed to have an implicit guarantee from the U.S. government, meaning the U.S. will bail them out should losses accumulate above their liquidity, which was reinforced during the 2008 Global Financial Crisis (GFC).
- While GNMA bonds are considered distinct from Fannie Mae and Freddie Mac bonds, Fannie Mae and Freddie Mac bonds are considered essentially the same today and are also issued as Uniform Mortgage-Backed Securities (UMBS).
- Agency CMBS bonds are typically backed by a wide variety of different real estate properties. However, unlike normal agency MBS, agency CMBS bonds are only exposed to multifamily commercial real estate and some health care properties. Other key considerations include:

Like other types of agency bonds, agency CMBS have no credit risk as they carry the same U.S. government guarantee.	The agency CMBS market is much smaller than both the agency MBS market and the private label CMBS market.

- Agency MBS bonds, issued by either Fannie Mae, Freddie Mac, or GNMA, are typically issued as either 30-year or 15-year fixed rate securities (with 30-year being by far the most common), with a coupon rate that is broadly reflective of the average mortgage rate of the underlying mortgage in the pools. Other important considerations include:

Fannie Mae, Freddie Mac and GNMA make up the nearly $8 trillion agency MBS market, the world's second largest bond market outside of U.S. Treasuries. Nearly $200 billion of agency mortgage bonds trades hand every day, making these the second most liquid market in the world, again after U.S. Treasuries.

Agency MBS are most typically bought and sold through a unique program called the "to-be-announced" ("TBA") market. The TBA market creates "fungible" assets, between different agency mortgage bonds with the same tenor, coupon, and issuer. The TBA market is one of the main reasons why the agency MBS market is among the most liquid fixed income markets in the world. Agency MBS assets are typically divided into these two types of instruments, TBAs, and "pools," which are the pass-through, cash agency MBS bonds. While traders sacrifice some liquidity to gain exposure to specified pools, they gain specific information of the bond's underlying prepayment history, borrower type, and other unique characteristics.

While agency MBS do not carry credit risk, they do carry prepayment risk, as mentioned earlier. Some investors want the benefits of agency MBS, but do not wish to worry about that prepayment risk or want to play that prepayment risk to their advantage. The agency MBS market has created securities that cater to these goals, diverting the cash flows from mortgage bonds into special securities known as collateralized mortgage obligations (CMOs). These securities come in a variety of different flavors, depending on how cash flows from mortgages are channeled. Some examples:

Interest Only (IO) CMOs: These bonds only receive the interest from a mortgage, not the principal. Because the income is dependent solely on interest, investors want the original mortgage to stay outstanding for as long as possible. These bonds tend to do best, therefore, when prepayments in mortgages are low.

Principal Only (PO) CMOs: These bonds only receive principal from a mortgage, not interest. Because they are not receiving any interest and are only looking to receive principal back, investors are hoping mortgages prepay as quickly as possible to maximize their return on these assets.

NON-AGENCY RESIDENTIAL MORTGAGE-BACKED SECURITIES (RMBS)

Non-Agency RMBS are securities backed by a pool of residential mortgage loans that are not backed by a guarantee from one of the government-sponsored enterprises.

When a bank makes a loan to an individual to buy a house, that mortgage sits on a bank's balance sheet largely illiquid, depleting a small amount of capital that banks have for those looking for similar loans. To free up capital and create liquidity, the bank will pool a few hundreds to a few thousands of similar mortgage loans together and sell that pool in small slices into the bond market. The risk of one individual mortgage holder not making mortgage payments is now spread out across the entire mortgage pool, reducing an individual investor's risk.

KEY CONSIDERATIONS: IMPROVEMENTS IN NON-AGENCY RMBS MARKET POST-GFC

- The non-Agency RMBS market has changed dramatically over the past 20 years. Prior to the Global Financial Crisis (GFC) of 2008, and especially in the period between 2005 and 2007, the non-Agency RMBS market was dominated by pools of loans made to lower quality, "subprime" and near-subprime ("Alt-A") borrowers, many of whom had low FICO scores and poor credit history, low-income levels, and borrowed at high levels compared to the value of their homes.
- Today, post-crisis regulations have clamped down on the issuance of subprime mortgage bonds. Instead, the non-Agency RMBS market is broadly comprised of mortgages that have not qualified for inclusion in agency pools for a variety of other reasons, such as:
  - The mortgage loan exceeds the loan limits imposed by the agencies
  - The borrower is a business owner and therefore doesn't have proper income verification
  - The loan is being used to pay for a second home used for investment purposes

The overall quality of the U.S. housing market has increased dramatically in the years since the financial crisis as well. This is partially due to regulations that were imposed on lenders, banks, and borrowers after 2008, but also due to the lack of home building in the years since the crisis, which has driven home price appreciation and built a significant amount of equity in homes today.

