

investor's guide

# COLLATERALIZED MORTGAGE OBLIGATIONS (CMOS)

INCOME PAID MONTHLY OR QUARTERLY TO MEET INVESTMENT GOALS



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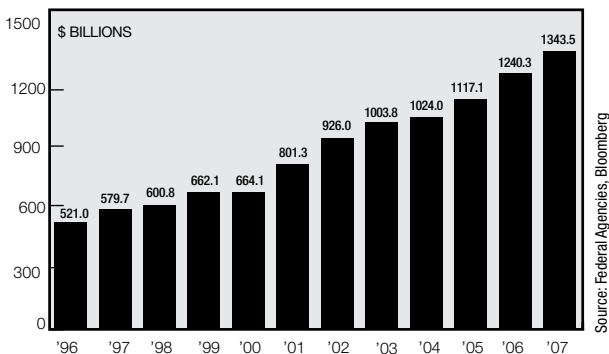
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## THE CMO: AN OVERVIEW

Collateralized Mortgage Obligations (CMOs)<sup>1</sup>—also known as Real Estate Mortgage Investment Conduits (REMICs)—are one of the most innovative investment vehicles available today, offering regular payments, relative safety, and notable yield advantages over other fixed-income securities of comparable credit quality.

\$222.3 billion in new agency CMOs were issued in 2007, bringing the total volume of outstanding securities to approximately \$1.34 trillion as of December 31, 2007. A wide variety of CMO securities with different cash flow and expected maturity characteristics have been designed to meet specific investment objectives. While CMOs offer advantages to investors, they also carry certain risks, which are explained in this brochure. To determine if CMOs have a place in your portfolio, you should first understand the distinctive features of these securities.

### ESTIMATED OUTSTANDING VOLUME OF AGENCY CMO SECURITIES



<sup>1</sup> CMOs were first introduced in 1983. The Tax Reform Act of 1986 allowed CMOs to be issued in the form of Real Estate Mortgage Investment Conduits (REMICs), creating certain tax and accounting advantages for issuers and for certain large institutional and foreign investors. Today, almost all CMOs are issued in REMIC form. In this brochure, as in common market usage, the terms "REMIC" and "CMO" are interchangeable, except where otherwise noted.

## THE BUILDING BLOCKS OF CMOS: MORTGAGE LOANS & MORTGAGE PASS-THROUGHS

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The creation of a CMO begins with a mortgage loan extended by a financial institution (savings and loan, thrift, commercial bank, or mortgage company) to finance a borrower's home or other real estate. The homeowner usually pays the mortgage loan in monthly installments composed of both interest and "principal."<sup>2</sup> Over the life of the mortgage loan, the interest component of payments, which typically comprises a majority of the payments in the early years, gradually declines as the principal component increases.

To obtain funds to make more loans, mortgage lenders either "pool" groups of loans with similar characteristics to create securities or sell the loans to issuers of mortgage securities. The securities most commonly created from pools of mortgage loans are "mortgage pass-through securities," often referred to as mortgage-backed securities (MBS) or participation certificates (PCs).<sup>3</sup> Mortgage pass-through securities represent a direct ownership interest in a pool of mortgage loans. As the homeowners whose loans are in the pool make their mortgage loan payments, the money is distributed on a pro rata basis to the holders of the securities.

Several factors can affect the homeowners' payments. Typically, the homeowner will "prepay" the mortgage loan by selling the property, refinancing the mortgage, or otherwise paying off the loan in part or in whole. Most mortgage pass-through securities are based on fixed-rate mortgage loans with an original maturity of 30 years, but experience shows that most of these mortgage loans will be paid off much earlier.

<sup>2</sup> Most words in quotes appear in the glossary.

<sup>3</sup> In this brochure, the generic term "mortgage pass-through securities" will be used to refer to these types of securities. The term "mortgage securities" is used to refer to both mortgage pass-through securities and CMOs.

While the creation of mortgage pass-through securities greatly increased the secondary market for mortgage loans by pooling them and selling interests in the pool, the structure of such securities has inherent limitations. Mortgage pass-through securities only appeal to investors with a certain investment horizon—on average, 10 to 12 years.

CMOs were developed to offer investors a wider range of investment time frames and greater cash-flow certainty than had previously been available with mortgage pass-through securities. The CMO issuer assembles a package of these mortgage pass-through securities, or in some cases mortgage loans themselves, and uses them as collateral for a multiclass security offering. The different classes of securities in a CMO offering are known as “tranches,” from the French word for “slice.” The CMO structure enables the issuer to direct the principal and interest cash flow generated by the collateral to the different tranches in a prescribed manner, as defined in the offering’s prospectus, to meet different investment objectives.

## **AGENCY VS. PRIVATELY ISSUED CMOs**

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Many mortgage pass-through securities are guaranteed by the Government National Mortgage Association (GNMA, or Ginnie Mae), an agency of the U.S. government, or by U.S. government-sponsored enterprises (GSE) such as the Federal National Mortgage Association (FNMA, or Fannie Mae) or the Federal Home Loan Mortgage Corporation (FHLMC, or Freddie Mac). Ginnie Mae is a government-owned corporation within the Department of Housing and Urban Development. Fannie Mae and Freddie Mac have federal charters and are subject to some oversight by the federal government, but are publicly owned by their stockholders. (The term “agency” is commonly used to refer to Fannie Mae and Freddie Mac as well as

to GNMA. This discussion follows that usage, but readers should bear in mind that Fannie Mae and Freddie Mac are federally chartered and privately owned companies.)

