



Comptroller of the Currency
Administrator of National Banks

An Examiner's Guide to Investment Products and Practices

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Foreword

An Examiner's Guide to Investment Products and Practices is intended as a resource for examiners when they examine community banks (purchasers of investment products).

Fundamental bank investment policies, procedures, practices, and controls appear in the introductory chapters, followed by product profiles. Each profile describes a product, where to find its current market value, supervisory concerns, accounting treatment, risks, legal limitations, and risk-based capital considerations. Sources contributing to the narrative are listed at the end of each product profile. OCC references may be obtained by contacting the Office of the Chief National Bank Examiner in Washington, D.C.

The guide is the culmination of a project conceived in the Midwestern District. It was prepared under the direction of Robert R. Klinzing, Deputy Comptroller,

Midwestern District. It was edited by Jeff W. Dick, National Bank Examiner (NBE). Contributing authors were Jeff Dick, NBE; Joe Evers, NBE, CFA; Mike Larabee, NBE; Dave Wilson, NBE, CFA; Ann Jaedicke, NBE; Greg Anderson, CFA; Bruce Krueger, NBE, CFA; and, Kathy Dick, NBE, CFA. Technical support was provided by Barbara Gratch, NBE, Capital Markets Expert.

The Midwestern District product was completed by the Capital Markets unit of the Office of the Chief National Bank Examiner under the direction of Assistant Chief National Bank Examiner Barbara C. Healey. Owen Carney, Senior Advisor for Investment Securities, and Lawrence Leong, NBE, performed the final review of its contents. The following people deserve special acknowledgment for their contributions: Donna E. Duncan; Edward Dumas; Jeff Mace; Amy Millen; Jamie Newell; Roger Tufts; and Stephen Theobald.

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1. Investment Portfolio Management Process

The growth and complexity of fixed income security products recently has complicated the examiner's understanding and assessment of risks within the investment portfolio. The remedy is a sound investment portfolio management process, that includes:

1. Investment policies and procedures that guide the process and desired results.

Investment portfolio risks are managed by a written board-approved investment policy. A well-written policy should provide adequate guidelines for the investment officer, investment committee, and others involved in investment portfolio management. To provide adequate guidance, the policy should outline investment objectives, permissible types of investments and activities, and guidelines for portfolio quality, maturity, and diversification. It should be updated to reflect changing market conditions and the bank's current needs. (See the Investment Policy Content chapter for a detailed listing of items to include in investment policies and procedures.)

2. Solid management information systems.

The board of directors should receive, at a minimum, quarterly reports on overall portfolio quality, liquidity, and rate of return. Management information systems should be sufficient to evaluate the investment officer's performance in light of the investment policy set by the board. Management documentation should show how investment strategies and activities conform to board-approved objectives and goals.

In addition, banks should maintain adequate credit information to demonstrate the use of prudent banking judgment in making investment decisions. Primary sources of such information include the:

- Broker/dealer selling the security.
- Bond prospectus.

- Bond rating agencies.

3. Quality-oriented investment culture.

In quality-oriented investment cultures, investment managers typically view the bond selection process as one of exclusion and rejection rather than search and acceptance. These investment managers realize that the penalty of mistakenly rejecting a bond offering is unlikely to be significant, but the acceptance of an unsound investment is costly.

Banks with quality-oriented investment cultures typically have a program for obtaining and evaluating current information on securities in the investment portfolio. Also, such banks only purchase securities from reputable and financially secure dealers.

4. Trained people.

A bank's investment officer should have adequate experience and skills to assess and monitor credit, liquidity, and interest rate and other risks associated with securities in the bank's investment portfolio.

5. Independent testing of the process.

In evaluating the investment account, internal auditors should check for any unsuitable investment practices, such as trading within the investment portfolio, adjusted price bond swapping, transfer of control over investments to persons or companies unaffiliated with the bank, and purchase of large volumes of securities subject to significant price and yield volatility. In addition, compliance with board-approved investment policies and procedures should be ascertained.

References

Cottle, S., *Graham and Dodd's Security Analysis*, 5 ed. (New York: McGraw-Hill, 1988).

2. Investment Policy Content

Examiners must exercise good judgment and consider such factors as the size of the bank, and complexity and volume of investment activities when reviewing a bank's policies and procedures.

A national bank's investment policy and procedures should address the following information to ensure the proper management and control of risk within an investment portfolio.

(Refer to Banking Circular 228, the Federal Financial Institutions Examination Council (FFIEC) Supervisory Policy Statement on Securities Activities, which the OCC adopted January 10, 1992 with an effective date of February 10, 1992. This supervisory statement revised and updated the April 1988 FFIEC Supervisory Policy Statement on the "Selection of Securities Dealers and Unsuitable Investment Practices" which the OCC had adopted and issued in the earlier version of BC-228.)

1. A description of authorized securities activities.
2. A clear statement of investment goals. For national banks, the portfolio's primary goals are to provide liquidity, meet pledging requirements, generate a reasonable rate of return, and minimize risk. The emphasis placed on each goal will vary based on individual bank constraints or needs.
3. A description of any imposed portfolio constraints or individual bank needs, which typically include:
 - Liquidity needs. The bank's liquidity needs should be determined and reviewed periodically. Once they are assessed, how the investment account affects them should be specified.
 - Tax considerations. The holding of tax free securities should be determined by the bank's current and foreseeable tax position and changes in applicable tax laws.
 - Time horizon. A short- to medium-term horizon (5-10 years) is appropriate for most banks. Guidelines for the portfolio's maturity structure should be specified and consistent with its overall goals.
- Legal/regulatory requirements. Investment holdings and practices must conform to legal and regulatory requirements. National banks are governed in their security investments by the seventh paragraph of 12 USC 24 and by the investment securities regulation of the Comptroller of the Currency (12 CFR 1). National banks should also conduct trading activity within a trading account, avoid unsuitable investment practices, and follow proper securities reporting.
4. Guidelines on the quality and quantity of each type of security to be held.
5. Risk diversification guidelines or concentration limits. Concentrations can result from:
 - Single or related issuers.
 - Lack of geographic distribution.
 - Holdings of obligations with similar characteristics (i.e., mobile home backed bonds and zero coupon bonds).
 - Holdings of bonds having the same trustee.
 - Holdings of bonds having the same credit enhancer, such as insurer or letter of credit issuer.
 - Holdings of securitized loans having the same originator, packager, or guarantor.
 - Similar credit ratings, particularly in low ones.
6. A description of anticipated investment activities. The policy must either identify anticipated trading and held for sale activities or state that the bank will not enter into any of those activities.

Ultimately the substance of a bank's securities activities determines whether securities reported as being held as investment portfolio assets are, in reality, held for trading or for sale. Examiners should scrutinize particularly banks that exhibit a pattern or practice of reporting significant amounts of realized gains on sales from their investment portfolio and that at the

same time have significant amounts of unrecognized losses. If the examiner judges that such a practice has occurred, some or all of the securities reported as held for investment should be designated as held for sale or trading.

However, infrequent investment portfolio restructuring activities conducted along with a prudent overall business plan that do not result in the previously mentioned pattern of gains and losses generally will be viewed as an acceptable investment practice. Such activities usually would not result in recording securities held for investment as securities held for trading or sale.

7. A description of procedures for the selection of securities dealers as required by Banking Circular 228. At a minimum, the procedures should consider:
 - The ability of the securities dealer and its subsidiaries or affiliates to fulfill commitments as evidenced by capital strength, liquidity, and operating results. This evidence should be gathered from current financial data, annual reports, credit reports, and other sources of financial information.
 - The dealer's general reputation for financial stability and fair and honest dealings with customers. Other depository institutions that are past or current customers of the dealer should be contacted.
 - Information available from state or federal securities regulators and securities industry self-regulatory organizations, such as the National Association of Securities Dealers, about any formal enforcement actions against the dealer, its affiliates, or associated personnel.
 - The background of any dealer's sales representative upon whose advice the bank may rely to determine his or her experience or expertise.
8. A description of conflict of interest procedures for bank employees conducting business with securities dealers as required by Banking Circular 228, to include:
 - Prohibiting employees who are directly involved in purchasing and selling bank securities from engaging in personal securities transactions with those firms without the specific prior board approval.
 - Restricting or prohibiting applicable directors, officers, and employees, from receiving gifts, gratuities, or travel expenses from those firms and their personnel.
9. A description of procedures to obtain and maintain possession or control of securities purchased as required by Banking Circular 228. Purchased securities and repurchase agreement collateral should be left in safekeeping with selling dealers only when:
 - The board of directors is completely satisfied about the creditworthiness of the securities dealer.
 - The aggregate market value of securities held in safekeeping falls within credit limits approved by the board of directors for unsecured transactions.
10. A program for obtaining and evaluating current information on securities in the investment portfolio, to include:
 - Reviewing prospectuses to ensure that terms and risks of purchased investments are commensurate with those represented by the selling broker or dealer.
 - Performing initial and ongoing periodic credit analyses of general obligation, revenue, corporate, nonrated, and DPC securities.
11. A program for performance measurement and evaluation, including periodic reporting (quarterly) to the board that indicates how investment activities and strategies conform to portfolio goals.
12. A description of proper accounting and reporting procedures for securities activities. General accounting treatment for securities activities is:

- *Securities Held for Investment: Amortized Cost (accrued or amortized to par value)*

The bank's investment portfolio is maintained to provide earnings consistent with the safety factors of quality, maturity, marketability, and risk diversification. Securities purchased to accomplish these objectives may be reported at their amortized cost only when the bank demonstrates both the intent and ability to hold the assets for long-term investment.

- *Securities Held for Sale: Lower of Cost or Market (LOCOM)*

A pattern of intermittent sales transactions in the investment portfolio may suggest that securities ostensibly held as long-term portfolio assets are actually held for sale. Securities held for sale must be reported at the lower of cost or market value with unrealized losses (and recoveries of unrealized losses) recognized in current income. It is an unsafe and unsound practice to report securities held for sale using reporting standards intended for securities held for investment purposes.

- *Trading Activities: Marked to Market or LOCOM*

Trading is generally characterized as a high volume of purchase and sale activity which demonstrates management's intent to profit from short-term price movements. Securities trading is a speculative activity, which is legally permitted subject to the limits of 12 USC 24 and 12 CFR 1. However, trading activity should be conducted only in a closely supervised trading account by banks with strong capital and earnings and adequate liquidity. Separate trading policies and procedures should be developed.

13. For investment in mutual funds and investment companies, the policy should, at a minimum, require:

- Authorization of such investments.

- Prior board approval for initial investments recorded in the official board (or committee) minutes.

- Appropriate systems/controls to be in place before making such investments.

- A clear awareness of accounting and tax consequences.

- An understanding or evaluation of underlying assets to assure that they are eligible for bank purchase and conform to legal investment limits.

14. For open contractual commitments, such as futures and forwards, the policy should, at a minimum, indicate:

- Authorization of such activity.

- Periodic reports to the board or its committee on how such activity conforms to policy objectives and the bank's overall business strategy.

- Position limits.

- Manner and frequency of position valuations.

- A stop loss provision that relates to a predetermined loss exposure limit.

- Recordkeeping and accounting requirements as outlined in Banking Circular 79.

15. Credit policy guidelines governing the purchase and sale of repurchase agreements as required by Banking Circular 210. Written policies should specifically include procedures for controlling the securities underlying the repurchase agreements and assessing credit risk of counterparties.

16. For board-approved covered call activity, the investment policy should set forth specific procedures for controlling covered call strategies. This would include procedures for recordkeeping, reporting, and reviewing activity.

References

OCC Documents

Comptroller's Handbook for National Bank Examiners, Section 203 (Washington, D.C., March 1990).

Banking Circular 210, Repurchase Agreements, October 31, 1985.

Banking Circular 220, National Bank Investment in Investment Companies Composed Wholly of Bank Eligible Investments, November 21, 1986.

Banking Circular 228, Supervisory Policy Statement on Securities Activities, January 10, 1992.

3. Credit Information for Investment Securities

In accordance with 12 CFR 1.8, banks must maintain sufficient credit information to demonstrate that they have exercised prudent judgment in making investment decisions. To fulfill this requirement, banks must review three primary sources of information.

1. **Selling Broker or Dealer:** These firms make initial representations of securities offered for sale. For new issues, they must provide a prospectus. For older issues, they should also provide a prospectus that allows the purchaser to verify the accuracy of the representations. National banks should avoid doing business with broker/dealers who cannot provide such information routinely.
2. **The Prospectus:** A sound investment management process implies that investment officers or other bank personnel routinely verify representations made by selling brokers or dealers. This verification can be accomplished only by obtaining and reviewing the prospectus. Examiners should seek evidence that bank personnel reviews the prospectus. The bank's internal review should begin with verification that the prospectus applies to the investment purchased by the bank. Secondly, relevant sections of the prospectus should also be reviewed, including the:

- Summary section: This section summarizes the terms of the deal.
- Description of security: This section describes the security in detail and indicates its special features.
- Financial information: This section contains such financial information on the issuer, as an audited financial statement.
- Legal matters: This section may contain some red flags that warrant further investigation.

The review of a prospectus will be less confusing if you can focus on a security's relevant risks. (See the Investment Product Profiles chapter for specific risks.)

3. **Rating Agencies:** An efficient source of credit information, rating agencies do not always respond quickly enough to changes in credit conditions.

In summary, obtaining and reviewing adequate credit information is critical to the investment decision making process.

4. Unsuitable Investment Practices

According to Banking Circular 228, the following activities raise specific supervisory concerns. The first six practices are considered unsuitable when they occur in a bank's investment portfolio. Such practices should be conducted only in an appropriately controlled and segregated trading or held-for-sale portfolio.

1. **Gains Trading**—The purchase of a security as an investment portfolio asset and its subsequent sale at a profit after being held a short time. Securities that can be sold only at a loss are retained as investment portfolio assets. They are retained because a bank's investment portfolio is carried at amortized cost, and losses are not recognized unless the security is sold. Over time, an investment portfolio which is gains traded usually consists of extended maturity, lower quality, and highly depreciated securities; with only limited practical liquidity. Frequent purchase and sale activity, combined with a short-term holding period for securities, clearly demonstrates management's intent to profit from short-term price movements. This indicates that other securities held in the investment portfolio may also be held for trading or for sale.

In many cases, gains trading involves the trading of "when-issued" securities, the use of "pair-off" transactions (including transactions involving off-balance sheet contracts), or "corporate" or "extended settlements," because these speculative practices allow substantial price changes to occur before payment for the securities is due.

