

## MORTGAGE-BACKED SECURITIES (MBS) AND COLLATERALIZED MORTGAGE OBLIGATIONS (CMOS)

A Mortgage-Backed Security (MBS) is a security whose cash flows are generated from a pool of underlying mortgages. As the underlying loans are paid off by the borrowers, the investors in these securities receive payments of interest and principal over time. The process of taking a large pool of loans and converting them into investable securities in this manner is called “securitization”.

Mortgage lenders such as banks, savings and loans, and other lending institutions make loans to homeowners. These loans are then sold to other financial entities whose business is to purchase pools of mortgages and securitize them. The securitizing entity can be a government agency specializing in this practice, such as Fannie Mae, Freddie Mac, and Ginnie Mae, or a private institution such as an investment bank.

A Collateralized Mortgage Obligation (CMO) is a multi-class security backed by a pool of mortgage pass-through securities and/or mortgage loans. CMOs were developed to offer investors a wider range of investment terms and level of risk than available for mortgage pass-through securities.

### Mortgage “Pass Through” Securities

The simplest MBS securitization is a “pass-through”, in which any cash flows received from the mortgages are simply passed on to the investors on a pro rata basis. The cash flow may be interest payments or principal payments. The principal amounts may have been received according to normal amortization schedule or represent pre-payments of principal. Whichever the case, a pass-through simply passes on these payments to the investor. Since the pre-payment of principal can be unpredictable, the investor must accept the associated re-investment risk of a pass-through MBS.

The **Government National Mortgage Association (Ginnie Mae)**, the **Federal Home Loan Mortgage Corporation (Freddie Mac)** and the **Federal National Mortgage Association (Fannie Mae)** issue the majority of pass-through MBS.

Mortgage pass-through payments consist of three cash-flow components:

- 1) *Scheduled principal payments* (usually fixed)
- 2) *Scheduled interest payments* (usually fixed)
- 3) *Pre-payments of principal* (usually variable depending on homeowner actions based on prevailing interest rates)

Of these three components, the first two together are designed by the traditional mortgage contract to sum to the same amount from month-to-month. Together, these two parts are designed to provide a predictable payment stream to the mortgage investor.

### REASONS TO CONSIDER

- ✓ Attractive Yields
- ✓ High Credit Quality
- ✓ Variety of Structures

The third component is more unpredictable and depends on the pre-payment behavior of the mortgage borrowers. Borrowers may choose to only make regular scheduled payments over the life of the mortgage or they may pre-pay some or all of the principal on an accelerated schedule. Because of the unpredictability of these pre-payments, the cash flow from the pass-through can vary each month. Investors accept the possibility of irregular monthly payments when investing in pass-throughs.

## Collateralized Mortgage Obligations (CMOs)

In contrast to pass-through structures, CMOs redirect the mortgage cash flows in a prioritized order to several bond classes with varying maturities. These bond classes are called “tranches,” which is the French word for “slice.” The security’s prospectus specifies how the CMO will distribute mortgage cash flows amongst the different tranches. Depending on which tranche the investor owns, he or she can have additional protection against pre-payment uncertainty.

For instance, a CMO might have tranches which guarantee a regular coupon payment as long as the realized pre-payment rate remains within certain pre-set bounds. To permit such a tranche to exist, it also must have supporting tranches that absorb the impact of early or slow pre-payments of principal. Issuers will pay lower coupons on the tranches that have more payment certainty and higher coupons on tranches with less payment certainty in order to balance return with the risk which investors assume.

Ginnie Mae, Freddie Mac, and Fannie Mae are the largest issuers of CMOs. Private institutions also issue “private label” or “non-agency” CMOs whose underlying pools are not backed by the U.S. Government and therefore, whose credit risk investors bear directly.

## Types of CMO Payouts

CMOs have different payment streams and timing based on the type of tranche structure purchased.