Fannie Mae and Freddie Mac issue and guarantee pass-through securities; Ginnie Mae only adds its guarantee to privately issued pass-throughs backed by government-insured (FHA and VA) mortgages. Fannie Mae and Freddie Mac have issued CMOs for some time; the Department of Veterans Affairs (VA) began to issue CMOs in 1992; and Ginnie Mae initiated its own CMO program in 1994. Securities guaranteed or guaranteed and issued by these entities are known generically as “agency” mortgage securities. The agency guarantees enhance their credit quality for investors. In addition, the mortgages backing Fannie Mae and Freddie Mac mortgage securities must meet strict quality criteria. Those backing GNMA pass-throughs are underwritten in accordance with the rules and regulations of the FHA and the VA, which insure them against default.

The extent of the agency guarantee depends on the entity making it. Ginnie Mae, for example, guarantees the timely payment of principal and interest on all of its mortgage securities, and its guarantee is backed by the “full faith and credit” of the U.S. government. Holders of Ginnie Mae mortgage securities are therefore assured of receiving payments promptly each month, regardless of whether the underlying homeowners make their payments. They are guaranteed to receive the full return of face-value principal even if the underlying borrowers default on their loans. Mortgage securities issued by the VA carry the same “full faith and credit” U.S. government guarantee.

Fannie Mae guarantees timely payment of both principal and interest on its mortgage securities whether or not the payments have been collected from the borrowers. Freddie Mac also guarantees timely payment of both principal and interest on its Gold PCs and CMOs. Some older series of Freddie

Mac PCs guarantee timely payment of interest, but only the eventual payment of principal. Although neither Fannie Mae nor Freddie Mac securities carry the additional “full faith and credit” U.S. government guarantee, the credit markets consider the credit on these securities to be equivalent to that of securities rated triple-A or better.

Some private institutions, such as subsidiaries of investment banks, financial institutions, and home builders, also issue mortgage securities. When issuing CMOs, they often use agency mortgage pass-through securities as “collateral”; however, their collateral may also include different or specialized types of mortgage loans or mortgage loan pools, letters of credit, or other types of credit enhancements. These so-called “private label” CMOs are the sole obligation of their issuer. To the extent that private-label CMOs use agency mortgage pass-through securities as collateral, their agency collateral carries the respective agency’s guarantees. Private-label CMOs are assigned credit ratings by independent credit agencies based on their structure, issuer, collateral, and any guarantees or outside factors.

As an additional investor protection, the CMO issuer typically segregates the CMO collateral or deposits it in the care of a “trustee,” who holds it for the exclusive benefit of the CMO bondholders.

## **A DIFFERENT SORT OF BOND: PREPAYMENT RATES AND AVERAGE LIVES**

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Although CMOs entitle investors to payments of principal and interest, they differ from corporate bonds and Treasury securities in significant ways. Corporate and Treasury bonds are issued with stated maturities. The purchase of a bond from an issuer is essentially a loan to the issuer in the amount of the principal, or face amount, of the bond for a prescribed period of time in return for a specified annual

rate of interest. The bondholder receives interest, generally in semiannual payments, until the bond is redeemed. When the bond matures or is called by the issuer, the issuer returns the “face value” of the bond to the investor in a single principal payment.

With a CMO, the ultimate borrower is the homeowner who takes on a mortgage loan. Because the homeowner’s monthly payments include both interest and principal, the mortgage security investor’s principal is returned over the life of the security, or “amortized,” rather than repaid in a single lump sum at maturity. CMOs provide monthly or quarterly payments to investors which include varying amounts of both principal and interest. As the principal is repaid or prepaid, interest payments become smaller, because they are based on a lower amount of outstanding principal.

A mortgage security “matures” when the investor receives the final principal payment. Most CMO tranches have a stated maturity based on the last date on which the principal from the collateral could be paid in full. This date is theoretical, because it assumes no prepayments on the underlying mortgage loans.

Mortgage securities are more often discussed in terms of their “average life” rather than their stated maturity date. Technically, the average life is defined as the average time to receipt of each dollar of principal, weighted by the amount of each principal payment. In simpler terms, the average life is the average time that each principal dollar in the pool is expected to be outstanding, based on certain assumptions about prepayment speeds. If prepayment speeds are faster than expected, the average life of the CMO will be shorter than the original estimate; if prepayment speeds are slower, the CMO’s average life will be extended. *While some CMO tranches are specifically designed to minimize the effects of variable prepayment rates, the average life of the security is always a best estimate, contingent on how closely the actual prepayment speeds of the underlying mortgage loans match the assumptions.*

## **CALCULATING PREPAYMENT SPEEDS**

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Prepayment assumptions, that is, estimates based on historic prepayment rates for each particular type of mortgage loan under various economic conditions from various geographic areas, are factored into the offering price, "yield," and market value of a CMO. The realization of the average life and yield estimates depends on the accuracy of the prepayment assumptions. Different standard and proprietary prepayment rate models exist, but one of the most common ways of expressing prepayment rates is in terms of the Standard Prepayment Model of the Securities Industry and Financial Markets Association. Developed in 1985 for specific application to mortgage securities, the Association's Model assumes that new mortgage loans are less likely to be prepaid than somewhat older, more "seasoned" mortgage loans. Projected and historical prepayment rates are often expressed as "percentage of PSA" (Prepayment Speed Assumptions). (See Glossary for a more complete definition of the Association's Model.)