2. **When Issued (WI) Securities Trading**—New issue securities that have been awarded to a buyer, but have not been paid for or delivered. The WI period for U.S. government and federal agency securities usually runs from 5 to 14 days and longer on municipal securities. A bank involved in active trading may sell the WI security before taking delivery and paying for it. The purchase and sale of a security during the WI period indicates trading.
3. **Pair-Offs**—A security purchase transaction that is closed-out or sold at, or prior to, settlement date or expiration date. For example, an investment portfolio manager will commit to purchase a security. Prior to the predetermined settlement date, the portfolio manager will pair off the

purchase with a sale of the same security prior to, or on, the original settlement date. Like WI trading, pair-offs permit speculation on price movements without paying for the securities.

4. **Corporate or Extended Settlements**—A corporate settlement method (5 business days) for U.S. government securities purchases offered by dealers to facilitate speculation similar to pair-offs and WI trading.

Regular way settlement for transactions in U.S. government and federal agency securities (other than mortgage-backed products) is one business day after the trade date.

Regular way settlement for corporate and municipal securities and stripped U.S. Treasury securities is five business days after the trade date.

Regular way settlement for mortgage-backed securities can be up to 60 days after the trade date (and sometimes even longer).

5. **Repositioning Repurchase Agreements**—A funding technique often used by dealers who encourage speculation by using gains trading, pair off, when issued, and corporate or extended settlement transactions for securities which cannot be sold at a profit. The repurchase agreement is a service provided by the dealer so the buyer can hold the position until it can be sold at a gain, but the buyer imprudently funds a longer term fixed-rate asset with dealer supplied short-term variable rate funds.
6. **Short Sales**—Sale of a security that is not owned. A short sale generally is performed to speculate on the fall in the security's price.

Practices 7 and 8 involve a bank's transfer of control over individual assets, segments of the portfolio, or the entire portfolio to persons or companies not affiliated with it. In such situations, the bank clearly no longer has the ability to hold the affected securities for investment and should report them as held for sale.

7. **Delegation of Discretionary Investment Authority**—Delegation of investment authority for part or all of a bank's investment portfolio to persons who are not employees of the bank or its affili-

ates. An exception is made for centralized management by a controlling bank holding company.

8. **Covered Call Writing**—An option strategy whereby the portfolio manager sells a call option on a bank-owned investment security. Under this strategy, the bank receives an option fee which increases the effective yield of the portfolio and helps partially to offset a decline in market value associated with a rise in interest rates. However, with falling interest rates, the bond can be called away, and the bank will not experience significant capital appreciation. For example, gains on the securities covered by the written call are limited to the amount of the difference between the carrying value of the security and the strike price at which the security will be called away. The potential for losses on the covered security is not limited. To obtain higher yields, some portfolio managers have relied mistakenly on the theoretical hedging benefits of covered call writing and have purchased extended maturity U.S. government or federal agency securities. This practice can significantly increase risks taken by banks and contribute to a maturity mismatch between assets and funding.

Since the purchaser of the call acquires the ability to call the security away from the bank that writes the option, the ability of the bank to continue to hold the securities rests with an outside party. Securities held for investment where call options have been written are therefore considered held for sale and reported at the lower of cost or market value. However, if an option contract requires the writer to settle in cash, rather than by delivering an investment portfolio security, the security may be reported as an investment. In this case, the option must still be reported at the lower of cost or market value.

Practice 9 is wholly unacceptable under all circumstances.

9. **Adjusted Price Bond Swapping**—The sale of a security to a broker at a price above the prevailing market value and the simultaneous purchase and booking of a different security, often a lower grade issue or one with a longer maturity, at a price greater than its market value.

Banking Circular 228 also includes guidance on the suitability of acquiring and holding mortgage derivative products, other similar products, and zero coupon bonds, and on identifying when certain mortgage derivative products are high-risk mortgage securities which must be held in a trading or held-for-sale account. Because of significant price and yield volatility, large holdings of the following securities may not be suitable investments for banks.

- Stripped mortgage-backed securities (SMBS), IOs and POs.
- High-risk CMO tranches.
- Residuals.
- Long-term zero coupon bonds.

(See also Section III of the FFIEC Supervisory Policy Statement on Securities Activities (Banking Circular 228) and the Mortgage-backed Securities, Pass-through Securities, Collateralized Mortgage Obligations and Stripped Mortgage-backed Securities and Residuals sections of this publication.)

References

OCC Documents

Comptroller's Handbook for National Bank Examiners, Section 203 (Washington, D.C., March 1990).

Banking Circular 228, Supervisory Policy Statement on Securities Activities, January 10, 1992.

Investment Securities Division Information Notice 12, Trading vs. Investment, November 7, 1985.

5. Municipal and Corporate Bond Ratings

Rating service publications are useful in determining

the investment quality of municipal and corporate obligations. The rating services currently recognized by the SEC as "nationally recognized statistical rating organizations" (NRSROs), use standard bond rating symbols that are indicated in their order of credit quality. NRSROs for municipal and corporate obligations are Standard and Poor's Corporation (S&P), Moody's Investor Service (Moody's), Duff & Phelps, Inc. (D&P), and Fitch Investor's Service, Inc. (Fitch). The rating systems of the NRSROs are summarized as follows.

SUMMARY OF RATING SYSTEMS

S&P	Moody's	D&P	Fitch	Description
BANK QUALITY INVESTMENTS				
AAA	Aaa	AAA	AAA	Highest grade obligations.
AA	Aa	AA	AA	High grade obligations.
A	A-1,A	A	A	Upper medium grade.
BBB	Baa-1 Baa	BBB	BBB	Medium grade, on the borderline between sound obligations and those containing predominantly speculative elements. Generally, the lowest quality bonds that may qualify for bank investment.

SPECULATIVE AND DEFAULTED ISSUES

BB	Ba	BB	BB	Lower medium grade with only minor investment characteristics.
B	B	B	B	Low grade, default probable.
D	Ca,c	CCC	D	Lowest rated class, defaulted, extremely poor prospects.

Rating service publications may be found in the bank, usually in the investment or trust department, in local brokerage firms, or in the financial section of a local library. (See the *Comptroller's Handbook for National Bank Examiners*, Section 203.1, for a discussion of credit analysis of investment securities, use of ratings, and investment quality limitations.)

References

Fabozzi, Frank J., ed., *The Handbook of Fixed Income Securities*, 3d ed. (Homewood, Illinois: Business One Irwin, 1991).

OCC Documents

Comptroller's Handbook for National Bank Examiners, Section 203.1 (Washington, D.C., March 1990).

6. Investment Product Profiles

Asset-backed Securities

I. Product Description

Asset-backed securities (ABSs) are certificates backed by credit card receivables, accounts receivable, automobile paper, boat loans, recreational vehicle credits, and manufactured housing loans. Securities backed by equipment leases, problem loans, and junk bonds have been issued also in recent years. Credit card securities were first offered publicly in 1985. Since that time, nonmortgage securitization markets have grown rapidly. Because of unique features, credit card-backed issues and asset-backed commercial paper are described further in separate profiles.

Asset-backed securities are created when an originator/servicer sells assets to a trust, which then issues certificates backed by those assets. These securities include a credit enhancement to support payments to the investors. Credit enhancements are overcollateralization, third-party letters of credit, spread accounts, seller recourse, insurance company guarantees, and senior/subordinated structures. In spread accounts, reserves are established from the interest-rate spread between the underlying assets and the securities. In a senior/subordinated deal, two or more classes of securities are issued, one of which is subordinated to the other.

After credit cards, automobile loans are the most common bank asset type to be securitized. Cash flows on the underlying assets are relatively predictable. Maturities are moderately short, although they have lengthened somewhat because the normal auto loan term has increased from 36 and 48 months in 1985 to 60 months today.

Issues backed by manufactured housing are longer term and have more prepayment uncertainties than other consumer asset-backed paper. Compared with residential mortgages, however, prepayment risks are lower. Credit risks generally are regarded as higher than other types of ABSs. Accordingly, credit enhancements often occur in the 20 to 30 percent range.

Securities backed by recreational vehicles and boat loans are characterized by short- to medium-term maturities. The fact that these goods are not "necessities" could negatively affect credit quality. However,

demographically, RV, and boat owners are high quality obligors.

In problem loan and junk bond securitizations, credit quality of the underlying assets is obviously a concern and cash flows are relatively unpredictable. The quality of these securities depend heavily on the level of credit and liquidity enhancements.

Because the securities are structured to "pay through" principal payments as they are received, the investor bears the risk of early payment and/or extension. However, many issues are structured to increase the certainty of principal payments over their stated maturity. To the extent the securities are not "pay through," the enhancements should provide a liquidity source to ensure payments to the investors when due.

II. Market—Where to Find Current Value and Ratings

Several rating services publish information on the investment quality of ABSs. Among these are the monthly *Moody's Bond Record*, available at your local library, which now contains a Structured Finance section of ratings of asset-backed issues, and *Standard and Poor's*, which also periodically publishes ratings summaries.

Although *The Wall Street Journal* publishes prices on representative issues, no comprehensive source of publicly available published prices exists on ABSs. Any broker or dealer bank should be able to provide a quote on the larger issues. If not, the examiner may want to contact the underwriters, who usually maintain a market in the securities they issue.

III. What You Should Look for (Suitability)

Most ABSs registered for public trading are highly rated and suitable for bank investments. You should check the rating, the type/adequacy of the credit enhancement, and the repayment structure.

Banks should avoid concentrations by: issuer, type of loans backing the deal, geographic locations of the underlying borrowers, servicer, trustee, and credit enhancement provider.

The method of selecting accounts for inclusion in the

trust is important. For example, accounts may be selected by billing cycle, at random, exclusive of delinquent borrowers, or type of loan. A selection method that places a larger percentage of low credit quality accounts in the pool should be scrutinized.

The standards used by the originator to underwrite the underlying loans affect the security's quality. Poor underwriting standards characterized by high delinquencies and losses on similar portfolios would dictate higher levels of credit enhancement to achieve an investment quality security. The credit enhancer's and servicer's ability to meet their responsibilities also must be considered. Originators should provide adequate representations and warranties on assets sold to the trust.

IV. Accounting Treatment

Total book value must include the unamortized premium or unaccreted discount on securities purchased at other than par or face value. Premiums and discounts should be amortized or accreted into income using the interest method over the expected life of the security. This amortization/accretion is recorded as an adjustment to the yield of the underlying security. The expected life of the security should consider anticipated prepayments.

The preferred method for reporting purchases and sales of securities is as of the trade date. However, settlement date accounting is acceptable if reported amounts would not be materially different.

Some bond accounting systems do not easily handle the periodic, and often uneven, principal payments that these securities provide. The examiner should ensure the bank has a system to properly account for these issues.

V. Risks

Interest Rate Risk: Varies, depending on the type of asset being securitized and whether the security is a straight "pay through" or provides a modified amortization. In general, interest rate risk is moderate for most consumer paper-backed issues. Also, in most of these issues, the timing of principal payments is much more predictable than mortgage pass-through securities.

Credit Risk: Also varies, depending on the type of asset being securitized and the extent and nature of

the credit enhancement. If the issue is rated by a nationally recognized rating agency, these factors have been considered. Regardless of ratings, the bank should have credit information which shows expected cash flows, potential default rates, the adequacy of credit enhancement, etc.

Liquidity Risk: Liquidity is high in rated issues of credit card-backed and automobile-backed paper. Liquidity can decline for less popular asset types and for unrated issues. Liquidity may be affected during periods of economic contraction, when investor appetites decline for securities backed by consumer receivables.

Other Risk: Certain legal risks exist in the complicated structures of these securities. However, the rating agencies generally research and require protection against these risks before assigning a rating. If the security is unrated, the investor should ensure that these risks are researched.

VI. Legal Limitations

Investment grade-rated nonmortgage asset-backed certificates are subject to the 10 percent investment limit. OCC policy states that the 10 percent limit is per issuer, not per trust, because the underwriting and servicing expertise of the originator bears greatly on the quality of the investment. Another limitation may be applicable to the enhancer.

Investors, rating services, and independent guarantors clearly place great repayment reliance on the expertise of the originator, packager, and servicer of securitized assets. Regardless of statutory limitations or their absence, prudential name limitations should be applied to the originator, packager, and guarantor for all investments in ABSs.

Unrated public securities should be supported by credit information demonstrating that they are not predominately speculative. Privately placed ABSs are not eligible for bank investment portfolios because of impediments which render them non-marketable. A national bank only may purchase unregistered pools if it satisfies the requirements of Banking Circular 181 (Purchase of Loans in Whole or in Part-Participations) and purchases the pools as loans.

The OCC's position is that subordinated pieces of ABSs are presumed to be ineligible for bank invest-

ment because they are probably not investment quality. If such holdings carry an investment grade rating and are eligible for public trading, they are eligible for bank investment.

VII. Risk Asset Capital Weight

100 percent

VIII. References

Credit Review-Asset-Backed Securitization (New York: Standard & Poor's Corporation, 1989).

OCC Documents

Banking Circular 181, Purchases of Loans in Whole or in Part-Participations, August 2, 1984.

Investment Securities Division Information Notice 24, Securitization Discussion and Examination Procedures, May 1, 1989.

Investment Securities Division Information Notice 25, Listing of National Bank Securities Activities, November 7, 1989.

Interpretive Letter No. 600, Regarding the Securities and Exchange Commission's ("SEC") Rule 144A, promulgated under the Securities Act of 1933, from Susan F. Krause, Senior Deputy Comptroller for Bank Supervision Policy, July 31, 1992.

Asset-backed Securities-Credit Card

I. Product Description

Credit card-backed securities are certificates backed by bank credit card accounts (i.e., MasterCard and VISA) or by private label receivables (i.e., Sears and J.C. Penney).

Typically, the credit card issuer sells receivables from selected accounts to a trust. The trust issues two classes of participations in the accounts. Investors hold one class and the seller holds the other.

Credit card-backed securities have a non-amortization period, generally 18 months to 4 years. During this period, customer payments are replaced by new advances to maintain the investment at a constant amount. Therefore, the investor receives interest only during that period. The principal amount remains the same. Since all receivables arising from the selected accounts are automatically transferred to the trust, the seller's investment will fluctuate.

