

Mortgage-backed securities



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Many investors are attracted to mortgage-backed securities because of their potential for relatively high yields, monthly interest payments, and good liquidity. First created in 1970, the mortgage-backed securities market is now one of the largest fixed income markets, second only to the U.S. Treasury market. As this market has grown, so has the extent of the terminology describing mortgage-backed securities. What follows is a brief glossary explaining some of the more common terms.

Issuers

The majority of mortgage-backed securities are issued by agencies of the U.S. Government or government-sponsored enterprises. However, some private institutions, such as investment banks and financial institutions, package mortgage loans to create securities.

- **Ginnie Mae** — Government National Mortgage Association (GNMA) is a United States government agency whose securities are backed by the full faith and credit of the U.S. government. For both pass-through securities and CMOs, the full and timely payment of principal is backed by the full-faith guarantee of the U.S. government. The principal payment guarantee applies only to the face (par) value of the security, not to any premium paid.
- **Fannie Mae and Freddie Mac** — In September 2008, as a result of the severe downturn in the U.S. economy and rapid deterioration in the U.S. housing market, both the Federal National Mortgage Association (FNMA) and Federal

Home Loan Mortgage Corp (FHLMC) were placed under U.S. Government conservatorship through the Federal Housing Finance Agency (FHFA). At this juncture, they are not considered to be direct obligations of the U.S. government, but both maintain their status as Government Sponsored Enterprises (GSE). For both their pass-through securities and CMOs, the full and timely payment of interest and principal, scheduled principal in the case of CMOs, is guaranteed by Fannie Mae or Freddie Mac. The principal payment guarantee applies only to the face (par) value of the security, not to any premium paid.

- **Private labels** — Private label or whole loan mortgage-backed securities are issued by banks, investment banks or mortgage companies. The mortgages that make up these securities are usually too large to conform to the underwriting guidelines for securities issued by government sponsored enterprises such as Fannie Mae or Freddie Mac. These issues carry no guarantee as to the full and timely payment of interest

and principal; this is dependent solely upon the creditworthiness of the underlying borrowers.

General terms

- **Mortgage pass-through security** — This most basic of all mortgage-backed products is created when a group of mortgages are pooled together and “securitized,” in which ownership represents a direct interest in the pool of mortgages. Monthly principal and interest payments paid by the homeowners on the underlying mortgages are “passed through” to the bondholders on a pro-rata basis, after deduction of a servicing fee. They are also referred to as participation certificates (PCs).
- **Collateralized Mortgage Obligation (CMO)** — The CMO is a multi-class bond backed by pools of mortgage pass-throughs or mortgage loans. The CMO is structured into classes (“tranches”), which are designed to meet different financial objectives. Each bond in a class has a similar coupon rate, cash-flow pattern, and expected maturity. The cash flow

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from the underlying collateral is allocated to the various classes in a pre-determined order.

- **Real Estate Mortgage Investment Conduit (REMIC)** — As a result of the 1986 Tax Reform Act, most CMO bonds are now issued in REMIC form to create certain tax advantages for the issuer. The terms CMO and REMIC are now used interchangeably.
- **Amortization of principal** — Mortgage securities are “self-amortizing,” that is, principal is distributed to security holders over a period of time (months or years) instead of a lump-sum payment, as with conventional bonds.
- **Factor** — Because mortgage-backed securities distribute principal over time, the factor is used to determine the amount of principal remaining. It is calculated by dividing the current principal balance of a pool by the original principal balance at issuance. Thus, the factor starts at 1.00, and as the principal pays down, it decreases.
- **Payment delay** — The administrative delay in passing through payments of principal and interest to investors in mortgage-backed securities.
- **Tranche** — “Tranche” is the French word for “slice.” It represents a class of bonds within a CMO offering having the same characteristics (coupon rate, estimated maturity, cash-flow).

Return measures

- **Yield** — The expected annual percentage rate of return on an investment. Yield is a function of a security’s purchase price and coupon rate.
- **Bond Equivalent Yield (BEY)** — An upward adjustment to a mortgage-backed security yield, to reflect its more frequent payments. Mortgage-backed securities pay interest monthly rather than semi-annually, as with most other types of bonds.

