SECURITIES PRICING AND VALUATION:
INTRODUCTION TO COMMON SECURITY TYPES

This document provides summary information for common security types held by entities in their investment portfolios and employee benefit plans.

Common Security Types

1. Treasury Security

What is a Treasury?

- U.S. Treasury bills, notes, and bonds (collectively known as "Treasuries") are issued by the Treasury Department and represent direct obligations of the U.S. government. Marketable Treasuries are backed by the full faith and credit of the U.S. government.

- Treasury bills ("T-bills") mature in one year or less, do not pay interest prior to maturity, and are sold at a discount. Many regard T-bills as the least risky investments available to investors.

- Treasury notes mature in two to ten years and pay interest semiannually. The 10-year Treasury note has become the security most frequently quoted when discussing the performance of the U.S. government bond market.

- Treasury bonds cover terms of more than 10 years and are currently issued only in maturities of 30 years. Interest is paid semiannually.

- Treasury Inflation Protected Securities (or TIPS) are inflation-indexed bonds whose principal is adjusted to the Consumer Price Index and multiplied by the constant coupon rate protecting the holder against inflation.

Pricing and Markets

- In the primary market, Treasury securities are issued by the government through yield auctions of new issues for cash. A group of primary dealers are required to buy large quantities of Treasuries every time there is an auction and stand ready to trade them in the secondary market.

- Secondary trading in Treasuries occurs in the over-the-counter (OTC) market. In the secondary market, the most recently auctioned Treasury issue is considered current or on-the-run. Issues auctioned before current issues are typically referred to as off-the-run securities. In general, current issues are much more actively traded and have much more liquidity than off-the-run securities. This often results in off-the-run securities trading at a higher yield than similar maturity current issues.

- A wide range of investors use Treasuries for investing, hedging, and speculation. This includes banks, insurance companies, pension funds, mutual fund, state and local governments, foreign interests, and retail investors.

- Price transparency is relatively high for Treasury securities. Prices are available from various newspapers and Web sites. Yield information, including historical yields, is available for various fixed maturities from the Department of the Treasury Web site (www.treas.gov).

Types of Risks

- *Interest Rate Risk* — Treasury securities are subject to price fluctuations because of changes in interest rates. Longer-term issues have more price volatility than shorter-term instruments.

- *Liquidity Risk* — Due to lower liquidity, off-the-run securities generally have a higher yield than current securities.

2. Certificate of Deposit

What is a Certificate of Deposit (CD)?

- A CD is a time deposit — meaning you agree to place your funds on deposit with the bank for a stated period of time. CDs are available from banks, securities brokers, and other financial institutions. CDs typically offer a higher rate of interest than a regular savings account since they do not provide immediate access to your funds.

- All CDs do not have the same features. Banks are free to offer CDs with different maturities (i.e., three months, one year, five years), methods of determining interest and payment features (e.g., callable). Withdrawals before maturity are usually subject to a substantial penalty which ensures that it is generally not in a CD holder's best interest to withdraw the money before maturity.

Pricing and Markets

- Though not obligated to do so, some securities brokers may be willing to purchase, or arrange for the purchase of, your CD prior to maturity. The broker may refer to this activity as a secondary market. This is not early withdrawal. The price you receive for your CD will reflect a number of factors, including the then-prevailing interest rates, the time remaining until the CD matures, and the features of the CD. Depending on market conditions, you may receive more or less than what you paid for your CD.

Types of Risks

- CDs are similar to savings accounts in that they feature federal deposit insurance up to $100,000 and have limited risk.

3. Municipal Security

What is a Municipal Security?

- A municipal security (or muni) is an obligation issued by a state, county, city, or other local government or their agencies. The two principal classifications of municipal securities are general obligation bonds and revenue bonds.

- General obligation bonds are typically considered the most secure type of municipal bond because they are secured by the full faith and credit of an issuer with taxing power. In the event of default, the holders of general obligation bonds have the right to compel a tax levy or legislative appropriation to satisfy the issuer's obligation on the defaulted bonds.

- Revenue bonds are payable from a specific source of revenue, so that the full faith and credit of an issuer with taxing power is not pledged. Revenue bonds are payable only from specifically identified sources of revenue. Pledged revenues may be derived from operation of a financed project, grants, and excise or other taxes. Industrial development bonds are a common example of revenue bonds.