After the non-amortization period, a rapid payout can occur as a: 1) fixed percentage; 2) controlled amortization period; or, 3) bullet payment. Under a fixed percentage arrangement at the end of the non-amortization period, the investor's proportionate participation in the trust is fixed. Investors are paid according to this percentage until the investor's interest is liquidated. This results in rapid amortization, approximately 5 to 9 months. Some issuers further enhance the predictability of amortization with a controlled amortization period. This structure, subject to certain conditions, pays down in a specified number of equal principal distributions. Bullet issues are structured so that all principal is paid at once, virtually eliminating the risk of an extended payout.

These securities usually include a credit enhancement to support the payments to the investors. Credit enhancements include third-party letters of credit or cash advances, spread accounts, seller recourse, insurance company guarantees, and senior/subordinated structures. In spread accounts, reserves are established from the interest rate spread between the underlying assets and the securities. In a senior/subordinated deal, the seller's interest is subordinated.

The agreement may provide that if the seller's or buyer's interest drops below a specified minimum, a pay out event occurs. In a pay out event, the inves-

tors immediately begin receiving full payments of principal under a rapid amortization schedule. Adverse events that may trigger a pay out can include a drop in average portfolio yields, low- or no-card use, increased delinquencies, and changes in cardholder payment/new advance rates.

II. Market—Where to Find Current Value and Ratings

Several rating services publish information on the investment quality of credit card securities. Among these are the monthly *Moody's Bond Record*, available at your local library, which now contains a Structured Finance section of ratings of asset-backed issues, and *Standard and Poor's*, which also periodically publishes ratings summaries.

Although *The Wall Street Journal* publishes prices on representative issues, no comprehensive source of publicly available published prices exists on asset-backed securities. Any broker or dealer bank should be able to provide a quote on the larger issues. If not, the examiner may want to contact the underwriters, who usually maintain a market in the securities they issue.

III. What You Should Look for (Suitability)

Credit card-backed securities registered for public trading are usually rated highly and generally are suitable for most banks. You should check the rating, the type/adequacy of the credit enhancement, and the repayment structure.

Banks should avoid concentrations by: issuer, geographic locations of the cardholders, servicer, trustee, and credit enhancement provider.

The method of selecting accounts for inclusion in the trust is important. For example, accounts may be selected by billing cycle, at random, exclusive of delinquent borrowers, or type of card. A selection method which places a larger percentage of low credit quality accounts in the pool should be scrutinized.

The standards used by the originator to underwrite the underlying loans affect the security's quality. Poor underwriting standards characterized by high delinquencies and losses on similar portfolios would dictate higher levels of credit enhancement to achieve an investment quality security. Originators

should provide adequate representations and warranties on assets sold to the trust.

IV. Accounting Treatment

Total book value must include the unamortized premium or unaccreted discount on securities purchased at other than par or face value. Premiums and discounts should be amortized or accreted into income using the interest method over the expected life of the security. This amortization/accretion is recorded as an adjustment to the yield of the underlying security. The expected life of the security should consider anticipated prepayments.

The amortization of premium and accretion of discount on credit card-backed securities will depend on the payout structure of the investment. Generally, because of the rapid payout after the non-amortization period, most of the amortization/accretion should take place during the non-amortization period.

V. Risks

Interest Rate Risk: Is moderate because of the generally short-term of these securities. Unlike mortgage pass-through securities, the timing of principal payments is largely unaffected by changes in interest rates.

Credit Risk: Generally low for securities registered for public trading. These securities are usually rated AAA. Deterioration in the underlying portfolio and/or the credit enhancement issuer could have a negative effect on the rating. However, short maturities help protect against ultimate default. If the credit card-backed security is unrated, it is probably a private placement and not a legal investment (see below).

Liquidity Risk: Liquidity is relatively high in publicly registered issues and increases as the market grows. Liquidity may be affected during periods of economic contraction, when investor appetites decline for securities backed by consumer receivables.

Other Risk: Certain legal risks exist in the complicated structures of these securities. However, the rating agencies generally research and require protection against these risks before assigning a rating.

Additional risks exist in private label pools where cards are usually restricted to purchases from a single retailer. For example, the card portfolio could deteriorate if the retailer entered bankruptcy or

lowered credit standards to increase sales.

VI. Legal Limitations

Investment grade-rated credit card-backed certificates are subject to the 10 percent investment limit. OCC policy states that the 10 percent limit is per issuer, not per trust, because the underwriting and servicing expertise of the originator bears greatly on the quality of the investment.

Most credit card pools registered for public trading are rated. However, regardless of ratings, these securities should be supported by credit information demonstrating that they are not predominately speculative.

Privately placed asset-backed securities are not eligible for bank investment portfolios because of impediments that limit their resale. A national bank only may purchase unregistered pools if it satisfies the requirements of Banking Circular #181 (Purchases of Loans in Whole or in Part-Participations) and purchases the pools as loans.

The OCC's position is generally that unrated subordinated pieces of credit card-backed securities are presumed to be ineligible for bank investment because they are probably not investment quality.

VII. Risk Asset Capital Weight

100 percent

VIII. References

Baudoin, Leon, "Comparing Card-Backeds to Mortgage-Backeds," *Asset Sales Report*, May 8, 1989, p. 5.

Credit Review-Asset-Backed Securitization (New York: Standard & Poor's Corporation, 1989).

OCC Documents

Banking Circular 181, Purchases of Loans in Whole or in Part-Participations, August 2, 1984.

Investment Securities Division Information Notice 24, Securitization Discussion and Examination Procedures, May 1, 1989.

Investment Securities Division Information Notice 25, Listing of National Bank Securities Activities, November 7, 1989.

Corporate Debt

I. Product Description

A corporate bond is a debt security of a corporation. Corporate bonds may be either secured or unsecured. If the bond is secured, security is usually fixed assets or real property (first mortgage bonds), stocks, bonds, or notes. If the debt is unsecured, the bonds are known as debentures. Some debentures are "subordinated" to other unsecured debt. In the event of bankruptcy or liquidation, the claims of the holders of the subordinated debt will rank after those of holders of other senior debt issued by the corporation. In the event that the issuing corporation fails, bondholders normally are repaid before corporate shareholders.

Corporate bonds usually have a higher yield than government or agency bonds, because of their relative credit risk. Lower quality corporate bonds, e.g., "junk bonds," represent some of the greatest credit risk and normally some of the highest yields. Junk bonds are ineligible for bank investment because of their speculative nature and limited marketability.

Interest on corporate bonds usually is paid semiannually. Interest may be fixed (straight coupon bonds), floating, or the bonds may be zero-coupons. Interest on corporate bonds is fully taxable.

Other features of corporate bonds include: call features, where the issuer has the right to redeem the bond prior to maturity; put options, where the holder has the right to redeem the bond prior to maturity; sinking funds, used to retire the bonds at maturity; and convertibility features that allow the holder to exchange the debt for equity in the company.

Corporate debt must be registered under the Securities Act of 1933, unless it is exempted from registration as a private placement. Privately placed corporate debt is not an eligible bank investment. (See the discussion of "Private Placements" that follows.)

II. Market—Where to Find Current Value and Ratings

The two primary factors influencing the value of a corporate bond are:

1. Its coupon rate relative to the prevailing market interest rates. Bond prices will decline when market interest rates rise above the coupon rate and prices will rise when interest rates decline below the coupon rate, to result in an appropriate competitive yield.
2. The issuer's credit standing or rating. A change in an issuer's financial condition or credit rating can cause a change in the price of the security.

Other factors that influence corporate bond prices are the existence of call provisions, put options, sinking funds, subordinations, and guarantees or insurance.

Although some bonds are traded on the New York Stock Exchange, the majority are traded over-the-counter. *The Wall Street Journal* and other leading newspapers quote prices for exchange traded bonds. For other issues, a broker is the only source of a current price.

Major rating services are Standard & Poor's Corporation, Moody's Investor Service, and Fitch Investor Service. (For definitions of ratings, see the Municipal and Corporate Bond Ratings chapter in this guide.)

III. What You Should Look for (Suitability)

The bank should perform a credit analysis to determine if an investment is eligible for a bank to own. Corporate bonds should be of investment grade (see the Municipal and Corporate Bond Ratings chapter) and should be readily marketable. National banks are not legally permitted to invest in junk bonds, since these bonds have substantial credit risk and are not investment grade. Investment in any one corporate issue is limited by 12 CFR 1. (See the subsection Legal Limitations in this section.)

IV. Accounting Treatment

A corporate security should be booked at cost. If the security is purchased at other than par value, the book value must reflect any unamortized premium or any unaccreted discount. Any accrued interest included in the purchase of a security should be recorded separately as an "other asset" to be offset upon collection of the next interest payment.

The preferred method for reporting purchases and

sales of bonds is as of "trade date." However, "settlement date" is acceptable if the reported amounts will not be materially different.

When a bank purchases an investment security that is convertible into stock at the option of the holder, or has stock purchase warrants attached, entries must be made by the bank at the time of the purchase to write down the cost of the security to an amount representing the investment value of the security exclusive of the conversion feature or the attached stock purchase warrants. (See 12 CFR 1.9.)

Generally, if a security has a call feature, premiums and discounts are amortized/accreted from the date of purchase to maturity. However, if it is probable that the security will be called, amortization/accretion would be over the period up to the call date. If amortization/accretion is taken to the call date and the investments are not called, the premium/discount should be adjusted to the amount that would have been outstanding had the amortization/accretion not been to the call date.

V. Risks

Interest Rate Risk: For fixed-income bonds, prices fluctuate with changes in interest rates. The degree of fluctuation depends on the maturity and coupon of the security. Variable rate issues, also known as floating rate notes, lessen the bank's interest rate risk to the extent that the rate adjustments are responsive to market rate movements. These issues generally have lower yields to compensate for the benefit (floating rates) to the holder.

Call provisions will also affect a bank's interest rate exposure. If the issuer has the right to redeem the issue prior to maturity, such an action could alter the bank's balance sheet in an adverse manner. The bond is most likely to be called when rates have moved in the issuer's favor.

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 is a quick indicator of credit quality. However, changes in bond ratings may lag changes in financial condition. The bank should perform a periodic financial analysis to determine the credit quality of the issuer.

Some bonds will include a credit enhancement in the form of insurance or a guarantee by another corporation. The safety of the bond may depend on the financial condition of the guarantor, since the guarantor will make principal and interest payments if the obligor cannot. Credit enhancements often are used to improve the credit rating of a bond issue, thereby reducing the interest that the issuer must pay.

Zero coupon bonds pose credit risk in a different form. When a zero coupon bond has been sold at a deep discount, the issuer must have the funds to make a large payment at maturity. There are no sinking funds on most of these issues. Therefore, the potentially large balloon repayment causes some investors to be concerned. A bank should invest in higher quality issues, thereby reducing the risk of a potential problem.

For any bonds with a below "investment" grade rating, the guidelines in Banking Circular 227 (Rev.) and Banking Bulletin 85-12 apply.

Liquidity Risk: Major issues are actively traded in large amounts, and liquidity is usually not a concern. Even for major issues, news of credit problems may cause temporary liquidity problems. However, when the market analyzes the credit situation, the price will be adjusted to reflect this concern. Liquidity should return for all issues but those of corporations in the most serious financial condition. Pieces of small issues may be less liquid, or may involve some price sacrifice and/or may not be salable at all.

Other Risk: The biggest risk for the corporate bond market in recent years has been "event risk," the risk of an unpredictable event, often a leveraged buyout (LBO), that immediately affects the quality of a bond. Prices of bonds of well-rated companies plunged because of LBOs in the late 1980s. An LBO example of event risk was the RJR Nabisco \$25 billion LBO where RJR's debt was downgraded to noninvestment grade because of debt incurred by the new company to finance the takeover. Non-LBO examples of event risk include the decline in rating and price of Texaco bonds because of a \$10 billion ruling against Texaco by a Texas judge. Another example is the Three Mile Island nuclear plant accident which severely affected the value of General Public Utilities Corporation bonds and obligations of utilities with nuclear exposure.

VI. Legal Limitations

The limitations of 12 CFR 1 apply to corporate debt. A limit of 10 percent per issue applies (5 percent based on reliable estimates). For zero coupon bonds, the legal limit applies to the par value of the security, not to the discounted value.

The purchase of securities convertible into stock at the option of the issuer is prohibited (12 CFR 1.9); securities convertible at the option of the holder are permitted, as long as the bank does not convert.

12 USC 371(c) limits the holding of affiliated corporate debt to 10 percent of the bank's capital stock and surplus, and proper collateral is required.

VII. Risk Asset Capital Weight

100 percent

Other

Privately Placed Corporate Debt: In the past, the OCC has determined that privately placed corporate debt is not eligible for investment by national banks. This type of private placement has restricted marketability because the number and type of potential investors is limited legally. In addition, the legal impediments to public marketing of privately placed corporate securities makes them ineligible as investments for national banks. A prospectus must indicate if a security is a "Private Placement."

However, some national banks have purchased privately placed corporate securities and have recorded and reported these products as loans. Lending statutes will apply when a national bank chooses to acquire a privately placed security as a loan. When encountering a bank that has acquired a privately placed security as a loan, the validity of management's assertion should be tested by the examiner who must make the following judgments:

1. Can the purchasing bank management conduct the required credit analysis for this type of credit?
2. Did they perform the analysis, initially, and are they conducting it on an ongoing basis?
3. Do they base their purchase decision on this analysis?
4. Are the purchased assets consistent with the bank's credit policies in terms of quality, type, diversification, and borrower location?

If the answer to any of the above is no, regard the privately placed security to be an ineligible investment.

(See the *Comptroller's Handbook for National Bank Examiners*, Section 411.1, for a more complete discussion of private placements.)

VIII. References

Fabozzi, Frank J., ed., *The Handbook of Fixed Income Securities*, 3d ed. (Homewood, Illinois: Business One Irwin, 1991).

OCC Documents

Comptroller's Handbook for National Bank Examiners (Washington, D.C., March 1990).

Banking Bulletin 85-12, Junk Bonds, May 31, 1985.

Banking Circular 127 (Rev.), Uniform Agreement on the Classification of Assets and Appraisal of Securities Held by Banks, April 26, 1991.

Investment Securities Division Information Notice 25, Listing of National Bank Securities Activities, November 7, 1989.

Equity Securities

I. Product Description

Equity securities represent ownership in a corporation. Equity securities (common and preferred stock), as opposed to debt instruments (bonds, notes and debentures), share in the profits and losses of a corporation and may receive any dividends declared by the board of directors. National banks are strictly limited in the types of equity securities they may own for their own account.