- **Prepayment** — The unscheduled partial or complete repayment of the principal amount outstanding on a mortgage loan. Prepayment occurs when homeowners sell their homes, refinance, or for other reasons, prepay their mortgage loans.
- **Weighted Average Coupon (WAC)** — The weighted average interest rate on all mortgages that serve as collateral for the security.
- **Constant Prepayment Rate (CPR)** — A method of describing the prepayment rate of mortgage loans, calculated as the percentage of outstanding mortgage loan principal that prepays in one year.
- **Standard Prepayment Model (PSA)** — A model, based on historical mortgage prepayment rates, that is used to estimate prepayment rates on mortgage securities. The model, established by the Public Securities Association (PSA), assumes that prepayments on new mortgage loans will be very little the first month, will gradually increase over the next 29 months, and then (after these first 30 months) will level off at a constant prepayment rate until maturity.

Maturity measures

An important point to understand about mortgage-backed securities is that they are sold and traded in terms of average life rather than maturity.

- **Weighted Average Life (WAL)** — Estimated average number of years that each principal dollar will be outstanding. WAL is the most commonly used maturity measure in the mortgage market.
- **Projected final maturity** — The theoretical last date by which the final principal payment would be paid.
- **Window** — In a CMO, the period of time between the expected first payment of principal and the expected last payment of principal.

- **Weighted Average Loan Age (WALA)** — The weighted average number of months since the origination of the mortgage loans underlying an issue. Once the WALA is greater than 30 months, the loans are considered “seasoned,” and prepayments are typically more predictable.
- **Weighted Average Maturity (WAM)** — The weighted average number of months until the final payment of all the mortgages backing a mortgage security.

Risks

As with all fixed income securities, mortgage-backed securities are subject to interest rate risk: when interest rates rise, prices fall and vice versa. However, interest rate movements have an additional impact on mortgage-backed securities because they affect prepayment speeds. Changing prepayment speeds cause the estimated average life to shorten or extend: call risk or extension risk. These changes in average life will also impact the ultimate yield an investor receives on their mortgage-backed security.

- **Call risk** — For a CMO, the risk that investors may have their principal returned to them sooner than expected, because declining interest rates can accelerate prepayment speeds. In this case, investors may face the risk of reinvesting at lower interest rates.
- **Extension risk** — For a CMO, the risk that the life of the security may be extended beyond expectations because rising interest rates have slowed prepayment rates. This creates a situation where investors may find their principal committed for a longer period of time and may miss out on an opportunity of reinvesting at higher rates.
- **Credit risk** — Private Label CMOs are rated by the major rating agencies. Following the deterioration in the U.S. housing

market and the severe U.S. economic downturn in 2008-2009 rating agencies significantly downgraded many issues. In some cases, this has created situations where investors bought highly rated issues and now own structures rated below investment grade.

CMO class structures

As mentioned, CMOs usually have several different classes (tranches), with each one structured to either minimize risks or enhance returns. Listed below are some of the more common class structures.

- **Sequential pay (plain vanilla)** — The most basic CMO structure. Interest is paid to all classes each month. Principal is allocated to the first tranche until it is retired, then the second tranche, then the third tranche, and so on.
- **Callable sequential pay** — Identical to the sequential pay class described above; however, the callable CMO can be redeemed (called) at par plus accrued interest beginning one to two years after issuance.
- **Planned Amortization Class (PAC I)** — Within the CMO structure, this class offers the most stable average life because principal prepayments are absorbed by support classes (to a certain point).
- **Broken PAC (X-PAC)** — A PAC which has lost its support class(es). Thus, it is no longer protected from principal prepayments and will resemble a sequential pay class.
- **Retail class** — This class is typically structured as either a PAC or sequential pay, with the benefit of simplified tax filings and principal returned in \$1000 increments.
- **PAC II** — Not to be confused with a PAC I class, PAC IIs provide prepayment protection for PACs because they absorb excess cash flows if the support classes are retired. If the support classes are not retired, PAC IIs have a relatively stable average life.
- **Support (companion)** — Provides prepayment protection for the PAC classes. This class has an almost unpredictable average life, but offers the potential for higher yields. If interest rates decline, it will absorb all prepayment cash flows first (more call risk); if interest rates rise, it will receive cash flows last (more extension risk).
- **Accrual class (Z-bond)** — This class is similar to a zero-coupon bond because it makes no interest payments to investors for a period of time, during which interest accrues at the coupon rate. Once the class begins to receive principal, interest is paid monthly based upon the principal balance remaining. The accrual class is subject to high volatility with respect to interest rate risk and prepayment risk.



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