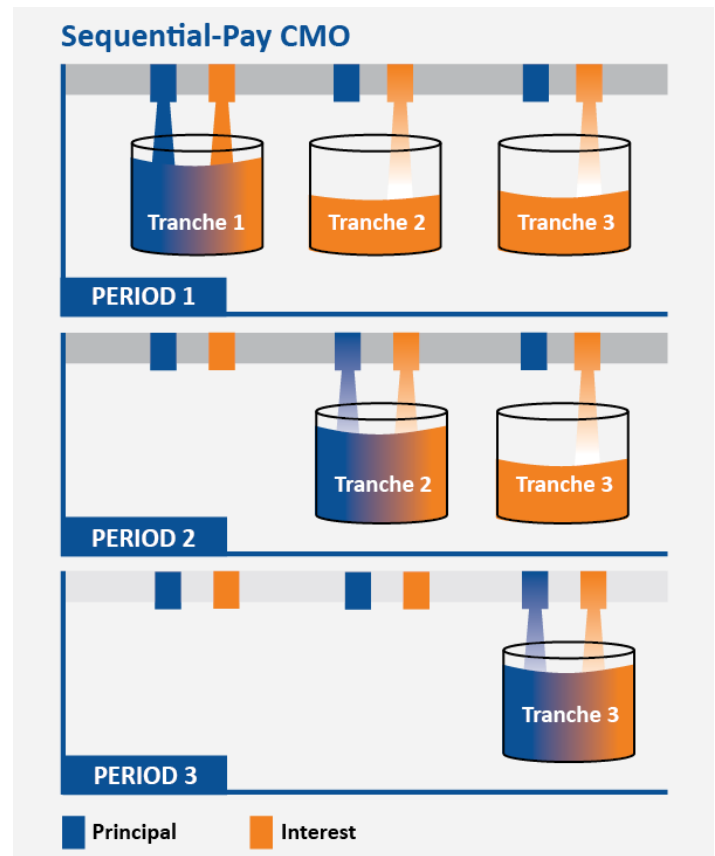
**Sequential Payment:** Sometimes referred to as a “clean” or “plain vanilla” structure, a sequential payment structure is the most basic.

- Monthly interest is distributed to all tranches on a *pro rata* basis.
- Any principal received from the underlying pool is funneled initially all to the first tranche in the

sequence. No principal is provided to other tranches until the first tranche’s principal is completely repaid.

- After the first tranche’s principal is exhausted, additional principal received is funneled to the second tranche in sequence until the second tranche is completely repaid.
- This method of distributing principal continues to subsequent tranches until the whole CMO is repaid.

## Sequential-Pay CMO



**Planned Amortization Classes (PACs):** PACs are more complex as the note holder is given an interest and principal payout schedule and a promise this schedule will be maintained as long as pre-payments of principal remain within certain pre-payment rate bands. The control mechanism that permits a PAC to operate in this way is a “support” or “companion” tranche which acts as the buffer for the PAC tranche. If principal comes in earlier than expected, the excess is absorbed by the support tranche. If principal comes in slower than expected, all will be allocated to the PAC in order to maintain the PAC payment schedule and none will go to the support tranche.

Because of a PAC's ability to absorb principal pre-payments that are faster or slower than the expected rate, it offers protection against the risk the bond will mature earlier than expected, known as "contraction risk", or that it will mature later than expected, known as "extension risk".

The support tranche is so named because it is designed to provide support for the main PAC tranche which has priority in receiving principal and interest for more predictable cash flows. The support tranche absorbs the extension and/or contraction risk and trades at higher yields than PACs.

**Targeted Amortization Classes (TACs):** The TAC structure is similar to PACs, except it is designed to only offer protection when principal is paid back earlier than anticipated. If principal comes in slower than anticipated, TAC holders will receive back principal slower than planned.

This means TAC holders are protected from contraction risk within certain pre-set bands of pre-payment speed, but not against extension risk. Since TACs only offer one-sided cash flow protection, they will generally offer higher yields than comparable PACs as compensation for this increased uncertainty.

**Z-Tranches:** The Z-tranche is usually the last tranche in a collateralized mortgage. Z-tranche holders start receiving principal and interest payments after a collateralized mortgage obligation retires all other tranches. Because Z-tranches do not pay out any cash for a period of time, it helps stabilize the cash flow requirements of other tranches. The market value of Z-tranches can vary widely.