While equity securities are generally not permissible for bank investment, various laws and regulations allow some exceptions. They include, but are not limited to:

- Federal Reserve Bank stock.
- Bank premises corporations.
- Small business investment corporations.
- Government National Mortgage Association (Ginnie Mae).
- Federal National Mortgage Association (Fannie Mae).
- Federal Home Loan Mortgage Corporation (Freddie Mac).
- Student Loan Marketing Association (Sallie Mae).
- Federal Agriculture Mortgage Corporation (Farmer Mac).
- Federal Home Loan Bank (FHLB).
- Stock acquired from debts previously contracted (DPC).
- A bank's own stock.
- Operating subsidiaries.
- Community Development Corporations.
- Banker's banks.

(The *Comptroller's Handbook for National Bank Examiners*, Section 203.1, and 12 USC 24(7th)

contain a complete list of eligible equity securities.)

II. Market—Where to Find Current Value and Ratings

Values and ratings may not be available (and generally are not significant) for most of the equity securities eligible for bank investment (most are either majority owned by the bank or are sold and redeemed only by the issuing entity). Some widely held equities, such as Fannie Mae, FHLB, Freddie Mac, and Sallie Mae, while not rated, are valued, as they are traded on the New York Stock Exchange. However, national banks usually own these types of securities for reasons necessary to transact certain business and it is generally not necessary to determine their current value. (For value and rating information for other equities acquired DPC, see major financial or newspaper publications, or contact a broker.)

III. What Should You Look for (Suitability)

Regardless of the type of equity owned, the bank's board approved policy should authorize all equity investment purchases. Management should know and understand the risks (see the following subsections IV and V) and rewards of each equity security in their portfolio or trading account. The risks and rewards should be assessed *before purchasing* and *periodically thereafter*.

For equity securities, the examiner must determine why the bank is holding the investment. Bank management should have a logical reason, and know whether the investment is within legal limitations.

Depending on the type of equity, ownership should benefit the bank through dividends, tax savings, community goodwill, or the generation of additional business possibilities.

IV. Accounting Treatment

Varies, depending on whether the equity investment is consolidated and whether it meets the definition of a "marketable equity security." (See *General Instructions—Consolidated Reports of Condition and Income* (Call Report) for definitions and further information.)

- If the equity securities are of a majority-owned subsidiary that is consolidated into the bank's balance sheet, follow the "Rules for Consolidation" in the General Instructions section of the Call Report. The method of consolidation must be on a line-by-line basis, unless specifically directed otherwise. Examples may include bank premises corporations, operating subsidiaries, and community development corporations, depending on ownership characteristics of each company.
- If the equity securities are of an unconsolidated subsidiary, an associated company, or a corporate joint venture, over which the bank exercises significant influence, report using the equity method on Schedule RC-ASSETS, "Investments in unconsolidated subsidiaries and associated companies." Under the equity method, the carrying value of the bank's investment in common stock is originally recorded at cost, but is adjusted periodically to record (as income) the bank's proportionate share of the earnings or losses. This adjustment must be decreased by the amount of cash dividends received, if any. Examples may include bank service corporations, community development corporations, and small business investment corporations, depending on ownership characteristics of each company.
- For those securities that represent both minority and unconsolidated interests (not included in A and B above,) AND that meet the definition of "marketable equity security," (Financial Accounting Standards Board Statement No. 12 (FAS 12)) report as Marketable Equity Security, Schedule RC-B SECURITIES at lower of cost or market value. Unrealized losses on marketable equity securities are accounted for the same as unrealized losses on mutual funds. Examples include, but are not limited to, Fannie Mae common stock, Sallie Mae preferred stock and nonvoting common stock, and Freddie Mac preferred stock.
- For those securities that represent both minority and unconsolidated interests (not included in A and B above,) but do not meet the definition of "marketable equity security," report as "Other Equity Security," Schedule RC-B SECURITIES at book or par value, as appropriate. Examples include, but are not limited to, Federal Reserve Bank stock, Farmer Mac common stock, and Sallie Mae voting common stock.

V. Risks

Interest Rate Risk: None, other than during very high interest rate periods, when the value of equities tends to decline; vice versa for low rate periods.

Credit Risk: Varies from none to severe, depending on the investment.

Liquidity Risk: Varies from none to severe, depending on the type of security and current conditions.

Other Risk: Event risk: The price of an equity security might be influenced negatively by an unpredictable event, e.g., legal, corporate takeover, or natural disaster.

VI. Legal Limitations

12 USC 24(7th) prohibits national banks from purchasing equity securities for their own account. Some equities are specifically allowed by law or regulation. Those minimum and/or maximum limits are contained in the *Comptroller's Handbook for National Bank Examiners*, Section 203.1, and 12 USC 24(7th).

A national bank may hold its own stock only if it is acquired to prevent a loss on a DPC and then for no longer than six months. The maximum time that other stock acquired through DPC can be retained is five years, unless it is stock of bank affiliates. It can then be retained for two years. You should consult an attorney if you encounter equities not listed in Section 203.1.

VII. Risk Asset Capital Weight

Federal Reserve Bank stock—0 percent. Other equity securities—100 percent.

VIII. References

Capatides, Michael B., *A Guide to the Capital Markets Activities of Banks and Bank Holding Companies* (New York: Bowne & Co. Inc., S.E.C. Red Box Service, 1989).

Fabozzi, Frank J., ed., *The Handbook of Fixed Income Securities*, 3d ed. (Homewood, Illinois: Business One Irwin, 1991).

The First Boston Corporation, *Handbook of U.S. Government and Federal Agency Securities*, 34th ed. (Chicago: Probus Publishing Company, 1990).

OCC Documents

Comptroller's Handbook for National Bank Examiners, Section 203.1 (Washington, O.C., March 1990).

Mutual Funds

I. Product Description

A mutual fund is an investment company that owns and manages a wide range of assets on behalf of its shareholders. Mutual fund assets generally consist of stocks, bonds, options, commodities, or money market securities, as authorized by the fund's prospectus. Assets may vary from conservative to aggressive. Although national banks are prohibited from owning equity securities, the OCC generally permits holdings in mutual funds if the fund assets are eligible for bank investment, subject to appropriate limits. National banks typically buy mutual funds that primarily invest in fixed income government securities, eligible corporate bonds, and money market instruments. Diversification of risk, liquidity, lower expense in managing investments, and professional management are key benefits to investors.

Most mutual funds are open-ended (continuous issuance and redemption of shares), but a small, growing number, are closed-ended (fixed # of shares). Both types of funds are managed by an investment manager who may buy and sell securities according to the rules in the fund's prospectus. Each fund has a specified purpose and objective and can, therefore, only own certain types of assets. Mutual funds periodically pay dividends and/or capital gains: 1) in cash, or 2) by reinvesting in additional shares of the fund, at the option of the shareholder. Mutual funds charge various types of fees or loads, e.g., front-end loads, exit loads, management fees, 12b-1 fees, and deferred loads (typically declining over 2-5 years).

In addition to open- and closed-end mutual funds, other types of funds in which national banks may invest include money market mutual funds and unit investment trusts (UITs). Money market mutual funds often consist of highly liquid and generally safe securities, such as government securities, banker's acceptances, commercial paper, certificates of deposit, and repurchase agreements. Generally, the fund's net asset value (NAV) remains at \$1 per share and only the interest rate changes. Most money market mutual funds are not insured. Some funds offer private insurance or invest only in government guaranteed securities to improve the degree of safety. Fund managers extract fees from income,

A UIT is an investment company that owns a pool of assets on behalf of its shareholders. Assets of the portfolio consist of fixed income securities, such as corporate, municipal or government bonds, mortgage-backed securities, or preferred stock. The UIT portfolio is fixed upon formation and not managed during the life of the trust. Shares, normally priced at \$1,000 or more, are sold for a fee through the UIT sponsor and sometimes certain other underwriters. The share value fluctuates with supply and demand of the trust's shares and with the value of the underlying assets.

II. Market—Where to Find Current Value and Ratings

Open- and closed-end mutual funds value their assets daily. Current values are published for most of the funds, on either a daily or weekly basis, in a variety of publications (*The Wall Street Journal*, *Barrons*, *Investors Daily* and a large number of major daily newspapers). Typically, open-end funds are listed in a separate table and closed-end funds are listed with other stock on the exchange on which they trade (e.g., New York Stock Exchange or American Stock Exchange). For unprinted or broker-specific funds, you should call the selling broker to determine current market value. Market values are determined by finding the net asset value (NAV) or bid price, not the offer or selling price. The latter values include applicable loads, which must not be included in determining current market value. Independent ratings of funds are available from a number of advisory services.

Money market mutual fund share prices usually remain constant at \$1. Market value generally equates to actual dollar investment plus any reinvestment of gains or dividends. The funds are sold based on performance yields. *The Wall Street Journal*, *Barrons*, *Investors Daily*, and many major daily newspapers publish the yields of many money market mutual funds, either daily or weekly. Independent ratings of funds are generally not available,

UITs are created by a specific broker/dealer entity, which is usually the only viable market maker for secondary sales. Because the secondary market is not very active, it may be difficult to find bid quotes. You may have to call the broker that sold the UIT to the bank to determine the market value.

III. What You Should Look for (Suitability)

The bank's board approved policy should authorize all investments in mutual funds. Management should know and understand the risks (see subsections IV and V in this section) and rewards of each investment. The risks and rewards should be assessed before purchasing the investment and periodically thereafter. Bank management should document the reason for the investment and that the investment is within legal limitations.

The bank must understand fully mutual fund fees and loads, unique accounting guidelines, and ownership legality. The bank must know whether:

- The investment company is registered with the Securities Exchange Commission or is a privately offered fund sponsored by an affiliated commercial bank.
- The bank has a proportionate undivided interest in the underlying assets of the investment company and that shareholders are shielded from personal liability or obligations of the investment company.
- The board formally approved the initial investment in specific mutual funds and recorded that approval in the board minutes. The board should also adopt procedures and controls for managing such investments prior to their purchase. The bank should, at least quarterly, conduct reviews of each mutual fund to ensure compliance with current investment objectives.
- The investment policy specifically authorizes the purchase of mutual funds, and the types of investment securities held in those funds. The policy should specifically authorize investments only in funds composed entirely of bank eligible investments.
- Bank managers have formally determined that mutual fund investments are proper for the bank and its portfolio.
- A concentration exists (in excess of 25 percent of the bank's capital and surplus). Be aware of any concentration in a single fund, a family of funds or a type of fund that invests in securities that have credit characteristics similar to other bank assets.

IV. Accounting Treatment

According to FAS 12 and Banking Circular 220, banks must account for and report shares of mutual funds at the lower of aggregate cost or market value on their quarterly Reports of Condition and Income. For open-end funds, use NAV. For closed-end funds, use the bid price. Both NAV and bid price may need to be adjusted to market value by deducting any applicable redemption fees. This adjustment would reflect the amount the bank would receive if the shares were sold today. The book value of the fund must never increase above the aggregate cost, despite an unrealized increase in market value (lower of cost or market accounting). However, unrealized losses and subsequent recoveries of unrealized losses (up to aggregate cost) must be reported as an adjustment to undivided profits. (The adjustment, net of applicable income taxes, cannot exceed offsetting capital gains for the reporting period. Since banks rarely have capital gains, the tax effect is usually not applicable.) Realized gains and losses must be reported as "other noninterest income" or "other noninterest expense" as appropriate, for the period in which they occur.

The bank may elect to have any dividends reinvested into additional shares of the fund. These additional share purchases are accounted for the same as above except that there are no redemption fees and therefore, no further adjustments. If the bank elects to receive the dividend in cash, the dividend is treated as interest income on securities.

V. Risks

Interest Rate Risk: Varies from minimal to severe, depending on the coupon, maturity, options, and type of each fixed income security (bond) within the fund. The investment manager may include interest rate risk management strategies (e.g., using futures, forwards, and swaps) to reduce the effects of interest rate movements on the value of each security and the portfolio in general. For money market mutual funds, however, interest rate risk is minimal because of their short average maturities.

Credit Risk: Generally minimal. The type of underlying assets may create credit risks to the mutual fund and therefore to the bank. Management should review periodically each mutual fund investment with the investment policy to determine if it meets the bank's current creditworthiness standards. Histori-

cally, money market mutual funds have absorbed the cost of defaults (although not required to do so) and have not passed the losses on to the shareholders. Depending on the type of assets held, credit risk in UITs may vary from minimal to severe.

Liquidity Risk: Minimal to severe liquidity risk. Mutual fund shares are generally less marketable than other direct investments in a bank's portfolio. This is because generally only the mutual fund, and not a wide secondary market of buyers and sellers, makes a market for its shares. Although mutual fund investment managers plan for daily redemptions, their ability to redeem depends on the liquidity position at that time. The quality of the fund's assets may not be attractive, therefore reducing liquidity. Fee structures, especially front-end loads and deferred contingency fees (declining rear-end load fees), may impede marketability. Shares of closed-end mutual funds may present particular liquidity problems, because they may not be readily redeemable by the fund and they may not have a secondary market.

Mutual funds that are offered exclusively or predominantly to a single class of investor, such as community banks, are more vulnerable to liquidity risk, because these investors may have the same market timing and liquidity needs. If a large number of investors try to redeem their mutual fund shares at the same time, the fund manager will have to liquidate assets. If that type of selling occurs in a declining market, mutual fund shareholders may experience losses.

The risk of impaired liquidity is markedly less for money market mutual funds, because of the short-term nature of money market instruments. UITs, however, exhibit moderate to severe liquidity risk. The liquidity of UITs is generally poor because of the smaller population of potential buyers, the nature of the fixed and unmanaged portfolio of assets, and the uniqueness of each trust. In addition, the sponsor and other underwriters (if any) are not required to maintain a secondary market of units. If no secondary market is maintained or another purchaser cannot be found, the only remaining method is to tender the units to the UIT trustee at the redemption price listed in the prospectus.

Other Risk: Pledging of mutual funds as collateral against public funds may not be acceptable to municipal, federal, and other authorities. Also, be

aware of concentrations risk (see subsection III in this section).