## **INTEREST RATES AND YIELDS ON CMOs**

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The interest rates paid on CMOs will be lower than the interest rates paid on the underlying mortgage loans, because the issuer retains a portion of the interest paid by the mortgage borrower as a "servicing fee" for creating the security and for collecting and distributing the monthly payments to investors. Still, newly issued mortgage securities carry higher estimated yields than comparable Treasury securities. In part, this is because the interest rates paid by home buyers are higher than the interest rates paid by the U.S. government. However, the higher interest rates on mortgage securities also reflect compensation for the uncertainty of their average lives.

As with any bond, the yield on a CMO depends on the purchase “price” in relation to the interest rate and the length of time the investor’s principal remains outstanding. CMO yields are often quoted in relation to yields on Treasury securities with maturities closest to the CMO’s estimated average life. The estimated yield on a CMO reflects its estimated average life based on the assumed prepayment rates for the underlying mortgage loans. If actual prepayment rates are faster or slower than anticipated, the investor who holds the CMO until it is fully paid may realize a different yield. For securities purchased at a discount to face value, faster prepayment rates will increase the yield-to-maturity, while slower prepayment rates will reduce it. For securities purchased at a premium, faster prepayment rates will reduce the yield-to-maturity, while slower rates will increase it. For securities purchased at face value (“par”), these effects should be minimal.

Because CMOs pay monthly or quarterly, as opposed to the semiannual interest payment schedule for most bonds, CMO investors can use their interest income much earlier than other bond investors. Therefore, CMOs are often discussed in terms of their “bond equivalent yield,” which is the actual CMO yield adjusted to account for its greater present value resulting from more frequent interest payments.

## **THE EFFECT OF INTEREST RATES ON CMO VALUES AND PREPAYMENT RATES**

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Prevailing market interest rates affect CMOs in two major ways. First, as with any bond, when interest rates rise, the market price or value of most types of outstanding CMO tranches drops in proportion to the time remaining to the estimated maturity. Conversely, when rates fall, prices of outstanding CMOs generally rise, creating the opportunity for

capital appreciation if the CMO is sold prior to the time when the principal is fully repaid.

Movements in market interest rates have a greater effect on CMOs than on other fixed-interest obligations because rate movements affect the underlying mortgage loan prepayment rates and, consequently, the CMO's average life and yield. When interest rates decline, homeowners are more likely to refinance their mortgages or purchase new homes to take advantage of the lower cost of financing. Prepayment speeds therefore accelerate in a declining interest rate environment. When rates rise, homeowners are more likely to "stay put," causing prepayment speeds to slow.

What's good for the home buyer is not necessarily good for the CMO investor. If interest rates fall and prepayment speeds accelerate, CMO investors may find they get their principal back sooner than expected and have to reinvest it at lower interest rates ("call risk"). If interest rates rise and prepayment speeds are slower, investors may find their principal committed for a longer period of time, causing them to miss the opportunity to earn a higher rate of interest ("extension risk"). Therefore, investors should carefully consider the effect that sharp moves in interest rates would have on the performance of their CMO investment. (See also "negative convexity" in the Glossary.)

## **BASIC CHARACTERISTICS OF A CMO TRANCHE**

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The cash flow from the CMO collateral may be allocated in a variety of ways. Usually, it is first allocated to meet the interest obligations on all tranches in the offering. Principal repayments, both scheduled and prepaid, are then distributed to the different classes of bondholders according to a predetermined priority schedule which is outlined

in the CMO prospectus or offering circular. The tranche receiving principal repayment is referred to as “active” or “currently paying.” In more complex structures, more than one tranche can be paying principal at a time.

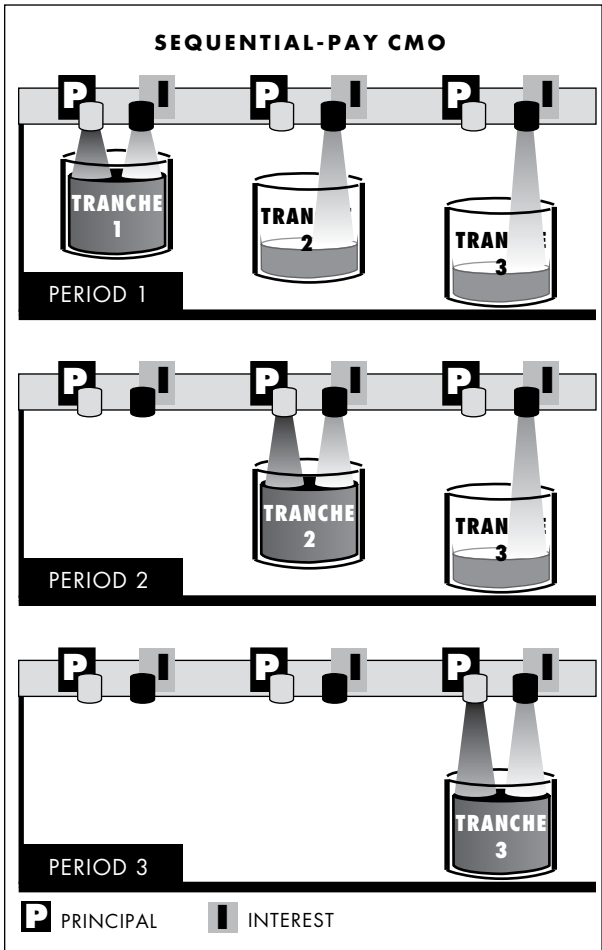
Each CMO tranche has an estimated first payment date, on which investors can expect to begin receiving principal payments, and an estimated last principal payment (or maturity) date, on which they can expect their final dollar of principal to be returned. The period before principal payments begin in the tranche, when investors receive interest-only payments, is known as the “lockout” period. The period during which principal repayments are expected to occur is called the “window.” Both first and last principal payment dates are estimates based on prepayment assumptions and can vary according to actual prepayments made on the underlying mortgage loans.