COMMON TYPES OF RMBS INCLUDE:

Non-Qualified RMBS

Pools that are backed by mortgage loans that have not been guaranteed by an Agency. Typically, these are loans to high quality borrowers, but have not met the qualifications for an Agency loan, such as individuals that are self-employed, foreign nationals, etc.

Jumbo RMBS

Pools backed by loans exceed the maximum loan amount to qualify for Agency pools. In 2023, the maximum loan that qualifies for a Fannie Mae pool is $726,200 in most areas; certain high-cost areas (San Francisco, New York City, etc.) have a maximum loan limit of $1,089,300. Because these loans are often made to high-income earners, they tend to very high-quality loans overall.

Investor Loan RMBS

Pools backed by loans on second houses that are utilized for investment income. Because these loans are typically second homes, they tend to require a higher underwriting standard than normal loans (higher down payments, larger income requirements, etc.) and so tend to be high quality.

Non-performing Loans

Pools of loans that are no longer current (i.e., paying interest and principal) on their mortgage. These loans are typically pools of what once were Agency pools that have fallen into delinquency, and are subsequently sold to investors at a discount to par. The investor benefits when these loans become current again, usually through a process of loan modification to increase the affordability of the loan for the borrower.

Subprime/Alt-A:

In the years prior to the 2008 GFC, non-Agency RMBS issuance was dominated by subprime and Alt-A bonds, which were backed by mortgages given to lower quality borrowers. These mortgages were typically structured with low teaser rates for the first few years that would then adjust annually to a spread over a reference rate. As housing markets started to slow, borrowers became stuck with these loans, and as the teaser ended and the Federal Reserve began to raise rates, mortgage payments increased, and borrowers began to no longer be able to afford them. With a declining housing market wiping out equity, these borrowers began to default on their loans in significant numbers, causing a housing market crash that spurred a significant broader economic downturn.

- In the years since the GFC, government intervention stabilized the housing market. While there were many defaults in the subprime market, the subprime mortgage bonds that were issued during this time are now mostly current, and borrowers have built up significant amounts of equity in their homes over the past 15 years.
- Today, given post-crisis regulation that has clamped down on subprime lending practices, there is essentially no new issuance of subprime mortgage bonds.

Re-performing Loans (RPLs):

Loans that are current but had been delinquent in the past and were subsequently removed from the original MBS pool. Prior to the RPL securitization program, RPLs remained in Agency portfolios until they prepaid or matured. RPL mortgage-backed securities provide additional investment options for investors while increasing the balance sheet liquidity of government sponsored enterprises (GSEs). Below is more information on the RPL process:

- When loans are securitized, they are placed in an MBS trust guaranteed by the GSEs. The guaranty ensures that the GSEs will supplement amounts received by the trust to permit timely payment of principal and interest to the MBS investor
- If a loan becomes 24 months delinquent, or meets a number of exceptions, which includes permanent modifications, the GSEs will remove the loan from the MBS trust and hold it in its retained portfolio as a distressed asset
- The GSE then looks to manage distressed loans and offer mortgage servicers flexible options to help borrowers. A thorough loan evaluation determines the appropriate workout option potentially resulting in a loan modification
- Once performing, these loans may be eligible for securitization into a new MBS

COMMERCIAL MORTGAGE-BACKED SECURITIES (CMBS)

CMBS are bonds backed by loans on commercial properties, most commonly in the office, multifamily, industrial, retail, and hotel sectors. The "sponsor" or "borrower" (the owner of the property) takes out a mortgage on the property, and the interest and principal payments on that mortgage pays back the CMBS holder. CMBS can come in wide variety of different structures and underlying collateral types, but are typically grouped into four main categories:

- **Conduit CMBS:** CMBS that are backed by a diversified pool of mortgage loans secured by commercial real estate properties, from a variety of different borrowers. These bonds tend to benefit from the embedded diversification and are the dominant type of CMBS issuance. They are typically made up of 50 to 75 unique loans and can be comprised of a wide variety of different underlying collateral types in a single CMBS. These bonds are usually 10-year fixed rate loans with strong prepayment protection; therefore, unlike residential mortgage bonds, tend not to have the same prepayment risk and act more akin to "bullet" corporate bonds, which are bonds that pay the total principal amount in a lump sum upon maturity.
- **Single-Asset/Single Borrower (SASB):** CMBS that are backed by one mortgage loan on either a single asset or a single portfolio of commercial real estate assets, owned by one borrower.

SASBs inherently carry more concentration risk than a diversified pool of loans in a conduit CMBS, and so tend to have lower starting loan to value (LTV) and higher embedded equity values to compensate investor for taking on more idiosyncratic risk. SASBs have become more popular in recent years and issuance has followed. Concentration risk is higher, but investors have started to prefer to build their own diversification and tend to like the ability to build a portfolio of custom exposures to specific deals or sectors rather than being compelled to take on exposure to a sector through a conduit deal.