VI. Legal Limitations

If the fund is composed exclusively of obligations eligible for unlimited investment by a bank (in the bank's investment portfolio), there is no limit other than prudence. If the fund holds *any* securities or loans that are subject to statutory limits on the amount a bank can hold (12 USC 24(7th) and 12 USC 84), the investment in each mutual fund is limited to 10 percent of the bank's capital and surplus. Banks may not invest in mutual funds that may invest in assets not eligible for bank investment. A bank's investment in mutual funds may create a violation of the 10 percent per obligor limitation (12 CFR 1.7(a)). This would occur when the bank's *pro rata* share of any security in its mutual funds combined with its direct holdings exceed 10 percent of the bank's capital and surplus.

If the mutual fund uses futures, forward placement and options contracts as well as repurchase agreements and securities lending arrangements as part of its portfolio management strategy, the bank must ensure that the fund complies with the requirements of the OCC for use in a bank's own investment portfolio. If applicable, the fund must comply with Banking Circulars 79-3rd revision, (dated April 19, 1983), 210 (dated October 31, 1985) and 196 (dated May 7, 1985).

National banks may not invest in real estate investment trusts (REITs).

VII. Risk Asset Capital Weight

Varies from 20 percent to 100 percent. The risk category is assigned based upon the highest risk-weighted asset the mutual fund is permitted to hold, regardless of whether the fund actually holds such assets. For example, a fund which may use significant amounts of IOs and POs would be assigned to the 100 percent risk category, regardless of the actual holdings of the fund.

III. References

Capatides, Michael B., *A Guide to the Capital Markets Activities of Banks and Bank Holding Companies* (New York: Bowne & Co. Inc., S.E.C. Red Box Service, 1989).

Fabozzi, Frank J., ed., *The Handbook of Fixed Income Securities*, 3d ed. (Homewood, Illinois: Business One Irwin, 1991).

The First Boston Corporation, *Handbook of U.S. Government and Federal Agency Securities*, 34th ed. (Chicago: Probus Publishing Company, 1990).

OCC Documents

Comptroller's Handbook for National Bank Examiners, Section 203.1 (Washington, D.C., March 1990).

Banking Circular 79 (3rd Rev.), National Bank Participation in the Financial Futures and Forward Placement Markets, April 19, 1983.

Banking Circular 196, Securities Lending, May 7, 1985.

Banking Circular 210, Repurchase Agreements, October 31, 1985.

Banking Circular 220, National Bank Investment in Investment Companies Composed Wholly of Bank Eligible Investments, November 21, 1986.

Investment Securities Division Information Notice 13 (Revised), Banking Circular No. 220 - And Commonly Asked Questions About Mutual Funds Purchases by Banks, April 13, 1987.

OCC Advisory Letter 87-3, Potential Risks Regarding National Banks' Investment in Government Securities Mutual Funds, October 15, 1987.

Insurance

I. Product Description

Many banks buy insurance products for their investment characteristics. When purchased, some national banks improperly capitalize insurance holdings and/or improperly report holdings in their investment portfolio. Following are the primary types of insurance-related products available today.

Guaranteed Insurance Contracts: Guaranteed insurance (aka income, investment and interest) contracts (GIC) are contracts between an insurance company and another entity where the insurance company pays a guaranteed fixed rate of return on invested capital. The guaranty is only as good as the claims paying ability of the insurer. National banks do not have the authority to invest in GICs for their own investment account.

Annuities-Fixed and variable: Life insurance companies sell a contract, referred to as an annuity, that guarantees either a fixed or variable payment in the future, typically at retirement. The annuity grows tax deferred. The purchaser of the annuity should consider the insurance company's financial soundness and past performance, including any fees and commissions. National banks do not have the authority to invest in annuities of any kind for their own account.

Life Insurance Products: A national bank may purchase life insurance products for its own account, provided it is for purposes "incidental to banking." Eligible insurance product types include term life, whole life, universal life, variable life, and single premium life. (See the Glossary in this guide for definitions.) National banks may not purchase life insurance for their own account as an investment or with significant investment components. According to Banking Circular 249 (Rev.), the OCC has authorized national banks to purchase: 1) life insurance on a key person; 2) life insurance on borrowers; 3) life insurance purchased in connection with employee compensation and benefit plans; and, 4) life insurance taken as security on loans. (See Banking Circular 249 (Rev.) for a discussion on specific requirements that national banks must meet for each type of insurance.)

(Since national banks do not have the authority to

invest in GICs and annuities. further discussion of their characteristics is limited to subsection VI in this section.)

II. Market—Where to Find Current Value and Ratings

Not applicable for GICs and annuities. Life insurance products that national banks can capitalize are rarely marketable. Insurance companies receive a rating of financial soundness by rating services, such as A.M. Best, Duff & Phelps, or Weiss. Local libraries or the state insurance agency (or equivalent) should have current ratings information available.

III. What You Should Look for (Suitability)

Life Insurance Products: A national bank may purchase life insurance: 1) based on its need to protect itself against a measurable risk of financial loss; or, 2) in conjunction with providing employee compensation or benefits. The amount of insurance coverage must closely approximate the risk of loss (1 above) or be part of a reasonable compensation agreement or benefit plan (2 above), as approved and substantiated in writing, by the board of directors. The bank should determine and periodically review the financial strength and claims paying ability of any insurance company with which it deals. (See Banking Circular 249 (Rev.) for additional information.)

IV. Accounting Treatment

Life Insurance Products

Key person life insurance: A national bank listed as sole beneficiary may capitalize, as an "other asset," the cash surrender value of the policy. On a periodic basis, the value should be adjusted to the current cash surrender value. The value recorded on the books must not exceed what the bank would receive if they surrendered the policy today, net of any prepayment fees.

Premiums paid on life insurance should be expensed. The increase in cash surrender value should be recorded as an offset to the premium expense account. Changes in the cash surrender value should be recorded at least quarterly.

Life insurance on borrowers: Same as "Key person life insurance."

Employee compensation benefit plans: Treat as a prepaid expense and amortize costs evenly until expected retirement of employee.

Life insurance taken as security on loans: Same as "Key person life insurance."

V. Risks

Interest Rate Risk: Life Insurance Products: Depends on the type of investment vehicle chosen by the bank. Depending upon the type and terms of insurance product the bank purchases (for purposes incidental to banking), the bank may assume some or all of the interest rate risk. For example, if a national bank owns an insurance product and controls the investment of the cash value portion, it assumes the interest rate risk.

Credit Risk: Life Insurance Products: Varies with the financial stability and soundness of the insurance company that underwrites the policy.

Liquidity Risk: Life Insurance Products: Is generally minimal, but could be severe depending on how the insurance premium (above the pure cost of insurance) is invested. Also, the liquidity management practices of the insurance company may be a factor.

Other Risk: Life Insurance Products: The bank should be aware of any potential adverse tax consequences if the policy must be surrendered for any reason before the death of the insured. The bank should also be aware of a prepayment penalty risk if

the policy must be surrendered before the death of the insured. In addition, risks, such as tax law changes, can affect the entire insurance industry.

VI. Legal Limitations

Guaranteed Insurance Contracts: Not applicable. National banks may not invest in GICs for their own investment portfolio.

Annuities: Not applicable. National banks may not invest in annuities for their own portfolio.

Life Insurance Products: There is no authority under 12 USC 24(7th) for national banks to purchase life insurance for their own account as an investment. The OCC authorizes life insurance products purchased and held for "noninvestment" purposes, provided they meet the tests in Banking Circular 249 (Rev.).

VII. Risk Asset Capital Weight

Life Insurance Products: 100 percent.

VIII. References

OCC Documents

Banking Circular 249 (Rev.), Bank Purchases of Life Insurance, May 9, 1991.

Interpretive Letter No. 331, from Peter Liebesman, Assistant Director, Legal Advisory Services Division, April 4, 1985.

Interpretive Letter No. 499, from Paul Allan Schott, Chief Counsel, February 12, 1990.

Bankers Acceptances

I. Product Description

Bankers acceptances (BAs) are created when a bank "accepts" (essentially guarantees) responsibility to pay the holder of the instrument at maturity. BAs are generally used to finance trade. They originate when a purchaser buys goods from another company on credit, but the selling company is not willing to lend to the buyer. To buy the product, the purchaser may have its bank issue a letter of credit (L/C), which the seller takes in payment. The seller then presents appropriate shipping documents, along with the L/C to the purchaser's bank. The bank "accepts" the L/C, agreeing to pay it when due (the purchaser remains liable to repay the accepting bank). An instrument created in this manner is known as a documentary BA, because the trade finance documents (bills of lading, warehouse receipts, etc.) accompany the instrument. BAs may also be created without the trade documents ("clean" or working capital BAs). Without the trade documents there is a higher degree of risk from fraud. The holder of the BA can either retain or sell it. If the BA is held by the accepting bank it is treated as a loan. If sold to an investor, BAs can be traded like other negotiable securities. Most negotiable BAs are created by money center or large regional banks.

BAs are an unsecured debt of the accepting bank and are not backed by FDIC insurance. BAs are considered "two-name paper," because the bank's customer also remains liable for the instrument. BAs trade at yields slightly higher than similar maturity Treasury bills, but lower than commercial paper. BAs are short-term instruments (generally 30-180 days) because of the nature of the underlying transaction-trade credit. BAs are sold at discount as are Treasury bills.

II. Market—Where to Find Current Value and Ratings

BAs are not traded on an organized exchange. However, there is a secondary market for the larger, well known accepting banks, with quotes available from most security dealers. "Average" BA yields are published in *The Wall Street Journal*. Since BAs are the obligation of the accepting bank, they are traded on the bank's rating (Thomson Bankwatch or IBCA, Ltd). BAs are not rated themselves. Moody's,

Standard and Pear's, and other rating agencies may rate other debt instruments issued by accepting banks.

III. What Should You Look for (Suitability)

BAs are usually purchased as a liquid investment. However, the purchasing bank should understand that a BA of a lower-rated bank, or of a "no-name" bank (something other than a money center or large regional institution) may not be liquid. "Ineligible" BAs (discussed under the Legal Limitations subsection) may also have limited liquidity. A purchasing bank should know the financial strength of the accepting bank, including, at a minimum, its current rating. A detailed credit analysis should be performed on all but the highest rated accepting banks.

A purchasing bank should also have some understanding of the operational controls of the accepting bank. This is because BAs are usually based on trade finance documents which must be efficiently processed in order to maintain control over the transaction.

IV. Accounting Treatment

Most BAs purchased as investments are created by other banks. These BAs should be reported at cost under "Acceptances of other banks" on the Call Report in Schedule RC-C. The discount should be accreted over the expected remaining life of the BA. BAs purchased for trading purposes should be reported in the trading account at market value. If the bank is holding its own acceptance, it should be reported as both an asset and a liability at the full amount of the draft. The asset should be reported as a loan. The liability should be shown as "Bank's liability on acceptances executed and outstanding."

V. Risks

Interest Rate Risk: Is generally minimal because of the short maturity of BAs.

Credit Risk: Somewhat mitigated by the corporate borrower being secondarily liable on the paper. The accepting bank may not be able to make payment at maturity. BAs are not FDIC-insured or secured by any other bank assets.

Liquidity Risk: Generally limited because of the short maturity of the paper and "name" bank credit support. However, liquidity risk is greater if the accepting bank is lower rated, is not a "name" institution, or if the instrument is not "eligible."

Other Risk: N/A

VI. Legal Limitations

12 USC 24(7th) explicitly allows purchase and sale of debt, which includes BAs created by other banks. BAs created by other, nonaffiliated banks may be held without limit, if they are created in accordance with 12 USC 372, and are thus "eligible" for discount with a Federal Reserve Bank. In general, to be eligible for discount with the Federal Reserve Bank, BAs must have original maturity of no longer than six months and the following characteristics:

- Finance the importation or exportation of goods;
- Finance the domestic shipment of goods;
- Secured by warehouse receipts or other documents conveying title on readily marketable staples; or
- Furnish dollar exchange required for trade.

12 USC 372(b), (c), and (d) also restrict investment in the aggregate amount of BAs created by any one bank.

"Eligible" BAs will be typically noted as such on the trade confirmation. Holdings of "ineligible" BAs may be combined with other credit extensions to the accepting bank and limited to 15 percent of capital per accepting bank because they are considered loans to the accepting bank (12 USC 84). "Ineligible" BAs are also subject to Regulation D reserve requirements. The purchase of BAs created by an affiliated bank is covered by 12 USC 371c-Loans to Affiliates.

VII. Risk Asset Capital Weight

20 percent (OECD depository institutions and non-OECD institutions if remaining maturity is one year or less).

100 percent (non-OECD depository institution if remaining maturity is over one year).

VIII. References

Fabozzi, Frank J., ed., *The Handbook of Fixed Income Securities*, 3rd ed. (Homewood, Illinois: Business One Irwin, 1991).

Certificates of Deposit

I. Product Description

Only negotiable (over \$100,000) certificates of deposit (CDs) are traded. However, banks may also own non-negotiable CDs purchased directly from the issuing bank. CDs issued by most banks are insured against loss up to \$100,000 (principal and interest) by the FDIC. CDs may be issued in any denomination and with any maturity over seven days (minimum required by the Federal Reserve to qualify as a time deposit under Regulation D). Most CDs are issued with maturities under one year. CDs may be purchased directly from the issuing bank or from a securities dealer.

Most CDs purchased by banks are classified into three types: domestic CDs—issued by domestic institutions; Eurodollar (or Asian dollar) CDs—denominated in U.S. dollars but issued outside the United States; and Yankee CDs—issued by foreign bank branches in the U.S. and denominated in U.S. dollars (refer to section on "Eurodollar CDs"). CDs are sold based on yield. Yields on CDs are quoted on an interest-bearing basis (360-day year). Yields vary based on the maturity of the CD, the credit rating of the issuing bank, and the market supply and demand of CDs. CDs trade at higher yields than similar maturity Treasury securities because of their higher credit and liquidity risk.

CDs may be either fixed rate or floating rate. Floating rate CDs may reprice at various frequencies and may be indexed to one of several rates, such as the London Interbank Offered Rate (LIBOR), the Treasury Bill/Bond equivalent yield, the federal funds rate, or the prime rate. Most negotiable floating rate CDs are indexed to LIBOR. LIBOR represents the global banking system's cost of obtaining short-term funds—the rate at which prime banks make Eurodollar deposits available to other prime banks.