## **THE VARIOUS TYPES OF CMOs**

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The most basic CMO structure has tranches that pay in a strict sequence. Each tranche receives regular interest payments, but the principal payments received are made to the first tranche alone, until it is completely retired. Once the first tranche is retired, principal payments are applied to the second tranche until it is fully retired, and the process continues until the last tranche is retired. The first tranche of the offering may have an average life of 2-3 years, the second tranche 5-7 years, the third tranche 10-12 years, and so forth. This type of CMO is known as a “sequential pay,” “clean,” or “plain vanilla” offering. The CMO structure allows the issuer to meet different maturity requirements and to distribute the impact of prepayment variability among tranches in a deliberate and sometimes uneven manner. This flexibility has led to increasingly varied and complex CMO structures. CMOs may have 50 or more tranches.

es, each with unique characteristics that may be interdependent with other tranches in the offering. The types of CMO tranches include:



**Planned Amortization Class (PAC) Tranches.**

PAC tranches use a mechanism similar to a “sinking fund” to establish a fixed principal payment schedule that directs cash-flow irregularities caused by faster- or slower-than-expected prepayments away from the PAC tranche and toward another “companion” or “support” tranche (see below). With a PAC tranche, the yield, average life, and lockout periods estimated at the time of investment are more likely to remain stable over the life of the security.

PAC payment schedules are protected by priorities which assure that PAC payments are met first out of principal payments from the underlying mortgage loans. Principal payments in excess of the scheduled payments are diverted to non-PAC tranches in the CMO structure called companion or support tranches because they support the PAC schedules. In other words, at least two bond tranches are active at the same time, a PAC and a companion tranche. When prepayments are minimal, the PAC payments are met first and the companion may have to wait. When prepayments are heavy, the PAC pays only the scheduled amount, and the companion class absorbs the excess.

“Type I PAC” tranches maintain their schedules over the widest range of actual prepayment speeds—say, from 100% to 300% PSA. “Type II” and “Type III PAC” tranches can also be created with lower priority for principal payments from the underlying loans than the primary or Type I tranches. They function as support tranches to higher-priority PAC tranches and maintain their schedules under increasingly narrower ranges of prepayments.

PAC tranches are a common type of CMO tranche. Because they offer a high degree of investor cash-flow certainty, PAC tranches are usually offered at lower yields.

#### **Targeted Amortization Class (TAC) Tranches.**

TAC tranches also provide more cash-flow certainty and a fixed principal payment schedule, based on a mechanism similar to a sinking fund, but this certainty applies at only one prepayment rate rather than a range. If prepayments are higher or lower than the defined rate, TAC bondholders may receive more or less principal than the scheduled payment. TAC tranches' actual performance depends on their priority in the CMO structure and whether or not PAC tranches are also present. If PACs are also present, the TAC tranche will have less cash-flow certainty. If no PACs are present, the TAC provides

the investor with some protection against accelerated prepayment speeds and early return of principal. The yields on TAC bonds are typically higher than yields on PAC tranches but lower than yields on companion tranches.

### **Companion Tranches.**

Every CMO that has PAC or TAC tranches in it will also have companion tranches (sometimes called support bonds), which absorb the prepayment variability that is removed from the PAC and TAC tranches. Once the principal is paid to the active PAC and TAC tranches according to the schedule, the remaining excess or shortfall is reflected in payments to the active companion tranche. The average life of a companion tranche may vary widely, increasing when interest rates rise and decreasing when rates fall. To compensate for this variability, companion tranches offer the potential for higher expected yields when prepayments remain close to the rate assumed at purchase. Similar to Type II and Type III PACs, TAC tranches can serve as companion tranches for PAC tranches. These lower-priority PAC and TAC tranches will in turn have companion tranches further down in the principal payment priority. Companion tranches are often offered for sale to retail investors who want higher income and are willing to take more risk of having their principal returned sooner or later than expected.

### **Z-Tranches (also known as Accretion Bonds or Accrual Bonds).**

Z-tranches are structured so that they pay no interest until the lockout period ends and they begin to pay principal. Instead, a Z-tranche is credited “accrued interest” and the face amount of the bond is increased at the stated coupon rate on each payment date. During the accrual period the principal amount outstanding increases at a compounded rate and the investor does not face the risk of reinvesting at lower rates if market yields decline. Typical Z-tranches are structured as the last tranche in a series of sequential or PAC and companion tranches

and have average lives of 18 to 22 years. However, Z-tranches can be structured with intermediate-term average lives as well. After the earlier bonds in the series have been retired, the Z-tranche holders start receiving cash payments that include both principal and interest.

While the presence of a Z-tranche can stabilize the cash flow in other tranches, the market value of Z-tranches can fluctuate widely, and their average lives depend on other aspects of the offering. Because the interest on these securities is taxable when it is credited, even though the investor receives no interest payment, Z-tranches are often suggested as investments for tax-deferred retirement accounts. (See also “Jump Z-tranche” in the Glossary.)

#### **Principal-Only (PO) Securities.**

Some mortgage securities are created so that investors receive only principal payments generated by the underlying collateral. These Principal-Only (PO) securities may be created directly from mortgage pass-through securities, or they may be tranches in a CMO. In purchasing a PO security, investors pay a price deeply discounted from the face value and ultimately receive the entire face value through scheduled payments and prepayments.

The market values of POs are extremely sensitive to prepayment rates and therefore interest rates. If interest rates are falling and prepayments accelerate, the value of the PO will increase. On the other hand, if rates rise and prepayments slow, the value of the PO will drop. A companion tranche structured as a PO is called a “Super PO.”