- Interest income from municipal bonds is often tax exempt; therefore, investors usually accept lower interest payments than on other types of borrowing (assuming comparable risk).

Pricing and Markets

- State and local government entities can market their new bond issues by offering them publicly or placing them privately with a small group of investors. Municipal securities are not listed on or traded in exchanges; however, there are strong and active secondary markets for municipal securities that are supported by municipal bond dealers.

- Prices for public issues are more readily available than prices for private placements.

- Larger issuers of municipal securities are rated by nationally recognized rating agencies. Other issues achieve an investment-grade rating through the use of credit enhancements, such as insurance from a municipal bond insurance company or a letter of credit issued by a financial institution.

Types of Risks

- *Credit Risk* — Municipal securities activities involve differing degrees of credit risk depending on the financial capacity of the issuer or economic obligor. For revenue bonds, the ability to perform depends primarily on the success of the project or venture funded by the bond. The large number of different issuers (as many as 50,000 entities issue municipal bonds) also makes credit analysis of municipal securities more difficult. This heightens the importance of the role of the rating agencies and bond insurers in comparison to other markets.

- *Market Risk* — Holders of municipal securities are affected by changes in marginal tax rates. For instance, a reduction in marginal tax rates would lower the tax-equivalent yield on the security, causing the security to depreciate in price.

- *Liquidity Risk* — One of the problems in the municipal market is the lack of ready marketability for many municipal issues. Many municipal bonds are relatively small issues, and most general obligation issues are sold on a serial basis, which in effect breaks the issues up into smaller components. Furthermore, a large percentage of municipal securities are purchased by retail investors and small institutions that tend to hold securities to maturity

- *Interest Rate Risk* — Like other fixed-income securities, fixed-income municipal securities are subject to price fluctuations based on changes in interest rates. The degree of fluctuation depends on the maturity and coupon of the security. Variable-rate issues are typically tied to a money market rate, so their interest-rate risk will be significantly less.

- *Call risk* — Prepayment or call provisions that allow the issuer to pay you prior to the bond's maturity date will also affect the price of a municipal security.

4. Agency Security

What is an Agency Security?

- "Agencies" is a term used to describe debt obligations issued by either government agencies or government-sponsored agencies (GSEs). GSEs were created by Congress to foster a public purpose, such as affordable housing.

- An example of a government agency is the Government National Mortgage Association (Ginnie Mae). Securities issued by government agencies are backed by the full faith and credit of the U.S. government (explicit guarantee).

- Examples of government-sponsored agencies or GSEs include the Federal National Mortgage Association (FNMA or Fannie Mae) and the Federal Home Loan Mortgage Corporation (FHLMC or Freddie Mac). Securities issued by GSEs benefit from a widespread view that the federal government would prevent a GSE from defaulting on its debt obligations (implied guarantee).

Common Agency Securities

- Fannie Mae — Publicly traded company created to provide liquidity to the mortgage market. They borrow in the capital markets (meaning they issue agency debt) and use the proceeds to finance their purchase of residential mortgages from lenders who originated them. Fannie Mae then turns around and issues mortgage-backed securities based on the pools of mortgages it purchases (see "Mortgage-Backed Securities" section below).

- Freddie Mac — Publicly traded company created to increase the availability of mortgage credit to finance housing. Freddie Mac's goal is to stabilize the secondary market for home mortgages by helping to distribute investment capital available for financing home mortgages. It buys mortgage pools from lenders and securitizes them into guaranteed Participation Certificates, or PCs, as well as other mortgage-backed securities, which are sold to investors in the secondary market (see "Mortgage-Backed Securities" section below). Freddie Mac issues debt to finance its mortgage and PC purchases.

Pricing and Markets

- GSEs issue both discount and coupon notes and bonds. Discount notes are short-term obligations, with maturities ranging from overnight to 360 days. Coupon notes and bonds are sold with maturities greater than two years.

- In the primary market, government agencies and GSEs sell their securities to a select group of commercial banks, section 20 subsidiaries of commercial banks, and investment banks known as "selling groups." Members of a selling group advise the agencies on issuing debt, placing the debt with end users, and making markets in these securities.