II. Market—Where to Find Current Value and Ratings

CDs are not traded on an organized exchange. However, a secondary market exists for negotiable domestic CDs issued by money center and large regional banks. Yield/price quotes may be obtained from investment securities dealers. "Average" yields on negotiable CDs are published in *The Wall Street Journal*. Major banking companies are rated by

Thomson Bankwatch. CDs are themselves not rated, but other instruments of issuing banks may be rated by Moody's, Standard & Poor's, and other rating agencies. Foreign banks are rated by IBCA, Ltd, and Thomson Bankwatch. CDs issued by smaller banks may not be actively traded, may not have price quotes available, and the banks may not be rated.

III. What You Should Look for (Suitability)

CDs are usually purchased as a liquid investment. Floating rate CDs are often purchased for rate sensitivity purposes. The purchaser should know the financial strength of the issuing bank. The purchasing bank should also know the marketability of the CD. If purchased for rate sensitivity purposes, management should be able to show that the repricing basis and frequency of the CD are appropriate for the bank's needs.

IV. Accounting Treatment

CDs purchased as an investment should be carried at cost and reported on the Call Report as "Interest-bearing balances." If the CD is purchased at a discount or premium, the discount should be accreted or the premium amortized over the life of the CD.

V. Risks

Interest Rate Risk: CDs with longer maturities are more susceptible to interest rate risk in an increasing interest rate environment. This risk may be exacerbated if the issuing bank is lower rated.

Credit Risk: Although the first \$100,000 of a domestic CD is insured (if the issuing bank holds FDIC insurance), any larger balance is an unsecured debt of the issuing bank with the risk that it may not be repaid at maturity.

Liquidity Risk: The secondary market for CDs is not as deep as that for many other money market securities. For lesser "name" bank issuers or those with lower ratings (or with rating downgrades), there may be no secondary market at all.

Other Risk: Basis risk. Variable rate CDs may reprice based on a different index than the liabilities used to fund them (e.g., purchased CD repricing

based on 30-day LIBOR, but funded by the bank's own CDs which reprice based on local market conditions).

VI. Legal Limitations

Banks may purchase and hold CDs without limit based on the 12 USC 24(7th) "incidental powers" provisions. OCC Interpretative Letter No. 384 (May 19, 1987) also allows banks to buy and sell Eurodollar time deposits. The purchase of CDs issued by an affiliate is covered by 12 USC 371c. Unless both the purchasing bank and the issuing affiliate are at least 80 percent owned by the same parent, purchasing a CD from an affiliate is prohibited because of a

bank's limited ability to pledge assets to secure deposits.

VII. Risk Asset Capital Weight

20 percent for U.S. financial institutions and other OECD countries, and for non-OECD countries where the CD is one year or less. CDs over one year issued by non-OECD countries are assigned 100 percent.

VIII. References

Fabozzi, Frank J., ed., *The Handbook of Fixed Income Securities*, 3rd ed. (Homewood, Illinois: Business One Irwin, 1991).

Deposit and Bank Notes and Bank Holding Company Debt

I. Product Description

Deposit notes are instruments created to make bank debt more appealing to institutional buyers. Deposit notes, for all practical purposes, differ little from bank certificates of deposit (CDs). Many institutional investors are precluded, by tradition or otherwise, from buying non-rated instruments (CDs are not themselves rated). They also often resist buying instruments that trade differently than corporate bonds. Deposit notes were designed to look like corporate bonds - coupon paper traded at par, discount or premium; interest accrued on a 30/360 basis; with an offering circular. They are also issued with a rating. If the issuing bank holds FDIC insurance, deposit notes are insured up to \$100,000 (principal and interest) per deposit. Yields on deposit notes are higher than similar maturity Treasury issues, and are often slightly higher than similarly rated notes of non-financial companies. Deposit notes are issued with maturities between seven days and five years. The market for deposit notes has grown substantially. However, secondary marketability is often limited to the originating broker making a market in the instrument.

Deposit notes should not be confused with other instruments, such as "bank notes" and bank holding company debt. Bank notes are unsecured liabilities which are not FDIC-insured. Issuing banks intend these instruments to be treated as corporate debt, not bank deposits. Bank notes are to be sold strictly to more sophisticated investors. Maturities can be as short as *seven days*, but bank notes are usually written with 2- to 5-year maturities.

Bank holding company debt is generally not secured and is also not FDIC-insured. Holding company debt is usually rated and issued in a full range of maturities. The market does not consider holding company debt as safe as bank debt. Consequently, holding company debt trades at higher yields and has less secondary market liquidity. If you have any questions regarding the type of instrument a bank has purchased, consult your supervisory office.

Deposit notes, bank notes, and holding company debt may all be purchased directly from the offering institution or through brokers.

II. Market—Where to Find Current Value and Ratings

Most deposit note, bank note, and holding company debt issues are rated by Moody's, Standard & Poor's, or other rating agencies. The offering banks and holding companies may themselves be rated by Thomson Bankwatch. Some notes issued by the money center banks are traded on the New York Bond Exchange. While the secondary market for all but the exchange-traded issues is thin, price/yield quotes are generally available from major security brokers.

III. What You Should Look for (Suitability)

Purchasing banks should have a copy of the offering circular on all issues purchased. The purchasing bank should know the financial strength of the issuer. **At** a minimum, this would include knowing the current rating of the issue and issuer. Unless the holding is FDIC-insured, a detailed credit analysis should be performed on all but the highest rated issuers.

IV. Accounting Treatment

Deposit notes should be reported at cost as "Interest-bearing balances" on the Call Report. Any discount or premium should be accreted/amortized. Bank notes and holding company debt may be reported as either loans or securities in a bank's Call Reports.

V. Risks

Interest Rate Risk: Deposit notes, bank notes, and holding company debt with longer maturities may exhibit interest rate risk in an increasing interest rate environment. This risk may be exacerbated if the issuing bank is lower rated.

Credit Risk: If the issuing bank holds FDIC insurance, the first \$100,000 of deposit notes purchased from the issuer is protected (review the prospectus or offering circular). Deposit notes exceeding \$100,000, bank notes, and debt instruments issued by bank holding companies contain the risk that the issuers may not be able to repay the obligations at maturity.

Liquidity Risk: Liquidity for deposit notes, bank

notes, and holding company debt not traded on a national exchange may be limited to the originating broker making a market in the instrument.

Other Risk: NA

VI. Legal Limitations

Subject to safety and soundness and interbank liability exposure (Regulation F, i 2 CFR 206), national banks may hold deposit and bank notes issued by member banks without limit. Under 12 USC 463, national banks may hold deposits issued by nonmember banks in an amount up to 10 percent of their capital. However, 12 USC 463 limits have little practical impact on holdings of bank deposits because virtually all domestic bank issuers have Federal Reserve borrowing rights and foreign bank deposits are exempt from 12 USC 463 limits.

For holding company debt, the legal limitation depends on the nature of the holding. Holding company debt could be held either as a loan or a security, provided it meets the applicable requirements for purchase as either a loan or security, respectively. The purchase of instruments issued by a nonbank affiliate is also covered by 12 USC 371c-Loans to Affiliates.

VII. Risk Asset Capital Weight

20 percent on deposit notes and bank notes.
100 percent on holding company debt issues.

VIII. References

Stigum, Marcia, *The Money Market*, 3rd ed. (Homewood, Illinois: Business One Irwin, 1990).

Commercial Paper

I. Product Description

Commercial paper (GP) is short-term, unsecured borrowing by corporations or municipalities in the money market. GP may be sold either directly by the

issuer or by a securities broker. Issuers raise funds with GP because they find it less expensive than short-term bank borrowing. GP is generally issued by companies with strong credit ratings, and is usually backed by unused bank credit lines. How-

ever, companies with lesser credit ratings do issue GP, but it is often supported by bank letters of credit which guaranty payment. Some lesser quality companies have issued GP without credit enhancements (often through private placements). These issues are known as "high-yield commercial paper" and may not be rated. Foreign corporations also issue GP. The maturity of GP is usually less than 270 days, with the most common maturities ranging from 30-50 days. Most GP issuers have a need for ongoing financing and roll paper over at maturity with new proceeds used to pay off the maturing paper. GP is quoted and sold on either an interest bearing basis or on a 360-day discount basis.

The present GP market is quality driven and is dominated by risk averse institutional investors. Money market mutual funds hold 40-50 percent of outstanding GP. These funds have significant regulatory and/or policy restrictions on all but the highest rated GP, thus restricting the primary and secondary market trading to only top rated paper.

II. Market—Where to Find Current Value and Ratings

Although the GP market is very large, secondary trading is only moderately active since most purchasers hold paper until maturity. GP is not traded on an organized exchange, but price quotes for most significant issues are available from security brokers. *The Waif Street Journal* publishes average yields on new issue GP.

All of the major rating agencies assign ratings to traded GP. However, GP ratings differ from other debt instrument ratings. The following table summarizes GP ratings issued by the major agencies:

Moody's	S&P	Duff & Phelps	Fitch	McCarthy, Crisanti & Maffei
Prime 1 (P-1)	A-1/A-1+	Duff 1 (D-1)	F-1	MCM1
Prime 2 (P-2)	A-2	Duff 2 (D-2)	F-2	MCM2
Prime 3 (P-3)	A-3	Duff 3 (0-3)	F-3	MCM3
Prime 4 (P-4)				MCM4

For ease of this discussion, all references to ratings will be based on Moody's. If you use a different rating system, refer to the equivalent rating.

P-1 rated issuers are considered to have superior capacity to repay debt promptly. P-2 issuers have strong capacity, while P-3 issuers have acceptable capacity. P-3 paper has very limited appeal to most investors (most P-3 issues are considered to be deteriorating). P-2 paper was considered a sound holding until the SEC limited the amount of paper rated less than P-1 that money market mutual funds could hold. Most P-2 or P-3 rated issuers now issue their CP through bank conduits (often asset backed) in order to receive a P-1 rating.

III. What You Should Look for (Suitability)

CP is usually purchased as a liquid interest-bearing security. Bank purchasers must be aware that CP liquidity is more a function of its short maturity than its marketability, because the secondary market is very thin. Plus, CP carries credit risk because it is an unsecured borrowing of the issuer. Banks should generally only purchase the highest rated CP, buying no lower than P-2 or equivalent rated paper. Banks should establish thresholds based on both CP and bond ratings. For example: only purchase P-2 or equivalent GP from an issuer whose bonds are rated "A" (or equivalent) or better. Another example includes limiting the holdings of CP rated less than P-1 to a predetermined concentration level. Banks should not own any privately placed CP unless their own comprehensive financial analysis indicates that the credit risk meets the board's acceptable standards. For all purchases, banks should perform a credit analysis on the issuer, with the depth of the analysis increasing as the independent rating on the issuer decreases. Banks should also know and understand the credit enhancement, if any, that

supports the CP issue. If any reliance is placed on this enhancement, the bank should perform a credit analysis on its issuer.

IV. Accounting Treatment

Call Report Instructions state that holdings of commercial paper should be reported as "Loans" under the category appropriate to the issuer. CP should be reported at cost. Any discount or premium should be accreted/amortized.

V. Risks

Interest Rate Risk: Minimal due to short maturities.

Credit Risk: Commercial paper is an unsecured obligation of the issuer, and therefore runs the risk of not being repaid at maturity. This risk is normally mitigated by the financial strength of most issuers and/or some form of credit enhancement (unused bank lines of credit, letters of credit, corporate guaranty or asset collateralization).

Liquidity Risk: The secondary market for CP is thin and holdings of all but the highest rated CP may not be readily marketable. Privately placed CP is subject to further legally mandated restrictions on resale. These restrictions present additional impediments to marketability.

Other Risk: Commercial paper issued by foreign corporations, if denominated in the foreign currency, is subject to exchange risk.

VI. Legal Limitations

Commercial paper is considered a loan to the issuer and subject to 12 USC 84-Lending Limits (and combinable with other credit extensions to the CP issuer). An exception would be general obligation tax exempt CP that can be held without limit. Holdings of CP issued by an affiliate are subject to the limitations of 12 USC 371c-Loans to Affiliates.

VII. Risk Asset Capital Weight

Generally 100 percent, unless the CP is backed by a bank letter of credit, in which case the capital weight would be 20 percent. Tax exempt CP may carry weights of 20 percent or 50 percent, depending on the issuer (e.g., dependent upon whether the obligation is a general obligation *or* a revenue obligation).

VIII. References

Fabozzi, Frank J., ed., *The Handbook of Fixed Income Securities*, 3rd ed. (Homewood, Illinois: Business One Irwin, 1991).

Asset-backed Commercial Paper

I. Product Description

Asset-backed commercial paper (ABCP) is short-term borrowing backed by trade receivables, credit cards, or other assets. Like regular commercial paper, ABCP maturities are 270 days or less-to meet the maturity criteria for exemption from SEC registration. Once an ABCP program is set up, paper is offered on a continuous basis, and maturing commercial paper is "rolled over."

ABCP is generally issued by a Special Purpose Finance Corporation (SPFC). An originator/servicer sells receivables to the SPFC, which then issues commercial paper backed by these assets. The SPFC is a bankruptcy remote corporation. Bankruptcy remote status is given because the SPFC can assume no outside debt other than the ABCP. It is considered bankruptcy remote from the sponsoring bank unless the sponsoring bank provides credit or liquidity enhancements.

ABCP generally has credit and liquidity enhancements to support the payments to the investors. Credit support is provided to absorb credit losses on the underlying receivables. Types of credit support include third party letters of credit, overcollateralization, recourse to the sponsor, and insurance company guarantees.

Liquidity support takes effect if the issuer cannot roll over the commercial paper. Liquidity support usually takes the form of a refunding loan commitment equal to 100 percent of the total amount of commercial paper the SPFC can issue.

If. Market—Where to Find Current Value and Ratings

Secondary trading is generally limited since most purchasers hold their investment until maturity. Any broker or dealer bank should be able to provide a quote on significant issues. *The Wall Street Journal* publishes average yields on new issues of commercial paper.

Moody's Bond Record and *Standard and Poor's* periodically publishes ratings summaries of ABCP programs.

III. What You Should Look for (Suitability)

ABCP, like regular commercial paper, is usually purchased as a liquid money market security. Bank purchasers should be aware that commercial paper liquidity is more a function of its short-term maturity than its marketability, because the secondary market is relatively thin.

Unlike regular commercial paper, which is unsecured, ABCP is backed by receivables. In addition, ABCP is issued by a bankruptcy remote corporation, which is an advantage to the investor.

You should check the rating and the type/adequacy of the credit enhancement.

Banks should avoid concentrations by issuer, geographic locations of the underlying borrowers, and credit and liquidity enhancement providers.