#### **Interest-Only (IO) Securities.**

Separating principal payments to create PO mortgage securities necessarily involves the creation of Interest-Only (IO) securities. CMOs that have PO tranches will therefore also have IO tranches. IO securities are sold at a deep discount to their

“notional” principal amount, namely the principal balance used to calculate the amount of interest due. They have no face or par value. As the notional principal amortizes and prepays, the IO cash flow declines.

Unlike POs, IOs increase in value when interest rates rise and prepayment rates slow; consequently, they are often used to “hedge” portfolios against interest rate risk. IO investors should be mindful that if prepayment rates are high, they may actually receive less cash back than they initially invested.

The structure of IOs and POs exaggerates the effect of prepayments on cash flows and market value. The heightened risk associated with these securities makes them unsuitable for certain investors.

#### **Floating-Rate Tranches.**

First offered in 1986, “floating-rate CMO” tranches carry interest rates that are tied in a fixed relationship to an interest rate index, such as the London Interbank Offered Rate (LIBOR), the Constant Maturity Treasury (CMT), or the Cost of Funds Index (COFI), subject to an upper limit, or “cap,” and sometimes to a lower limit, or “floor.” The performance of these investments also depends on the way interest rate movements affect prepayment rates and average lives.

Sometimes the interest rates on these tranches are stated in terms of a formula based on the designated index, meaning they move up or down by more than one “basis point” (1/100 of one percent) for each basis point increase or decrease in the index. These so-called “superfloaters” offer leverage when rates rise. The interest rates on “inverse floaters” move in a direction opposite to the changes in the designated index and offer leverage to investors who believe rates may move down. The potential for high coupon income in a rally can be rapidly eroded when prepayments speed up in response to falling interest rates. All types of floating-rate tranches may be

structured as PAC, TAC, companion, or sequential tranches, and are often used to hedge interest rate risks in portfolios.

**Residuals.**

CMOs also contain a “residual” interest tranche, which collects any cash flow remaining from the collateral after the obligations to the other tranches have been met. Residuals are not classified as regular interest and may be structured as sequential, PAC, floating-rate, or inverse-floater tranches, and differ from regular tranches primarily in their tax characteristics, which can be more complex than other CMO tranches. CMOs issued as non-REMICs also have residuals which are sold as a separate security such as a trust certificate or a partnership interest.

## **CMO SETTLEMENT DATES AND PAYMENT DATES**

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Investors who purchase CMOs at issuance—the “issue date”—may find that their transaction takes up to a month to “settle” because of the time required to assemble the collateral, deposit it with the trustee, and complete other legal and reporting requirements. In the secondary market, CMO transactions typically settle in three business days.

Because payments to CMO investors depend on the collection and distribution of payments made by the holders of the underlying mortgage loans, a payment delay occurs when the security is first purchased. “Payment dates” for CMO tranches are defined in the prospectus and are usually stated as the 15th or 25th day of the month following the record date. Depending on when the CMO transaction settles, the investor may have to wait up to two months for the first payment, but this delay is factored into the yield quoted at the time of purchase. Once the first payment is received, future payments will be made monthly.

## **MINIMUM INVESTMENTS, TRANSACTION COSTS, AND LIQUIDITY**

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The minimum investment for a CMO varies according to the structure of the offering, but most tranches sold to individual investors require a minimum investment of \$1,000. CMO investments are also offered in the form of mutual funds or unit trusts which typically have \$1,000 investment minimums.

A national network of mortgage securities dealers sells, trades, and makes markets in CMOs. These transactions are executed over-the-counter, directly from dealer to dealer, rather than through an exchange.

CMOs are bought and sold between dealers and investors like other debt instruments. Dealers trade the securities at a net cost which includes their own spread or profit on the transaction. Spreads on CMO transactions may be wider than spreads on Treasury security transactions, because Treasury securities have a broader and deeper secondary market and are therefore more liquid.

Although there is a sizable and active secondary market for many types of CMOs, the degree of liquidity can vary widely. Investors should remember that if they sell their CMOs rather than waiting for the final principal payment, the securities may be worth more or less than their original face value.

## **TAX CONSIDERATIONS FOR CMO INVESTORS**

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The interest portion of payments to CMO investors is subject to federal, state, and local income tax. When comparing Treasury yields to CMO yields, investors should remember that interest income from Treasury securities is exempt from state and local income tax.

Any portion of the CMO payment that represents return of principal or original cost is not taxable. However, if the securities were purchased at a discount from original issue or at a market discount, different rules apply. If an investor buys a mortgage security when originally issued for a price that represents an original discount from its face value, the investor may incur a tax liability on interest which accumulates on the security before it is paid out. If the security is purchased at a discount in the secondary market (market discount), the investor may be subject to a tax on the amount of principal received in excess of the purchase price as well as on the interest.

For CMO securities held in brokerage accounts, the Internal Revenue Service (IRS) requires the broker-dealer to report the investor's aggregate amount of interest earned and original issue discount accrued during a given calendar year and allows reliance on an external source to supply such tax reporting information. If interest is earned in one calendar year, but not paid until the next, it still must be reported and may be taxable. Broker-dealers provide clients with copies of reports submitted to the IRS.

As required by federal income tax law, CMO issuers provide information to certain entities to calculate properly the taxable income attributable to CMOs. Those entities, in turn, are obligated to supply such information to individuals and other "beneficial owners" who are not exempt recipients. Investors should be aware, however, that such information need not be furnished before March 15 of any calendar year following a calendar year in which income accrues on a CMO.