- Prices for the securities traded in the secondary market can be obtained from the *Wall Street Journal* or the financial section of local newspapers. Other media, such as Internet financial sites, provide over-the-counter quotes as well.

- Securities of GSEs trade at yields generally offering a narrow spread over Treasury security yields because of slightly greater credit risk (due to the lack of an explicit government guarantee for most obligations) and somewhat lower liquidity. Due to the expectation of government backing, these securities are generally considered to be of high credit quality.

Types of Risks

- *Interest Rate Risk* — Agency securities are subject to price fluctuations due to changes in interest rates. As with other types of securities, the longer the term of the security, the greater the fluctuation and level of interest-rate risk. For example, if interest rates rise, the value of an agency bond on the secondary market will likely fall.

- *Credit Risk* — While the credit risk of agency securities is slightly higher than that of Treasury securities because they are not explicitly guaranteed by the U.S. government, their credit risk is still low due to the implied government guarantee.

- *Liquidity Risk* — Agency securities as a whole are not as liquid as Treasury securities, but liquidity varies widely within the agency market depending on the issuer and the specific debt obligation. In general, agency securities have large trading volumes on the secondary market that help to keep the liquidity risk low.

- *Call risk* — Many agency securities carry call provisions that allow the issuer to pay you prior to the bond's maturity date, typically when interest rates drop, leaving you to reinvest at lower prevailing rates.

5. Commercial Paper

What is Commercial Paper?

- Commercial paper is a money-market security issued by large corporations. It is generally not used to finance long-term investments but rather to purchase inventory or to manage working capital. As a relatively low-risk investment, commercial paper returns are not large. Because commercial paper maturities do not exceed 270 days and proceeds typically are used only for current transactions, it is exempt from registration with the SEC.

- Commercial paper is an alternative to lines of credit with a bank. Once a business becomes large enough and maintains a high enough credit rating, using commercial paper is cheaper than using a bank line of credit.

- Commercial paper backed by assets, such as mortgages (including prime and subprime), credit cards, or other receivables, is referred to as asset-backed commercial paper (ABCP). A company looking to enhance liquidity may sell assets to a bank or other conduit, which, in turn, will issue them to its investors as commercial paper. The commercial paper is backed by the expected cash inflows from the assets. The main risks faced by ABCP investors are asset deterioration in the conduit's underlying portfolio, potential timing mismatches between the cash flows of the underlying assets and the repayment obligations of maturing paper, and a conduit's inability to issue new commercial paper.

Pricing and Markets

- Commercial paper is zero coupon debt, meaning that the investor buys the instrument at a discount from face value (par), holds the instrument until maturity, and earns interest income based on the difference between the buy price and the face value.

- In general, each issuer's commercial paper gets rated by Standard & Poor's and Moody's. Those ratings are similar to ratings for longer-maturity corporate bonds but are specifically created for commercial paper. Commercial paper ratings place more emphasis on liquidity.

Types of Risks

- *Interest Rate Risk* — Like all fixed income securities, commercial paper prices are susceptible to fluctuations in interest rates. If interest rates rise, commercial paper prices will decline. However, the short-term nature of a commercial paper investment makes it less susceptible to interest rate risk.

- *Credit Risk* — As with most fixed income securities, there is a chance that the issuer will default on its commercial paper obligation.

- *Liquidity Risk* — Issuers of commercial paper could have difficulty rolling over their commercial paper, if there are no investors to buy the new issuance. Issuers can reduce this risk by securing backup lines of credit from banks. Also, specific to ABCP, if there are significant negative developments in any of the markets underlying the ABCP, this could affect the perceived quality and risk of ABCP. Because commercial paper investors may be risk adverse, concerns about ABCP may cause them to seek other short-term, cash-equivalent investments.

6. Corporate Bond

What is a Corporate Bond?

- Corporate bonds may be either secured or unsecured. If a bond is secured, the issuer has pledged specific assets (known as collateral) that can be sold, if necessary, to pay the bondholders. If the debt is unsecured, the bonds are known as debentures (backed by the issuer's general credit).

- Corporate bonds tend to be categorized as either investment grade or noninvestment grade. Investment grade bonds are rated BBB or higher by Standard & Poor's and Baa or higher by Moody's. Noninvestment grade bonds, also referred to as "high yield" or "junk" bonds, tend to pay higher yields than investment-grade corporate bonds. However, this higher yield reflects the higher level of credit risk.