IV. Accounting Treatment

Call report instructions state that holdings of commercial paper should be reported as "loans." Commercial paper can also be a trading asset, in which case it should be reported in the trading account and marked-to-market.

Commercial paper issued through dealers is usually sold on a discount basis. This discount should be accreted over the life of the commercial paper. Prepayments of commercial paper are considered rare, because of the short-term nature of these instruments.

Interest-bearing commercial paper is also available. Accrued interest included in the purchase price of interest-bearing paper should be recorded as an "other asset," to be offset upon collection of the next interest payment.

The preferred method for reporting ABCP purchases and sales is as of the trade date. However, settlement date accounting is acceptable if the reported amounts would not be materially different.

V. Risks

Interest Rate Risk: Minimal due to the short-term nature of the instrument.

Credit Risk: Generally low due to the structure of the SPFC, the type of receivables being securitized, credit enhancements, and the short-term maturity of the instrument. Deterioration of the underlying portfolio and/or the credit enhancement issuer could have a negative effect on the rating. However, short maturities help protect against ultimate default.

Liquidity Risk: Because most investors hold their investments until maturity, a secondary market in commercial paper issuances is often limited. However, the short-term maturity of the instrument mitigates this risk.

Other Risk: Certain legal risks exist in the complicated structures of ABCP programs. However, the rating agencies generally research these risks and require protection against them before a rating is assigned. If the security is unrated, the investor should ensure that these risks are researched.

VI. Legal Limitations

Since commercial paper is considered a loan,

holdings are subject to the Lending Limits in 12 USC 84 and 12 CFR 32. Therefore, investments in ABCP are limited to 15 percent of capital per issuer.

VII. Risk Asset Capital Weight

100 percent

VIII. References

Credit Review—Asset-Backed Securitization (New York: Standard & Poor's Corporation, 1989).

OCC Documents

Investment Securities Division Information Notice 24, Securitization Discussion and Examination Procedures, May 1, 1989.

Investment Securities Division Information Notice 25, Listing of National Bank Securities Activities, November 7, 1989.

Federal Funds Sold

I. Product Description

Federal funds are excess reserves (above the Regulation D reserve requirement) held in a bank's Federal Reserve Bank account. To attain a return on these excess reserves, banks will lend them to other banks which need to meet their Regulation D requirement, or which need an additional funding source. The fed funds market is made up exclusively of depository institutions. All trades are done between Federal Reserve Bank accounts. While termed a "sale" of fed funds, the transaction is actually an unsecured overnight loan. Fed funds are not government insured. Most transactions are done overnight because of the unpredictability of the amount of excess funds a bank may have from day to day. The Federal Reserve influences substantial indirect control over the fed funds interest rate, and manages it within a narrow band. The exception is every other Wednesday when banks must settle their required reserve position. On this day rates can vary widely. The fed funds rate is a key rate for the money market. All other short-term rates relate to it. The yield may be higher or lower than that available on other money market instruments, depending on the market's perception of the trend of interest rate movement. All fed funds yields are quoted on an actual over 360-day basis. Fed funds transactions may be done directly between banks, often in a correspondent relationship, or through brokers. Many regional banks stand ready to buy all excess funds available from their community bank correspondents. These purchases may be either as principal or agent (see the Credit Risks paragraph in this section). They may also be prepared to sell fed funds to those correspondents upon request. There is a large amount of demand in the fed funds market, with selling banks easily able to dispose of all excess funds.

Loans of excess funds for periods exceeding one day (generally two days to one year) are called term fed funds. They may be written with call features at the lending bank's option to enhance liquidity. Term fed funds are not negotiable instruments. They represent unsecured loans to the borrowing bank, and are not government-insured. Rates on term fed funds are determined through negotiation. For a borrowing bank, the advantage of term fed funds is the cost. Term fed funds are not subject to Regulation D reserve requirements or insurance assessments, and

can be a less expensive source of funds than certificates of deposit. For the lending bank, liquidity and insurance are sacrificed to obtain a slightly higher yield.

II. Market—Where to Find Current Value and Ratings

Fed funds are not traded like other money market instruments in that no positions are taken. Term fed funds are not traded, and are not negotiable instruments. There are no price quotes available. Bid-offer spreads and yields may vary among institutions, but the differences are usually slight. Average rates on overnight fed funds are published in *The Wall Street Journal*. Thomson Bankwatch rates the general credit quality of banks in the fed funds market.

Fed funds are not rated instruments. However, *Moody's*, *Standard and Poor's*, and the other rating agencies may rate other debt instruments issued by these banks.

III. What You Should Look for (Suitability)

Community banks generally hold overnight fed funds sold as a source of primary liquidity. There is no secondary market in term fed funds, so liquidity is strictly a function of the instrument's maturity. A bank "selling" fed funds should perform a credit analysis on its counterparties. If a bank is selling fed funds to an institution that is acting in an agent capacity, the selling bank must know the ultimate counterparty and perform credit analysis on that institution. Based on the bank's credit analysis, maximum fed funds credit risk exposure lines should be established for each ultimate counterparty to help ensure diversification and reduce risk.

IV. Accounting Treatment

Fed funds sold should be recorded at cost. Term fed funds are reported as "Loans to depository institutions."

V. Risks

Interest Rate Risk: Minimal due to short maturity. Risk may be present in term fed funds depending on the maturity.

Credit Risk: Fed funds are unsecured obligations of the borrowing bank and contain the risk of default. This risk is accentuated by the extended maturities of term fed funds. An institution purchasing fed funds in a fully disclosed agent capacity is not liable for repayment. Instead, it is the institution with which the fed funds are ultimately placed that is liable. It should be noted that most banks acting as agent when purchasing fed funds will be aware of their fiduciary responsibility and the "reputation risk" involved when acting in an agent capacity. An agent's status is preserved only when the name of the principal is disclosed.

Liquidity Risk: Liquidity risk is minimal for overnight fed funds. The liquidity in term fed funds is a function of their maturity. There is no secondary market.

Other Risk: NA

VI. Legal Limitation

A bank may hold overnight fed funds sold to any

counterparty without limit. Sales of fed funds with maturities of one day or less or under continuing contract have been specifically excluded from lending limit restrictions by 12 CFR 32. Term fed funds are subject to the 15 percent lending limit with any one counterparty, and are combinable with all other credit extensions to that counterparty. Sales of fed funds to affiliates are subject to 12 USC 371c-Loans to Affiliates.

VII. Risk Asset Capital Weight

20 percent

VIII. References

Stigum, Marcia, *The Money Market*, 3rd ed. (Homewood, Illinois: Business One Irwin, 1990).

Repurchase Agreements

I. Product Description

A repurchase agreement (repo) for an investing bank involves the purchase of a security with an agreement to resell it back to the initial seller at a future date (usually referred to as a reverse repurchase agreement, or a resale agreement). Most reverse repos are with U.S. Treasury or agency securities, or mortgage-backed pass-through securities and CMOs issued or guaranteed by the FHLMC, GNMA, or FNMA (see section on "Mortgage-backed Securities"). This is because the Federal Reserve Board generally considers repos with other assets to be deposits of the selling institution subject to Regulation D reserve requirements. Repos reflect direct negotiation between the buyer and seller, with terms based on the needs of the counterparties. Interest is calculated on an actual/360-day basis. The seller of a security under a repo agreement continues to receive all interest and principal payments on the security. The purchaser receives a fixed rate of interest on a short-term investment.

Repos can be viewed as relatively safe secured borrowing and lending. However, many banks have incurred significant losses on repo investments, because they did not exercise proper care in controlling and valuing their collateral. Banking Circular 210 describes the control and valuation procedures banks should implement when purchasing repos. Repos may be considered unsecured transactions if the purchaser does not take the appropriate steps to perfect an interest in the collateral.

The repo market has grown because it is a relatively attractive money market instrument for investors and a comparatively inexpensive financing alternative for security owners. Repo yields are determined by the supply and demand of other money market instruments. They also depend on the type of collateral used (highest quality, most liquid collateral results in repos with the lowest yield). Since repos are negotiated directly between buyer and seller, terms are flexible. Maturities can range from overnight to over one year. Often, transactions involve an "open repo," which is an overnight repo that rolls over automatically until terminated.

Many unsuitable practices involving repos have occurred in national banks. Most of these practices use repos as a funding instrument. Several of these

practices are more fully described in the *Comptroller's Handbook*, Section 203 - Investment Securities, and Investment Securities Division (ISO) Notice 6 dated November 16, 1984.

II. Market—Where to Find Current Value and Ratings

Repos are not traded on organized exchanges. There is no secondary market and quoted market values are not available. Larger banks and dealers conducting repo transactions may be rated by Thomson Bankwatch, Moody's; Standard & Poor's, and other rating agencies. The instruments themselves are not rated.

III. What You Should Look for (Suitability)

Although the Government Securities Act of 1986 requires various controls of banks issuing repos, banks using repos as an investment should not rely exclusively on those controls to safeguard their interests. Banking Circular 210 outlines the procedures banks should have for purchasing repos. These procedures involve managing counterparty credit risk and controlling collateral.

IV. Accounting Treatment

Repos maturing in one business day (or under continuing contract) and in immediately available funds should be reported as federal funds sold. Other repos with maturities under 12 months should be recorded as "Securities purchased under agreements to resell." Repos should be recorded at cost. Repos with maturities exceeding 12 months may be considered repos to maturity or long-term repos, and may require Call Report treatment as a purchase of the security. Repos involving assets other than securities should be reported as federal funds sold (if maturing in one business day, or under continuing contract, and in immediately available funds) or loans in the appropriate loan category.

V. Risks

Interest Rate Risk: Generally minimal due to short maturities.

Credit Risk: National banks have incurred significant losses on repurchase agreements. Credit risk

exists if the market value of the underlying security falls and is not covered by the selling institution, or if collateral is not controlled by the purchasing bank. The only way a purchaser of a reverse repo can be assured the collateral is properly controlled is to insist on delivery, or independent third party custody with a custodian who acts for the purchaser.

Liquidity Risk: There is no active secondary market for repos. Therefore, they generally must be held until maturity. In some situations the security purchased under agreement to resell may itself be sold under agreement to repurchase to provide liquidity. Controls should be in place to guard against implementing a leveraged offsetting repo transaction strategy.

Other Risk: NA

VI. Legal Limitations

Repos on securities eligible for bank investment under 12 USC 24(7th) and 12 CFR 1, and that meet the guidelines set forth in Banking Circular 210 (notably collateral custody and valuation) may be held without limit (prudence). Repos that do not meet these guidelines should be treated as unsecured loans to the counterparty subject to 12 USC

84, and combined with other credit extensions to that counterparty. Repos with affiliates are subject to 12 USC 371c-Loans to Affiliates.

VII. Risk Asset Capital Weight

20 percent (assets collateralized by the current market value of securities issued or guaranteed by the U.S. government, its agencies, or government sponsored agencies).

100 percent (if appropriate measures to perfect a lien in the collateral are not taken-Banking Circular 210).

VIII. References

Fabozzi, Frank J., ed., *The Handbook of Fixed Income Securities*, 3rd ed. (Homewood, Illinois: Business One Irwin, 1991).

OCC Documents

Banking Circular 210, Repurchase Agreements, October 31, 1985.

Investment Securities Division Information Notice 6, Objectionable Sales Practices, November 16, 1984.

Eurodollar CDs

I. Product Description

Eurodollar CDs (Euros) are negotiable time deposits issued in a foreign country, but denominated in U.S. dollars. Euros may be issued by a foreign branch of a U.S. bank or a foreign bank. They need not be issued in a European country. Euros are unsecured obligations of the issuing bank and are not FDIC-insured. Euros may be of any maturity ranging from one day to over five years. However, the 3- to 6-month maturity range predominates. Euros are quoted and sold on an interest-bearing basis—calculated on actual days on a 360-day year, and are generally fixed rate. The yield on Euros closely tracks domestic CD yields with a slight positive spread. The positive spread is because of less liquidity than domestic CDs and the perceived increased risk of a non-domestic domiciled institution. In addition, Euros are not subject to Federal Reserve reserve requirements or deposit insurance assessments, meaning issuers can "afford" to pay more. Spreads tend to widen in periods of tight money and higher interest rates (flight to quality) and with longer maturities. Liquidity is less in the Euro market than the domestic CD market primarily because of the relatively smaller size of the Euro market. Euro market liquidity also depends on the "name" of the bank issuing the instrument.

The primary issuers of Euros are the London and other overseas branches of money center U.S. banks, large British banks, and branches of major Canadian and Japanese banks. Euros are purchased by investors worldwide. Most U.S. purchasers fall into two groups. One group is the large, sophisticated corporate portfolio managers who actively swap Euros and domestic CDs to take advantage of yield spread differentials. The other group is the smaller banks which purchase Euros to benefit from slightly higher yields while maintaining reasonable liquidity. Euros may be purchased directly from the issuer or through brokers.

II. Market—Where to Find Current Value and Ratings

Euros are not traded on an organized exchange. However, there is a secondary market with price quotes available from major security brokers. The instruments themselves are not rated, but most issuers are rated by Thomson Bankwatch (domestic

banks) or IBCA, Ltd. (foreign banks). Moody's, Standard & Poor's, and other rating agencies may rate other debt instruments issued by these banks. "Average" Euro yields are published in *The Wall Street Journal*.

III. What You Should Look for (Suitability)

Most banks purchase Euros as liquid, interest-bearing investments. The purchaser should know the financial strength of the issuing bank. At a minimum, this would include knowing its current rating. A detailed credit analysis should be performed on all but the highest rated banks. The purchasing bank should also know the marketability of the Euro. In general, community banks should not purchase Euros issued by other than branches of U.S. banks unless they have the capacity to analyze the added risks (sovereign and accounting) associated with a non-U.S. issuer.

Longer term Euros should fit into the bank's asset/liability management plans. Due to their longer term, Euros are less liquid and may be more price volatile than other investments with similar maturities.

IV. Accounting Treatment

Euros should be reported at cost under "Interest-bearing balances." If the Euro is purchased at a discount or premium, the discount should be accreted or the premium amortized over the life of the Euro.

V. Risks

Interest Rate Risk: Pronounced price volatility for longer term Euros may be exacerbated by the lower liquidity of the instruments (compared to Treasury notes).

Credit Risk: Euros are unsecured obligations of the issuing institution. They are neither FDIC-insured nor credit-enhanced.

Liquidity Risk: Marketability may be limited, depending on the current name perception of the issuer and the size and maturity of the issue. The secondary market for Euros is not as deep as the domestic CD market.