Investors should consult their tax advisor for more specific information.

## QUESTIONS YOU SHOULD ASK BEFORE INVESTING IN CMOs

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Before investing in a CMO, you should be able to answer the following questions with the help of your investment professional.

1. Is the CMO  
\_\_\_\_\_ agency-issued, or  
\_\_\_\_\_ private label?
2. If it is a private-label CMO, what is its credit rating?  
\_\_\_\_\_
3. Do I have a prospectus, prospectus supplement, or offering circular available for this CMO?  
\_\_\_\_\_ Yes          \_\_\_\_\_ No  
\_\_\_\_\_ If not, can I obtain it from the broker-dealer, or from the issuer?
4. Am I buying this CMO  
\_\_\_\_\_ at original issue, or  
\_\_\_\_\_ in the secondary market?
5. If it is trading in the secondary market, how have the prepayments compared to the assumptions?  
\_\_\_\_\_ Faster  
\_\_\_\_\_ Slower  
\_\_\_\_\_ In line with assumptions
6. If it is trading in the secondary market, how much of the underlying principal remains?  
\_\_\_\_\_
7. What is the tranche's:  
Estimated average life? \_\_\_\_\_ years  
Estimated final maturity? \_\_\_\_\_ (date)  
Estimated yield? \_\_\_\_\_%
8. How do the estimated average life and final maturity compare to my investment time frames? \_\_\_\_\_
9. How does the estimated yield compare to comparable Treasury securities, adjusted for state and local income taxes?  
Treasury yield \_\_\_\_\_%  
CMO after-tax yield \_\_\_\_\_%
10. What is the estimated first principal payment date?  
\_\_\_\_\_ (date)

11. Is the tranche a  
       \_\_\_\_\_ Sequential pay, \_\_\_\_\_ PAC,  
       \_\_\_\_\_ TAC, or \_\_\_\_\_ Companion tranche?
12. If it is a PAC or TAC tranche, does it function as a support to Type I PACs (such as Type II and Type III PACs)?  
       \_\_\_\_\_ Yes        \_\_\_\_\_ No
13. If it is a PAC or TAC tranche, what prepayment assumptions are the scheduled principal payments based on?  
       \_\_\_\_\_ % PSA
14. When can I expect my principal to be returned if the prepayment assumptions are:  
       \_\_\_\_\_ Faster than expected?  
       \_\_\_\_\_ On target?  
       \_\_\_\_\_ Slower than expected?
15. How will the estimated yield and average life of this CMO change if interest rates move up (or down) by 100, 200, or 300 basis points (100 basis points = 1%)?  
 a. If interest rates rise:  
       \_\_\_\_\_ Yield        \_\_\_\_\_ Average life  
 b. If interest rates fall:  
       \_\_\_\_\_ Yield        \_\_\_\_\_ Average life
16. Am I paying a price that reflects  
       \_\_\_\_\_ a premium over face value?  
       \_\_\_\_\_ a discount from face value?  
       \_\_\_\_\_ par value?
17. What is my first expected payment date?  
       \_\_\_\_\_ (date)
18. Is there an active secondary market in this security if I need to sell this CMO before its final principal payment?  
       \_\_\_\_\_ Yes        \_\_\_\_\_ No
19. Given my investment objectives (such as retirement, education, or income and growth), is this CMO appropriate for my account?  
       \_\_\_\_\_ Yes        \_\_\_\_\_ No
20. Is there any non-credit related risk of losing some or all of my principal investment in this CMO?  
       \_\_\_\_\_ Yes        \_\_\_\_\_ No

## GLOSSARY

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This section defines terms used in quotes in the text and additional terms that may be helpful to an investor considering an investment in CMOs.

**Accretion bond:** See “Z-tranche.”

**Accrual bond:** See “Z-tranche.”

**Accrued interest:** Interest deemed to be earned on a security but not yet paid to the investor.

**Active tranche:** A CMO tranche that is currently paying principal payments to investors.

**Amortization:** Liquidation of a debt through installment payments.

**Average life:** On a mortgage security, the average time to receipt of each dollar of principal, weighted by the amount of each principal prepayment, based on prepayment assumptions. (See page 6.)

**Basis point:** One-one hundredth (1/100 or .01) of one percent. Yield differences among bonds are stated in basis points.

**Beneficial owner:** One who benefits from owning a security, even if the security’s title of ownership is in the name of a broker or bank (“street name”).

**Bid:** The price at which a buyer is willing to buy a security.

**Bond equivalent yield:** An adjustment to a CMO yield which reflects its greater present value, created because CMOs pay monthly or quarterly interest, as opposed to semiannual interest payments on most other types of bonds.

**Book-entry:** A method of recording and transferring ownership of securities electronically, thereby eliminating the need for physical certificates.

**Call risk:** For a CMO, the risk that declining interest rates may accelerate mortgage loan prepayment speeds, causing an investor’s principal to be returned sooner than expected. As a consequence, investors may have to reinvest their principal at a lower rate of interest.

**Cap:** The upper limit for the interest rate on an adjustable-rate loan or security. (See page 15.)

**Clean CMO:** See “Sequential-pay CMO.”

**CMO (Collateralized Mortgage Obligation):**

A multiclass bond backed by a pool of mortgage pass-through securities or mortgage loans. See “REMIC.”

**CMT (Constant Maturity Treasury):** A series of indexes of various maturities (one, three, five, seven, or ten years) published by the Federal Reserve Board and based on the average yield of a range of Treasury securities adjusted to a constant maturity corresponding to that of the index.