- Interest may be fixed, floating, or the bonds may be zero coupons. Interest on corporate bonds is typically paid semiannually and is fully taxable to the bondholder. Most corporate bonds are issued with maturities ranging from one to 30 years.

Pricing and Markets

- Bond ratings are published by several organizations that analyze bonds and express their conclusions by a ratings system. Major nationally recognized statistical rating organizations (NRSROs) in the United States include Moody's and Standard & Poor's.

- The major factors influencing the value of a corporate bond are (1) its coupon rate relative to prevailing market interest rates, (2) the issuer's credit standing, and (3) other features, such as the existence of call options, put features, sinking funds, convertibility features, and guarantees or insurance.

- Most corporate bonds are traded on the over-the-counter market and are priced as a spread over U.S. Treasuries. Most often, the benchmark U.S. Treasury is the on-the-run (current coupon) issue. Corporate bonds usually yield more than government or agency bonds due to the presence of credit risk.

Types of Risks

- *Interest Rate Risk* — For fixed-income bonds, prices fluctuate with changes in interest rates. The degree of interest-rate sensitivity depends on the maturity and coupon of the bond. Floating-rate issues lessen the bank's interest-rate risk to the extent that the rate adjustments are responsive to market rate movements.

- *Prepayment Risk* — Call provisions giving the issuer the right to redeem the bond before maturity has the potential to adversely alter the investor's exposure. The issue is most likely to be called when market rates have moved in the issuer's favor, leaving the investor with funds to invest in a lower-interest-rate environment.

- *Credit Risk* — Credit risk is a function of the financial condition of the issuer or the degree of support provided by a credit enhancement. The bond rating may be a quick indicator of credit quality. Some bonds will include a credit enhancement in the form of insurance or a guarantee by another corporation, thereby reducing the rate of interest that the issuer must pay.

- *Liquidity Risk* — Major issues are actively traded in large amounts, and liquidity concerns may be small. Trading for many issues, however, may be inactive and significant liquidity problems may affect pricing. The trading volume of a security determines the size of the bid/ask spread of a bond. This provides an indication of the bond's marketability and, hence its, liquidity.

- *Event Risk* — This is the risk of an unpredictable event that immediately affects the ability of an issuer to service the obligations of a bond. Examples of event risk include leveraged buyouts, corporate restructurings, or court rulings that affect the credit rating of a company.

7. Asset-Backed Security

What is an Asset-Backed Security?

- An asset-backed security (ABS) is a type of bond or note collateralized by the cash flows from a specified pool of underlying assets that, otherwise, could not easily be traded. Securitization makes these assets available for investment to a broader set of investors. These asset pools can be made of any type of asset with a revenue stream, such as credit card receivables, auto loans, or student loans.

- Most trading of ABS is done in over-the-counter markets. Compared to Treasuries and mortgage-backed securities, many ABS are not liquid and their prices are not transparent partly because ABS are not as standardized as Treasuries or even mortgage-backed securities.

- ABS differ from most other kinds of bonds in that ABS take on the credit risk of the underlying assets without taking on specific corporate credit risk of the originator.

Pricing and Markets

- As with any fixed-income securities, the yield on ABS depends on the purchase price in relation to the interest rate (which may be fixed or floating) and the length of time the principal is outstanding. But with ABS (as with MBS), prepayment assumptions must be taken into account in determining the likely yield of a given issue.

- New issues of ABS carry higher estimated yields than U.S. Treasury securities and many corporate bonds of comparable maturity and credit quality. A key reason is that investors demand a higher interest rate to compensate for prepayment risk and resulting uncertainty in the average life of an ABS.

- Once securities are trading in the secondary market, the spreads between ABS and Treasuries or comparable corporate bonds may widen or narrow depending on market conditions, including the direction of interest rates in the economy, the number of issues coming to market and factors specific to each type of ABS. For example, a rising level of personal bankruptcies may cause the perception of risk in credit card ABS to increase, requiring higher yields to entice investors.

- The rating agencies determine the amount of credit enhancement required to produce a credit quality comparable to that of a same-rated corporate bond. The vast majority of ABS are highly rated.