Post-COVID, SASB deals have tended to be floating-rate loans, with typically a two- or three-year maturity with an option for the borrower to the extend the loan, usually with two or three, one-year extension options, for a total of five to six years of average maturity. During the first period of CMBS, borrowers are required to purchase interest rate caps to limit declines in interest coverage ratios due to rising rates. To compensate investors for the embedded extension risk, borrowers usually have to pay some sort of concession and may have to extend their interest rate cap/floor.

Commercial Real Estate Collateralized Loan Obligations (CRE CLOs): CRE CLOs are typically made up of underlying commercial real estate loans that are made to commercial properties undergoing stabilization or redevelopment and are typically comprised of a variety of different underlying properties in a wide variety of sectors, much like conduit CMBS. Unlike conduit CMBS though, CRE CLOs have structural features that are borrowed from the corporate CLO market, such as a reinvestment period and overcollateralization and interest coverage tests.

ASSET BACKED SECURITIES (ABS)

In many ways, all securitized products can be considered ABS insomuch as all the securities previously covered are backed by some form of asset, i.e., are "Asset Backed." However, when securitized investors refer to "ABS," they typically refer to securitizations that are not backed by mortgages (residential or commercial), but rather by consumer loans such as auto loans, student loans, or credit card receivables.

Auto ABS

ABS backed by loans or leases on cars. Direct consumer auto loans can be considered either prime (made to high quality borrowers) or subprime (made to lower quality borrowers). To compensate for the lower average credit quality of the borrowers in a subprime auto ABS, and to mitigate the higher average delinquency rate in these loans, lenders tend to charge a higher rate of interest than prime auto loans, which provide additional levels of cash flow into the securitization to reduce the risk of loses to senior bondholders. Similarly, senior subprime auto ABS tend to have a higher degree of credit enhancement than prime auto ABS to provide an additional level of protection. Auto ABS can also be backed by rental car receivables and issued by major rental car companies.

Credit Card

ABS backed by credit card receivables such as interest and fees. Credit card ABS tend to have an initial period in which interest is paid by the ABS to allow the issuer of the ABS to use principal payments to buy additional credit card receivables. After this initial period, the credit card ABS utilizes a similar amortization structure that is seen in other types of securitizations.

Student Loan

ABS backed by undergraduate and graduate student loans. There are two main types of student loan ABS: public student loan ABS that are provided by and guaranteed by the U.S. government, and private student loans that carry no guarantee and are issued by private student loan lenders. Like Agency MBS, because public student loans are guaranteed by the government, they do not carry credit risk and their value is derived from liquidity, interest rate, and extension/prepayment risk. Private student loans do carry credit risk, and therefore the underlying borrowers usually have to provide a higher degree of security to the lender, typically in the form of a co-signer (usually a parent) that must carry the credit alongside the student.

Commercial ABS

These ABS are backed by a loan to businesses. The most common types of loans included in this category are aircraft, commercial equipment, and shipping containers.

Some ABS, in particular auto ABS and credit card ABS, are included within the Bloomberg U.S. Aggregate Bond Index, which many bond funds either actively track or passively seek to recreate. Because of their inclusion in the index, these ABS tend to experience more trade volume and may have better liquidity metrics than other types of ABS that are more esoteric and not included in the index.

COLLATERALIZED LOAN OBLIGATIONS (CLOS)

CLOs are structured credit products that are backed by 1st lien, high yield-rated corporate syndicated leveraged loans ("bank loans"). Pools of typically 200-300 bank loans are grouped together and sold to investors in a variety of different tranches, each with a varying degree of risk and return. The overall size of the CLO market is more than $1 trillion as of May 31, 2025.

KEY CHARACTERISTICS:

- CLOs differ from other securitized credit products in one specific way: The pool of bank loans that constitute a CLO is actively managed by the investment manager that issues the CLO. When the CLO is first issued, the investment manager typically has a warehouse of some percentage of the overall loan pool, and after issuance the manager actively adds and trades in and out of the underlying bank loans for the first 3-5 years of the CLO's life (the "reinvestment period").
- After the reinvestment period has ended, the CLO will act as a more traditional securitized product, entering an amortization period in which loans are paid down to pay back the CLO debt holders. This active management component of CLOs creates a secondary risk for this market – manager selection.
- Because of this risk, CLOs are typically issued by investment management firms that have deep resources and a long track record of managing leverage finance products (high yield bonds, bank loans, middle market private credit). CLOs' relative value can be derived from the market's perception of the investment managers' quality in managing such assets.
- Since the quality of the underlying collateral of a CLO tends to be below investment grade, CLOs are typically structured to give ample credit support to the senior bondholder in the CLO's capital stack. The structures are typically subjected to coverage tests to measure how much cash flow the underlying loans are generating, and to ensure there is sufficient coverage for the senior bond in the structure. The result is that senior CLOs tend to be highly supported by underlying positions in the capital structure, such that even in environments where bank loans default rates are relatively high (such as during the financial crisis), the default rate on a senior CLO tranche has remained at 0%.