**COFI (Cost of Funds Index):** A bank index reflecting the weighted average interest rate paid by savings institutions on their sources of funds. There are national and regional COFI indexes.

**Collateral:** Securities or property pledged by a borrower to secure payment of a loan. If the borrower fails to repay the loan, the lender may take ownership of the collateral. Collateral for CMOs consists primarily of mortgage pass-through securities or mortgage loans, although it may also encompass letters of credit, insurance policies, or other credit enhancements.

**Companion tranche:** A CMO tranche that absorbs a higher level of the impact of collateral prepayment variability in order to stabilize the principal payment schedule for a PAC or TAC tranche in the same offering. (See page 13.)

**Confirmation:** A document used by securities dealers and banks to state in writing the terms and execution of a verbal arrangement to buy or sell a security.

**Conventional mortgage loan:** A mortgage loan granted by a bank or thrift institution that is based solely on real estate as security and is not insured or guaranteed by a government agency.

**CPR (Constant Prepayment Rate):** The percentage of outstanding mortgage loan principal that prepays in one year, based on the annualization of the Single Monthly Mortality (SMM), which reflects the outstanding mortgage loan principal that prepays in one month.

**Current face:** The current remaining monthly principal on a mortgage security. Current face is computed by multiplying the original face value of the security by the current principal balance factor.

**CUSIP number:** A unique nine-digit identification number permanently assigned by the Committee on Uniform Securities Identification Procedures to each publicly traded security at the time of issuance. If the

security is in physical form, the CUSIP number is printed on its face.

**Extension risk:** For a CMO, the risk that rising interest rates may slow the anticipated prepayment speeds, causing investors to find their principal committed longer than they expected. As a consequence, they may miss the opportunity to earn a higher rate of interest on their money.

**Face value:** The par value of a security, as distinct from its market value.

**Factor:** A decimal value reflecting the proportion of the outstanding principal balance of a mortgage security, which changes over time, in relation to its original principal value. *The Bond Buyer* publishes the “Monthly Factor Report,” which contains a list of factors for Ginnie Mae, Fannie Mae, and Freddie Mac securities. Fannie Mae, Freddie Mac, and trustees of private-label CMOs also publish CMO tranche factors.

**Floating-rate CMO:** A CMO tranche which pays an adjustable rate of interest tied to a representative interest rate index such as the London Interbank Offered Rate (LIBOR), the Constant Maturity Treasury (CMT), or the Cost of Funds Index (COFI). (See page 15.)

**Floor:** The lower limit for the interest rate on an adjustable-rate loan or security.

**Hedge:** A commitment or investment made with the intention of minimizing the impact of adverse movements in interest rates or securities prices and offsetting potential losses.

**Inverse floater:** A CMO tranche that pays an adjustable rate of interest that moves in the opposite direction from movements in a representative interest rate index such as the London Interbank Offered Rate (LIBOR), the Constant Maturity Treasury (CMT), or the Cost of Funds Index (COFI). (See page 15.)

**IO (interest-only) security:** In the case of a CMO, an IO tranche is created deliberately to pay investors only interest and not principal. IO securities are priced at a deep discount to the “notional” amount of principal used to calculate the amount of interest due. (See page 14.)

**Issue date:** The date on which a security is deemed to be issued or originated.

**Issuer:** An entity which issues and is obligated to pay amounts due on securities.

**Jump Z-tranche:** A Z-tranche that may start receiving principal payments before prior tranches are retired if market forces create a “triggering” event, such as a drop in Treasury yields to a defined level, or a prepayment experience that differs from assumptions by a specific margin. “Sticky” jump Z-tranches maintain their changed payment priority until they are retired. “Non-sticky” jump Z-tranches maintain their priority only temporarily for as long as the triggering event is present. Although jump Z-tranches are no longer issued, some still trade in the secondary market.

**LIBOR (London Interbank Offered Rate):** The interest rate banks charge each other for short-term Euro-dollar loans ranging from overnight to five years in maturity.

**Lockout:** The period of time before a CMO investor will begin receiving principal payments. (See page 10.)

**Maturity date:** The date on which the principal amount of a security is due and payable.

**Mortgage:** A legal instrument that creates a lien upon real estate securing the payment of a specific debt.

**Mortgage loan:** A loan secured by a mortgage.

**Mortgage pass-through security:** A security representing a direct interest in a pool of mortgage loans. The pass-through issuer or servicer collects the payments on the loans in the pool and “passes through” the principal and interest to the security holders on a pro rata basis. Mortgage pass-through securities are also known as mortgage-backed securities (MBS) and participation certificates (PC).

**Negative convexity:** A characteristic of CMOs and other callable or prepayable securities that causes investors to have their principal returned sooner than expected in a declining interest rate environment or later than expected in a rising interest rate environment. In the former scenario, investors may have to reinvest their funds at lower rates (“call risk”); in the latter, they may miss an opportunity to earn higher rates (“extension risk”). (See page 9.)

**Offer:** The price at which a seller will sell a security.

**Original face:** The face value or original principal amount of a security on its issue date.

**PAC (planned amortization class) tranche:** A CMO tranche that uses a mechanism similar to a sinking fund to determine a fixed principal payment schedule that will apply over a range of prepayment assumptions. The

effect of the prepayment variability that is removed from a PAC bond is transferred to a companion tranche. (See page 11.)

**Par:** A price equal to the original face amount of a security, as distinct from its market value. On a debt security, the par or face value is the amount the investor has been promised to receive from the issuer at maturity.

**Payment date:** The date that principal and interest payments are paid to the record owner of a security.

**P&I (principal and interest):** The term used to refer to regularly scheduled payments or prepayments of principal and of interest on mortgage securities.