- A popular type of internal credit enhancement is the senior/subordinated (or A/B) structure. It is characterized by a senior (or A) class of securities and one or more subordinated (B, C, etc.) classes that function as the protective layers for the A tranche. If a loan in the pool defaults, any loss thus incurred is absorbed by the subordinated securities. The A tranche is unaffected unless losses exceed the amount of the subordinated tranches. The senior securities are the portion of the ABS issue that is typically rated triple-A, while the lower-quality (but presumably higher yielding) subordinated classes receive a lower rating or are unrated.

Types of Risks

- *Interest Rate Risk* — As with all fixed-income securities, the prices of ABS fluctuate in response to changing interest rates in the general economy.

- *Credit Risk* — Like other debt instruments, ABS are evaluated and assigned a rating based on their ability to pay interest and principal as scheduled. But unlike most corporate bonds, ABS are secured by collateral and credit enhancements to further ensure that obligations are met.

- *Liquidity Risk* — Compared to Treasuries and mortgage-backed securities, many ABS are not liquid, and their prices are not transparent partly because ABS are not as standardized as Treasuries or even mortgage-backed securities.

- *Prepayment Risk* — Because the principal on the underlying debt may be repaid before it is due, determining the most likely prepayment scenario is critical to making an investment decision with a reasonable expectation about a security's life — which, in turn, affects the likely yield.

8. Mortgage-backed Security

What is a Mortgage-backed Security?

- A mortgage-backed security (MBS) is an asset-backed security whose cash flows are backed by the principal and interest payments of a set of mortgage loans. As the underlying mortgage loans are paid off by homeowners, the investors receive payments of interest and principal.

- Investors in mortgage securities earn a coupon rate of interest, similar to other fixed-income securities, but also receive repayments of their principal in increments over the life of the security, as the underlying mortgage loans are paid off, rather than in a single lump sum at maturity. Because the timing and speed of principal repayments may vary, the cash flow on mortgage securities is irregular.

- Mortgage securities play a crucial role in the availability and cost of housing in the United States. The ability to securitize mortgage loans enables mortgage lenders and mortgage bankers to access a larger reservoir of capital, to make financing available to home buyers at lower costs, and to spread the flow of funds to areas of the country where capital may be scarce.

- The majority of mortgage securities are issued and/or guaranteed by an agency of the U.S. government, such as Ginnie Mae, or by government-sponsored enterprises, such as Fannie Mae and Freddie Mac. These agencies buy qualified mortgage loans or guarantee pools of such loans originated by financial institutions, securitize the loans, and distribute the securities through the dealer community.

- Some private institutions, such as subsidiaries of investment banks, financial institutions, and home builders, also package various types of mortgage loans and mortgage pools. The securities they issue are known as "private-label" mortgage securities, in contrast to "agency" mortgage securities issued by Ginnie Mae, Fannie Mae or Freddie Mac.

Common Mortgage-backed Securities

- Pass-Throughs or Participation Certificates (PCs) in the case of those MBS issued by Freddie Mac — The most basic mortgage securities, representing a direct ownership interest in a pool of mortgage loans. The issuer or servicer collects the monthly payments from the homeowners whose loans are in a given pool and "passes through" the cash flow to investors in monthly payments which represent both interest and repayment of principal. The pass-through structure reflects the fact that homeowners themselves do not pay the same amount each month. Most pass-through mortgage securities carry an implied AAA credit rating. The remainder are privately issued and generally rated AAA or AA. At issuance, the stated maturity of pass-through securities is generally 30 years, although an increasing number may have 15-, 7- or 5-year stated maturities.

- CMO or REMIC — PCs or pass-throughs may be pooled again to create the collateral for a more complex type of mortgage security known as a Collateralized Mortgage Obligation (CMO) or Real Estate Mortgage Investment Conduit (REMIC). CMOs and REMICs (terms which are often used interchangeably) can be structured to allow the cash flows to be directed to different classes of securities (tranches) with different maturities and coupons. As the payments on the underlying mortgage loans are collected, typically the CMO issuer first pays the coupon rate of interest to the bondholders in each tranche. All scheduled and unscheduled principal payments generated by the collateral, as loans are repaid or prepaid, go first to investors in the first tranches. Investors in later tranches do not start receiving principal payments until the prior tranches are paid off. This basic type of CMO is known as a *sequential pay* or *plain vanilla* CMO.