Glossary

Agency Mortgage Backed Securities: mortgage bonds guaranteed by one of three U.S. federal agencies: the Federal Home Loan Mortgage Association ("Freddie Mac"), The Federal National Mortgage Associate ("Fannie Mae"), or the Government National Home Loan Association ("GNMA", or "Ginnie Mae").

Asset Backed Securities: Securities backed by an asset that is not a mortgage or a bank loan. ABS can have significant variation in underlying asset type and quality, but are generally pooled into to two separate sub-categories, Consumer ABS and Commercial ABS.

Chapter 11 Bankruptcy Protection: A chapter of the U.S. Bankruptcy Code that allows for reorganization, usually involving a corporation or partnership, in which a debtor proposes a plan of reorganization to keep its business alive and pay creditors over time. People in business or individuals can also seek relief in chapter 11.[1]

Collateralized Loan Obligations: Structured credit products that are backed by 1st lien, high yield-rated corporate syndicated leveraged loans.

Commercial Mortgage Backed Securities: Bonds backed by loans on commercial properties, most commonly in the office, multifamily, industrial, retail, and hotel sectors. The "sponsor" or "borrower" (the owner of the property) takes out a mortgage on the property, and the interest and principal payments on that mortgage pays back the CMBS holder.

Credit Risk: The risk that an investor will not get paid back the amount invested, or in a longer amount of time than previously anticipated. This can occur if the bond defaults, or amended and extended past its original due date.

Duration: The weighted maturity of a fixed income investment's cash flows used to estimate the price sensitivity of a fixed income security for a given change in interest rates.

Government-Sponsored Enterprises: U.S. government entities established for public policy purposes and are privately held. These entities include the Federal Home Loan Mortgage Association ("Freddie Mac"), The Federal National Mortgage Associate ("Fannie Mae"), or the Government National Home Loan Association ("GNMA", or "Ginnie Mae").

Interest Rate Risk: The risk that the value of a bond will change based on its value relative to other available options in the market given changes in prevailing interest rates.

Liquidity Risk: This is the risk that investors may not be able to sell their assets as efficiently as once perceived.

Mortgage Backed Securities: MBS are debt obligations representing claims to the cash flows from pools of mortgage loans.

Non-Agency Residential Mortgage-Backed Securities: Securities backed by a pool of residential mortgage loans that are not backed by a guarantee from one of the government-sponsored enterprises.

Prepayment Risk: This is the risk of a premature return of principal on a fixed income security.

Residential Mortgage Backed Securities: Securities backed by a pool of residential mortgage loans.

1 U.S. Courts – Chapter 11 Bankruptcy Basics https://www.uscourts.gov/services-forms/bankruptcy/bankruptcy-basics/chapter-11-bankruptcy-basics

All investments contain risk and may lose value. Investing in the **bond market** is subject to risks, including market, interest rate, issuer, credit, inflation risk, and liquidity risk. The value of most bonds and bond strategies are impacted by changes in interest rates. Bonds and bond strategies with longer durations tend to be more sensitive and volatile than those with shorter durations; bond prices generally fall as interest rates rise, and low interest rate environments increase this risk. Reductions in bond counterparty capacity may contribute to decreased market liquidity and increased price volatility. Bond investments may be worth more or less than the original cost when redeemed. **Sovereign securities** are generally backed by the issuing government. **Collateralized Loan Obligations (CLOs)** may involve a high degree of risk and are intended for sale to qualified investors only. Investors may lose some or all of the investment and there may be periods where no cash flow distributions are received. CLOs are exposed to risks such as credit, default, liquidity, management, volatility, interest rate and credit risk. Obligations of U.S. government agencies and authorities are supported by varying degrees, but are generally not backed by the full faith of the U.S. government. Portfolios that invest in such securities are not guaranteed and will fluctuate in value. **Mortgage- and asset-backed securities** may be sensitive to changes in interest rates, subject to early repayment risk, and while generally supported by a government, government-agency or private guarantor, there is no assurance that the guarantor will meet its obligations. **U.S. agency mortgage-backed securities** issued by Ginnie Mae (GNMA) are backed by the full faith and credit of the United States government. Securities issued by Freddie Mac (FHLMC) and Fannie Mae (FNMA) provide an agency guarantee of timely repayment of principal and interest but are not backed by the full faith and credit of the U.S. government. References to Agency and non-agency mortgage-backed securities refer to mortgages issued in the United States.

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