**Plain-vanilla CMO:** See “Sequential-pay CMO.”

**PO (principal-only) security:** In the case of a CMO, a PO tranche is created deliberately to pay investors principal only and not interest. PO securities are priced at a deep discount from their face value. (See page 14.)

**Pool:** A collection of mortgage loans assembled by an originator or master servicer as the basis for a security. In the case of Ginnie Mae, Fannie Mae, or Freddie Mac mortgage pass-through securities, pools are identified by a number assigned by the issuing agency.

**Prepayment:** The unscheduled partial or complete payment of the principal amount outstanding on a mortgage loan or other debt before it is due.

**Price:** The dollar amount to be paid for a security, which may also be stated as a percentage of its face value or par in the case of debt securities.

**Principal:** With mortgage securities, the amount of debt outstanding on the underlying mortgage loans.

**Private label:** The term used to describe a mortgage security whose issuer is an entity other than a U.S. government agency or U.S. government-sponsored enterprise. Such issuers may be subsidiaries of investment banks, financial institutions, or home builders.

**Ratings:** Designations used by investors' services to give relative indications of credit quality.

**Record date:** The date for determining the owner entitled to the next scheduled payment of principal or interest on a mortgage security.

**REMIC:** Real Estate Mortgage Investment Conduit. As a result of a change in the 1986 Tax Reform Act, most CMOs are today issued in REMIC form to create certain tax

advantages for the issuer. The terms “REMIC” and “CMO” are now used interchangeably.

**Residual:** In a CMO, the residual is that tranche which collects any cash flow from the collateral that remains after obligations to the other tranches have been met. (See page 16.)

**Scenario analysis:** Examining the likely performance of an investment under a wide range of possible interest rate environments.

**Sequential-pay CMO:** The most basic type of CMO, in which all tranches receive regular interest payments, but principal payments are directed initially only to the first tranche until it is completely retired. Once the first tranche is retired, the principal payments are applied to the second tranche until it is fully retired, and so on.

**Servicing:** Collection and pooling of principal, interest, and escrow payments on mortgage loans and mortgage pools, as well as certain operational procedures such as accounting, bookkeeping, insurance, tax records, loan payment follow-up, delinquency loan follow-up, and loan analysis. The party providing the servicing receives a servicing fee.

**Servicing fee:** The amount retained by the mortgage servicer from monthly interest payments made on a mortgage loan.

**Settlement date:** The date agreed upon by the parties to a transaction for the delivery of securities and payment of funds.

**Sinking fund:** Money set aside on a regular basis, sometimes from current earnings, for the specific purpose of redeeming debt.

**SMM (Single Monthly Mortality):** The percentage of outstanding mortgage loan principal that prepays in one month.

### **Standard Prepayment Model of the Securities Industry and Financial Markets Association:**

A model based on historical mortgage prepayment rates that is used to estimate prepayment rates on mortgage securities. The Association’s model is based on the Constant Prepayment Rate (CPR), which annualizes the Single Monthly Mortality (SMM), or the amount of outstanding principal that is prepaid in a month. Projected and historical prepayment rates are often expressed as

“percentage of PSA” (Prepayment Speed Assumptions). A prepayment rate of 100% PSA implies annualized prepayment rates of 0.2% CPR in the first month, 0.4% CPR in the second month, 0.6% CPR in the third month, and 0.2% increases in every month thereafter until the thirtieth month, when the rate reaches 6%. From the thirtieth month until the mortgage loan reaches maturity, 100% PSA equals 6% CPR.

**Super PO:** A principal-only security structured as a companion bond.

**Superfloater:** A floating-rate CMO tranche whose rate is based on a formulaic relationship to a representative interest rate index.

**Support tranche:** See “Companion tranche.”

**TAC tranche:** Targeted amortization class tranche. A TAC tranche uses a mechanism similar to a sinking fund to determine a fixed principal payment schedule based on an assumed prepayment rate. The effect of prepayment variability that is removed from the TAC tranche is transferred to a companion tranche. (See page 12.)

**Toggle tranche:** See “Jump Z-tranche.”

**Tranche:** A class of bonds in a CMO offering which shares the same characteristics. “Tranche” is the French word for “slice.”

**Transfer agent:** A party appointed to maintain records of securities owners, to cancel and issue certificates, and to address issues arising from lost, destroyed, or stolen certificates.

**Trustee:** An individual or institution that holds assets for the benefit of another.

**Weighted average coupon (WAC):** The weighted average interest rate of the underlying mortgage loans or pools that serve as collateral for a security, weighted by the size of the principal loan balances.

**Weighted average loan age (WALA):** The weighted average number of months since the date of the loan origination of the mortgages in a mortgage pass-through security pool issued by Freddie Mac, weighted by the size of the principal loan balances.

**Weighted average maturity (WAM):** The weighted average number of months to the final payment of each loan backing a mortgage security, weighted by the

size of the principal loan balances. Also known as weighted average remaining maturity (WARM) and weighted average remaining term (WART).

**Window:** In a CMO bond, the period of time between the expected first payment of principal and the expected last payment of principal.

**Yield:** The annual percentage rate of return earned on a security, as computed in accordance with standard industry practices. Yield is a function of a security's purchase price and interest rate.

**Z-tranche:** Often the last tranche in a CMO, the Z-tranche receives no cash payments for an extended period of time until the previous tranches are retired. While the other tranches are outstanding, the Z-tranche receives credit for periodic interest payments that increase its face value but are not paid out. When the other tranches are retired, the Z-tranche begins to receive cash payments that include both principal and continuing interest. (See page 13.)



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