- Sometimes CMOs/REMICs are structured so that the prepayment and/or market risks are transferred from one tranche to another. Prepayment stability is improved in some tranches because other tranches absorb more of the risk of prepayment variability. Therefore, it is important to know the characteristics of other tranches in the offering before selecting a tranche as an investment.

- CMBS — Commercial mortgage-backed securities (CMBS) are a type of security backed by mortgages on commercial rather than residential real estate. CMBS issues are usually structured as multiple tranches, similar to CMOs, rather than typical residential "pass-throughs." One of the key differences between CMBS and other MBS types is that CMBS usually have a lower degree of prepayment risk because commercial mortgages are often set for a fixed term.

- Strips — Stripped mortgage securities are created by segregating the cash flows from the underlying mortgage loans or mortgage securities to create two or more new securities, each with a specified percentage of the underlying security's principal payments, interest payments, or a combination of the two. Securities may be partially stripped so that each investor class receives some interest and some principal. When securities are completely stripped, all the interest is distributed to one type of security, known as *interest-only* (IO), and all the principal distributed to another, known as *principal-only* (PO).

Pricing and Markets

- As with any fixed-income security, the yield on a mortgage security investment depends on the purchase price in relation to the coupon rate and the length of time the principal is outstanding.

- Mortgage securities are sold and traded in terms of their assumed "average life" rather than their maturity dates. The average life is the average amount of time that will elapse from the date of MBS purchase until principal is repaid based on an assumed prepayment forecast. In other words, average life is the average amount of time a dollar of principal is invested in an MBS pool.

- Prepayment assumptions generally assume that for new mortgage loans, the probability of prepayment increases as the mortgage ages, eventually reaching a constant rate around 30 months.

- Mortgage securities tend to carry higher coupon rates than Treasury securities. In part, this is because the interest rates charged on mortgage loans are higher than the interest rates charged to the U.S. government. But the higher rates on mortgage securities also reflect the level of investment risk created by the prepayment uncertainty.

- A national network of securities dealers sells, trades and makes markets in mortgage securities. Mortgage securities transactions are executed "over-the-counter," between dealers, rather than on an exchange.

Types of Risks

- *Interest Rate Risk* — As with other fixed-income securities, mortgage securities' prices fluctuate in response to changing interest rates.

- *Credit Risk* — Ginnie Mae guarantees the timely payment of principal and interest on all of its pass-through and REMIC securities, and its guarantee is backed in turn by the full faith and credit of the U.S. government. Fannie Mae and Freddie Mac, which have implicit guarantees from the U.S. government, guarantee timely payment of both principal and interest on their mortgage securities and PCs. Private-label mortgage securities are the sole obligation of their issuer and are not guaranteed by any governmental entity. However, many private-label CMOs are backed by pass-through securities issued or guaranteed by Ginnie Mae, Fannie Mae, or Freddie Mac.

- *Liquidity Risk* — The high volume of outstanding mortgage securities, combined with the large number of investors who hold these securities, creates a sizable and active secondary market for mortgage pass-throughs. To a lesser extent, CMOs and REMICs issued or guaranteed by Ginnie Mae, Fannie Mae, or Freddie Mac, and private-label mortgage securities are also traded in the secondary market.

- *Prepayment Risk* — Because the underlying mortgages may be prepaid, the monthly cash flow of a MBS is not known in advance and presents an additional risk to the investor. Prepayment is classified as a risk for the MBS investor despite the fact that they will be repaid their investment because prepayment tends to occur when interest rates drop and the fixed income of the MBS would be more valuable. To compensate investors for the prepayment risk associated with MBS, they trade at a spread to government bonds referred to as an option adjusted spread.

9. Auction Rate Security

What is an Auction Rate Security?

- An auction rate security (ARS) is a debt instrument with a long-term stated maturity; the issuer is not required to redeem the security until 20 to 30 years after issuance. However, for the investor, these securities have certain economic characteristics of short-term investments because of their rate-setting mechanism. The return on these securities is designed to track short-term interest rates through a "Dutch" auction process, which resets the coupon rate (or dividend rate). Auctions are typically held every 1, 7, 28, 35, or 180 days with interest on these securities paid at the end of each auction period.