## Features and Benefits

**Attractive Yields:** Even though agency Mortgage-Backed Securities (MBS) have U.S. Government backing, they typically pay higher coupon rates than comparable U.S. Treasuries. This is largely because of pre-payment risk associated with MBS for which investors demand additional compensation. As long as an agency MBS remains outstanding, investors will enjoy higher coupons with an agency MBS than its Treasury counterpart.

### Range of Maturities and Coupon Structures:

Since the agency MBS market is so well-established and liquid, MBS structures can be found covering a wide range of maturities, coupon payment structures, and coupon payment levels. When considering maturity, investors should recognize impacts of pre-payment of principal on

actual maturity and use measures such as weighted-average maturity, weighted-average life, and duration in making investment decisions. In considering coupon structures offered by different pass-throughs or CMO tranches, investors should consider carefully risks as balanced against the offered yield. In general, investments that offer higher nominal yields also come with increased risks in the form of higher credit risk or cash flow uncertainty.

**Credit Quality:** Generally, MBS are guaranteed by government-sponsored entities (GSEs) or by an agency of the U.S. Government, and therefore, carry the corresponding credit rating. Credit risk is considered minimal for mortgages backed by federal agencies or GSEs, such as Ginnie Mae, which is backed by the full faith and credit of the U.S. Government.

**Taxation:** Any interest received from an MBS is subject to federal, state, and local taxes. If investors purchase a MBS at a discount to face value, the difference is taxable at the federal, state, and local levels. The discounted price is referred to as an "original issue discount". In these cases, interest is assumed to periodically accrue over the purchase price until the face value is returned. This accrued amount is taxed in the year it is accrued even if actual principal is received in a different tax year. Investors should consult their own tax advisors concerning the application of these rules to their situation. AAM does not provide tax or legal advice.

## Potential Risks

**Contraction or Pre-Payment Risk:** Contraction risk results from principal pre-payments being made at a faster rate than anticipated, causing the investor to receive back his or her investment earlier than expected. The effective maturity of the investment "contracts" under this scenario requiring the investor to potentially search for an alternative investment under adverse investment conditions.

This risk is particularly relevant for MBS because pre-payment from re-financing activity tends to increase when interest rates fall. But if interest rates fall, that time-frame is precisely when it will be more difficult to find a comparably yielding alternative to the original investment.

Pre-payment risk is the primary source of differences in fundamental value among agency MBS. An anticipated level of pre-payments based on historical data is factored into the price and yield of any MBS.

**Extension Risk:** Extension risk is the opposite of contraction risk. It is the risk homeowners will pay down principal at a slower rate than anticipated. In that case, the effective maturity of a bond gets extended farther out.

Like contraction risk, extension risk is also a relevant risk for MBS investors because principal repayment tends to slow down when interest rates rise because rising interest rates tend to dampen re-financing activity. But when interest rates rise, that is when investors might want to have their investment returned to them at a faster pace so they can re-invest the returned amount in higher-yielding alternatives.

**Credit Risk:** Non-Agency MBS are not guaranteed by government agencies and therefore, investors must bear direct credit risk to the underlying mortgages or to the third-party guarantor of MBS performance.

To mitigate the impact of credit risk in some tranches, non-agency MBS will typically incorporate a senior/subordinated structure. A common structure will have a

senior and several junior (subordinated) tranches. The junior levels are designed to be first to absorb default losses and therefore will have lower ratings assigned to them.

**Liquidity:** Depending on the issue, the secondary market for MBS are generally liquid, with active trading by dealers and investors. Characteristics and risks of a particular security, such as the presence or lack of GSE backing, may affect its liquidity relative to other mortgage-backed securities.

CMOs can be less liquid than other mortgage-backed securities due to the unique characteristics of each tranche. Before purchasing a CMO, investors should possess a high level of expertise to understand the implications of tranche-specification. In addition, investors may receive more or less than the original investment upon selling a CMO.

## NEXT STEPS

To learn more about MBS and CMOs, contact your financial professional who can answer questions and provide access to current offerings, as well as assist you in structuring a portfolio that meets your individual investment goals and risk tolerance.

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