- Like many investment securities, the structure of any individual auction rate security can range from relatively simple, such as a single note underlying the security, to relatively complex, such as an auction rate security backed by multiple layers of securities having complex structures themselves.

- The auction process gives an investor three options at each remarketing date: (1) hold its ARS "at market" without participating in the auction process; (2) hold its ARS "at rate," allowing the investor to participate in the auction process; or (3) tender its ARS, allowing the investor to sell its securities into the auction process provided that the auction does not fail. Existing investors that choose to hold their ARS "at rate" and potential new investors enter into a "blind" competitive-bid process in which they specify the lowest interest/dividend rate and quantity they are willing to accept. The lowest rate at which all of the securities can be placed (including to investors that choose the "at market" option) becomes the interest/dividend rate for these securities until the next auction date.

- A failed auction may occur if there is not sufficient demand for the ARS to allow existing ARS investors to liquidate their holdings in the auction process. For example, if there is a lack of demand for an ARS issuance and no rate is established in the auction process that would clear the entire issue, a failed auction would occur and current investors would be forced to continue holding their positions (generally, investors in a failed auction will receive a maximum predetermined interest rate from the issuer unless and until sufficient bids are received by the next auction date). In typical ARS issuances, investors cannot require the issuer to redeem the securities resulting from a failed auction.

- Issuers of ARS include state and local municipalities, not-for-profit issuers, corporations, utilities, student loan agencies, and taxable and tax-exempt closed-end municipal bond funds.

<u>Common Auction Rate Securities</u>

- Municipal Auction Rate Securities — These are tax-exempt or taxable municipal bonds issued by municipalities or their authorities with interest rates that are periodically reset through auctions. Municipal auction rate securities are backed by an underlying project or service revenue and are usually issued with maturities of 30 years, but maturities can range from five years to perpetuity.

- Student Loan Auction Rate Notes (ARNS) — This is a type of asset-backed security issued by banks, for-profit and nonprofit student loan companies, and state agencies to provide low-cost financing alternatives for students by subsidizing lenders via government guarantees. ARNS classified as FFELP Loans (Federal Family Education Loan Programs) are 97% guaranteed by a state-designated guarantor plus ultimately guaranteed by the Department of Education (DOE). ARNS classified as Private Loans are issued to bridge the gap between the cost of education and existing FFELP maximum annual loan benefits. Private Loans are not guaranteed by DOE and typically benefit from the guarantee of private companies or reserves pledged from securitization.

- Auction Rate Preferred Stock (ARPS) — This is perpetual preferred stock of a closed-end municipal bond fund that pays dividends at rates set through auctions run by an independent auction agent. ARPS are backed by the underlying bond portfolio.

- Asset-Backed Auction Rate Securities — These are supported by underlying loan assets such as mortgage CDOs, credit card receivables, commercial loans, etc.

Pricing and Markets

- Auction rate products are designed to trade at par. Holders who submit sell orders in a successful auction will receive par plus accrued interest for their investment.

- Typically have received high credit ratings from the major credit agencies, generally because of bond insurance and other credit enhancements, such as overcollateralization.

- Ratings are based upon the credit quality of each loan pool, taking into account credit enhancements, excess spread, and cash reserve funds. Credit enhancements used by issuers include senior/subordinate structure, reserve accounts, bond insurance, and excess spread.

- An investor may sell its ARS into the secondary market. However, when an auction has failed, the secondary market for the ARS may be inactive or nonexistent, and the fair value of the ARS may be less than par. Depending on market conditions and the underlying collateral of the ARS, the discount from par may be significant.

Types of Risks

- *Credit Risk* — Credit risk associated with ARS mirror those of other municipal and corporate issues in terms of default risk associated with the issuer. Because ARS do not carry a "put" feature (which allows the bondholder to require the purchase of the bonds by the issuer or by a specified third party), they are very sensitive to changes in credit ratings and normally require the highest ratings (e.g., AAA/Aaa) to make them marketable. This is usually achieved with bond insurance.

- *Liquidity Risk* — The ability of an investor to dispose of a share of an auction rate security may be largely dependent on the success of the auction. If an auction fails, holders who wished to sell their positions may be unable to do so. The issue would essentially become illiquid until a subsequent successful auction is conducted, the issuer redeems the issue, or a secondary market develops. The liquidity problems may have arisen because some broker-dealers who customarily placed bids for their own accounts in auctions did not place bids in recent failed auctions. However, broker-dealers are not legally required to bid in an auction.

- *Prepayment Risk* — This is the risk that loans are paid off earlier than expected. Borrowers can refinance at any time in whole or in part with no penalty. Low interest rates can cause voluntary prepayment speeds to increase.

10. Other Types of Securities

- **Collateralized Debt Obligations (CDO) and Collateralized Loan Obligations (CLO)** — CDOs and CLOs are two types of asset-backed securities and structured credit products. They are similar in structure to collateralized mortgage obligations (CMO) discussed above. The difference is in the assets securing the obligation. CDOs are backed by a pool of bonds, loans, and other assets. CDOs do not specialize in one type of debt but are often nonmortgage loans or bonds. CLOs on the other hand are backed with receivables from loans only. CLOs effectively allow banks to reduce regulatory capital requirements by selling large portions of their commercial loan portfolios to the markets, reducing risks associated with lending. The ratings for CDOs and CLOs reflect both the credit quality of underlying collateral, as well as how much protection a given tranche is afforded by tranches that are subordinate to it.

- **Variable Rate Demand Obligation (VRDO) Bonds** — VRDO are an alternative to auction rate securities. A VRDO is a security for which the interest rate is reset periodically, typically through a remarketing process, or according to a specified index. The bond's demand feature permits the bondholder to require the purchase of the bonds by the issuer or by a specified third party, either periodically, at a certain time prior to maturity, or upon the occurrence of specified events or conditions. This process is often referred to as "putting" a bond or exercising a "tender option." Interest rates are generally based on market conditions and the length of time until the bondholder can exercise the put option. Because of the put feature, the VRDO normally requires a bank letter of credit. Whereas a VRDO would generally require a letter of credit, ARS do not because the investor does not possess a put option but rather relies on the liquidity generated by the Dutch auction process and the creditworthiness of the issuer or insurer. Although no letter of credit is required, most issues carry bond insurance to elevate them to the highest credit rating.

- **Money Market Fund** — A money market fund is a mutual fund that invests in short-term debt instruments. Money market funds seek to limit exposure to losses due to credit, market, or liquidity risks and maintain a stable $1.00 Net Asset Value (NAV). In the U.S., money market funds are regulated by the Investment Company Act of 1940 and investments are restricted by quality, maturity, and diversity. Money

market funds must maintain a Weighted-Average Maturity (WAM) of 90 days or less and not invest more than 5% in any one issuer, except for government and repurchase agreement securities. Eligible money market securities include commercial paper, repurchase agreements, short-term bonds, or other money market funds.

- **Credit Default Swap** — A credit default swap (CDS) is a contract under which counterparties trade the credit risk of a third-party reference entity. Under a CDS agreement, a protection buyer pays a period fee to a protection seller in exchange for a contingent payment by the seller upon a defined credit event happening in the reference entity. When a credit event occurs, the protection seller either takes delivery of the defaulted bond for the par value or pays the protection buyer the difference between the par value and the recovery value of the bond. CDS resemble an insurance policy as they can be used by debt owners to hedge against credit events; however, because there is no requirement to actually hold any asset or suffer a loss, CDS can be used to speculate on changes in credit. The cost to purchase a CDS varies as the perceived credit quality of the reference entity changes with prices declining when creditworthiness improves and rising when it worsens.

- **Floating Rate Note** — A floating rate notes (FRN) is a bond that has a variable coupon (i.e., interest rate) equal to a money market reference rate, such as LIBOR or the federal funds rate plus a spread. Most FRNs have quarterly coupons meaning that they pay interest quarterly. At the beginning of each coupon period, the interest rate for that period is calculated by adding the spread to the reference rate for that date. In the U.S., government sponsored enterprises (GSEs) such as the Federal National Mortgage Association (FNMA) are important issuers of FRNs. In Europe, the main issuers are banks. FRNs carry very little interest rate risk because when market rates rise, the expected coupons of the FRNs rise accordingly. The risk that remains is credit risk. Securities dealers make markets in FRNs and trade over-the-counter. In the U.S., FRNs are mostly held to maturity resulting in less liquid markets.