Other Risk: Euros issued by non-U.S. banks are subject to sovereign risk (the risk that the foreign government may act in a manner not in the interests of the CD holder) and accounting risk (financial statements may not be prepared according to GAAP and may be difficult to interpret). Euros are not subject to foreign exchange risk because they are denominated in U.S. dollars (not to be confused with foreign bonds or Euro-currency CDs which are denominated in a foreign currency and which are subject to foreign exchange risk).

VI. Legal Limitations

Owning Euros is authorized under the "incidental powers" provisions of 12 USC 24(7). OCC Interpretive Letter No. 384 (May 19, 1987) also refers to purchases and sales of Euros as an "expressly authorized" activity. Banks may legally hold Euros without limit.

VII. Risk Asset Capital Weight

20 percent for OECD depository institutions and non-OECD institutions if the remaining maturity is one year or less. 100 percent for non-OECD depository institutions if the remaining maturity is over one year.

VIII. References

Stigum, Marcia, *The Money Market*, 3rd ed. (Homewood, Illinois: Business One Irwin, 1990).

OCC Documents

Interpretive Letter No. 384, from Judith A. Walter, Senior Deputy Comptroller for Administration, May 19, 1987.

Mortgage-backed Securities

In recent years, the mortgage-backed securities market has become an important source of investment securities products for national banks. Many different types of mortgage-backed securities are available in the market today. The most common types are mortgage-backed pass-throughs, collateralized mortgage obligations (CMOs), stripped mortgage-backed securities (SMBs), and residuals. The most common risks associated with these products are interest rate risk, prepayment risk, and liquidity risk. The amount of risk inherent in each of these products varies significantly by product type (i.e., mortgage pass-throughs versus SMBs) and within product type (i.e., GMO sequential-pay tranches versus inverse floater tranches). Investors must be diligent in assessing the risks associated with any proposed purchase of mortgage-backed securities. When purchased as part of a disciplined, diversified investment portfolio strategy, mortgage-backed securities can be useful in meeting a national bank's liquidity and earnings objectives.

To assess the risks associated with mortgage-backed securities, it is important to understand the mortgage market and the finance concepts used in evaluating mortgage-backed securities.

Mortgage Products

The tremendous size of the mortgage market and the variety of products originated make it imperative that investors in mortgage-backed securities understand the underlying loans.

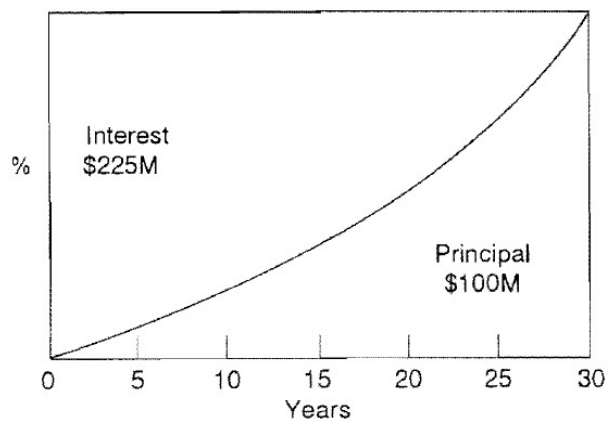
A mortgage arises when an obligor pledges real estate as security for payment on a loan originated by a bank or other lender. The real estate pledged with a mortgage can be a house, commercial building, empty lot, or any other form of real estate. Residential mortgages are secured by houses, condominiums, cooperatives, and mobile homes. Typically, residential mortgages are either 1 to 4 family dwellings or multiple family dwellings. Commercial real estate mortgages are secured by a wide variety of properties including: office buildings, shopping centers, and industrial centers. Most of the

collateral securing mortgage-backed securities will be mortgages on 1 to 4 family residential properties.

Traditional Fixed-rate Mortgages

With a traditional fixed-rate mortgage contract, the mortgagor (real estate owner) and mortgagee (lender) agree to a fixed-rate of interest for a maturity of 12 to 40 years, and monthly payments are structured to be level for the life of the loan. At origination, most mortgages on 1 to 4 family dwellings are 15 or 30 years to maturity. The following diagram depicts the cash flows associated with a 30-year, fixed-rate traditional mortgage. As you can see, the initial payments on a mortgage are applied almost entirely to interest. The portion of the monthly payment applied to principal gradually increases over time. Note that at all times the amount of the monthly payment stays the same.

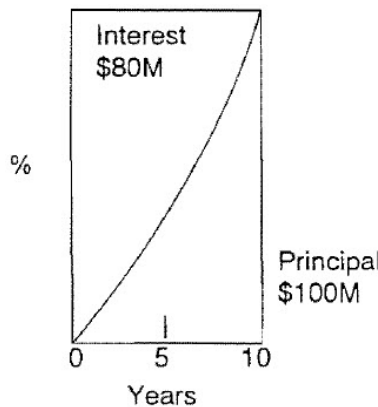
Total Monthly Payment



If the mortgagor decides to pay-off the mortgage early or make monthly payments greater than the amount contractually due, the lender will experience the effect of loan prepayments. The mortgagor may be influenced to refinance or prepay the loan if rates fall, home values increase and/or the homeowner's mobility changes. As an example, if the mortgagor would decide to refinance a loan after 10 years (rates could have declined substantially from the time the

loan originated), the cash flows would now look something like this:

Total Monthly Payment



Because most residential mortgages do *not* impose a penalty for early retirement of the loan, this "embedded option" (the mortgagor's right to pay off the loan early) is included in nearly every mortgage-backed security on the market (the concept of prepayments will be discussed further in the Finance Concepts subsection of this section).

The structure of cash flows for mortgages other than traditional fixed-rate mortgages will vary according to the terms agreed upon between the mortgagor and mortgagee. Other than traditional fixed-rate mortgages, some of the more common types of mortgages securing mortgage-backed securities are adjustable-rate mortgages, graduated payment mortgages, and balloon mortgages.

Adjustable-rate Mortgages (ARMs)

An adjustable-rate mortgage is a contract in which the interest rate on the loan is reset periodically. The reset may occur monthly, semiannually, annually or otherwise as agreed upon between the mortgagor and mortgagee. The interest rate charged on the loan is equal to an index rate plus a spread commonly referred to as a security margin or net margin. The most common indices for ARMs are the one-year constant maturity Treasury rate (CMT) and the 11th District Cost of Funds (COFI). The CMT is a current market index and the COFI is a lagging market index. The CMT is a current index because the rate is based on the *current* rate paid on a one-year Treasury security. The COFI is a lagging index because the rate is based on the average cost of funds for liabilities of thrifts in the 11th District (thrift

members in California, Arizona and Nevada). The COFI is published monthly, on the last business day of the following month. For example, the COFI for January is published at the end of February. Because of the lagging nature of the COFI, a lender will prefer a COFI ARM when rates are falling and a CMT ARM when rates are rising.

In evaluating ARMs, it is important to consider their interest rate risk implications and other important factors, such as price risk, index risk, embedded options, margins and liquidity, which depend upon an ARM's structure.

For interest rate-risk management, banks should consider purchasing ARMs as a natural hedge for the balance sheet. Many banks have sources of funds with repricing characteristics similar to many ARM

products. Moreover, with recent accounting developments in the mark-to-market arena, many banks are shortening their asset maturities to reduce the potential impact of a successful mark-to-market proposal. Interest rate risk has also recently received a great deal of attention from the regulatory agencies and Congress. Recent legislation requires the OCC to adopt an interest rate risk component as part of its revised risk-based capital requirements.

Price Risk—Most ARMs have about half of the price sensitivity of a 30-year fixed rate MBS. For example, an ARM indexed off the one-year CMT, with an 11 percent lifetime cap, a 2 percent annual cap, and a 225 basis point net margin will have a price sensitivity of approximately 2 percent for 100 basis point moves in interest rates. In this example, if an ARM was purchased for 104 and rates rose 100 basis points, the expected price would decrease to about 102. A word of caution - like fixed rate MBS, ARMs have negative convexity. This negative convexity implies that effective duration numbers (like the 2 percent rule of thumb) are most meaningful for small changes in rates.

Index Risk—Prior to purchasing an ARM, bankers should consider the index used to adjust the coupon rate. Current market indices, like the one-year CMT and 30-day LIBOR, move relatively freely. That is, they adjust quickly to changes in rates.

Others, like the 11th District Cost of Funds (COFI), adjust more slowly and thus, lag changes in interest rates. COFI ARMs are based on the weighted average cost of funds of the liability side of the

balance sheet for all thrifts in Arizona, Nevada, and California (the 11th District of the Federal Home Loan Bank System). Thrift liabilities do not immediately reprice when rates change, but roll off and reprice over time. Thus, the weighted average cost of funds is a slowly adjusting index. Current market indices, generally, have less interest rate risk because they adjust more quickly.

When purchasing an ARM, many bankers will look at current trends in the market and decide which index is likely to provide them the highest coupon rate. For example, consider an environment with interest rates falling, where the one-year GMT is very low, 4.1 percent, while the COFI is 6.4 percent. Bankers will purchase COFI ARMs when they believe rates are falling and buy ARMs tied to current market indices (like the one-year GMT) when rates are rising. A drawback to buying COFI ARMs when rates are falling is that once the Treasury curve starts to rise, the COFI index continues to fall for a while.

Embedded Options—Embedded caps and options are another important consideration. The obvious cap is the lifetime cap. Most ARMs have lifetime caps that are either 5 percent or 6 percent over the initial coupon rate of the mortgage (generally around 11 percent - 12 percent). From an interest rate risk perspective, the higher the cap, the lower the risk.

When the coupon rate, not the index, approaches the lifetime cap, the ARM will begin to trade more and more like a fixed rate MBS. As a general rule, national banks should confine purchases to ARMs with high lifetime caps.

Annual caps range from 1 percent, for GNMA ARMs, to 2 percent for most FNMA and FHLMC ARMs. Obviously, a 1 percent annual cap is more restrictive and involves more interest rate risk. A 2 percent annual cap is the standard for conventional ARMs. This implies that the coupon rate cannot adjust up, or down, by more than 2 percent annually for most conventional mortgages.

Many adjustable-rate loans originated in California, or other high housing expense areas, have annual caps that are expressed in terms of monthly payment increase limitations, not annual coupon rate caps. For example, an 11th District COFI ARM, may have a 7.5 percent payment cap and no explicit interest rate cap. Basically, the payment cannot change by more than 7.5 percent from year to year. A consumer with a \$2,000 monthly mortgage payment would not

expect that payment to change by more than \$150 after the first year.

Sometimes this increase in mortgage payment is not enough to cover even the revised interest payments on the loan. In that case, negative amortization kicks in and the balance of the loan grows.

Prepayment risk is another embedded option. As with fixed rate MBS, many consumers with adjustable rate loans are looking at today's current fixed rate mortgage rate and are considering refinancing into fixed rate mortgage loans because of the historically low rates. Bankers that purchase ARMs should study the prepayment risk associated with buying ARMs at 3, 4 and even 5 point premiums. To better understand the yield implications, many bankers perform a simple scenario analysis that shows how the yield will decrease with a doubling in expected prepayments over the current prepayment estimates.

Margins—Typically, the consumer pays a certain percentage over the index, let's say 2.75 percent over the one-year constant maturity Treasury index, known as the gross margin. Because the bank services the loan and needs to cover expenses and earn a profit, the net margin is usually about 50 basis points less than the gross margin. In this case, let's assume that it is 2.25 percent. Obviously, everything else being equal, a bank that purchases an ARM would prefer to have a higher margin than a lower one. The real question is how much more should a bank be willing to pay for an ARM with a 2.25 percent net margin vs. a 1.75 percent net margin? Economically, the answer is merely to determine the present value of the stream of expected excess payments and compare it with the price differential of the two ARMs under consideration.

Liquidity—Generally, agency ARMs have a high degree of liquidity. However, the banker should be aware that because of the many factors that affect the value of ARMs, (e.g., lifetime caps, the index, the margins, etc.), these securities are not as easy to price as fixed rate MBS. Therefore, ARMs generally have wider bid/ask spreads vis-a-vis fixed-rate agency MBS. Though private label MBS are discussed later, examiners should be aware that private label ARMs are less liquid and should not only be reviewed for interest-rate risk, but also for credit risk.

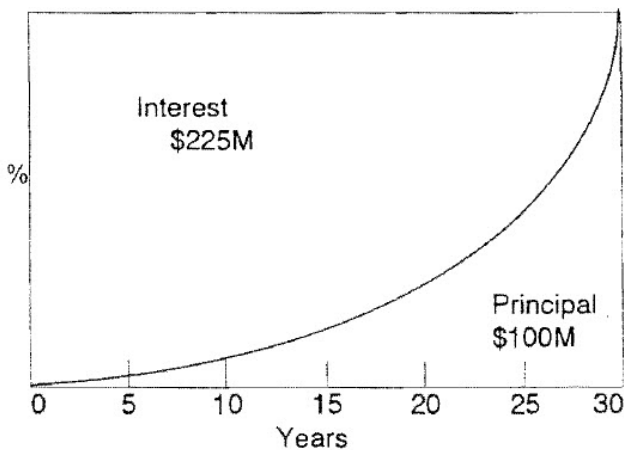
In conclusion, on one hand, ARMs make sense for national banks because of the relatively low interest

rate risk and the relatively large number of accounting and regulatory incentives to reduce interest rate risk. On the other hand, there are many difficult pricing characteristics of ARMs, which are complex instruments (i.e., three embedded caps, etc.). Many ARMs are selling at premiums of 4 and 5 points, a dollar price of 104 and 105. Banks should be able to demonstrate that they have done their homework and make sure that these premiums are well spent in light of the potential prepayment risk.

Graduated-Payment Mortgages (GPMs)

A GPM is similar to a traditional mortgage contract, except that the payments on a GPM are not all equal. With a GPM contract, the payments start at a relatively low level and rise for some fixed number of years. At the end of the graduation period, the monthly payments are held constant for the remainder of the loan. Most 30-year GPMs have a graduation period of 5 to 10 years, with annual graduation period increases of 2 to 7 percent. Because most GPMs start out with relatively low payments, the principal balance will typically increase in the early years (negative amortization). Eventually the mortgage payments catch up and the loan will ultimately amortize to zero. The cash flows generated from a GPM will look something like this:

Total Monthly Payment



Five- and Seven-Year Balloon Mortgages

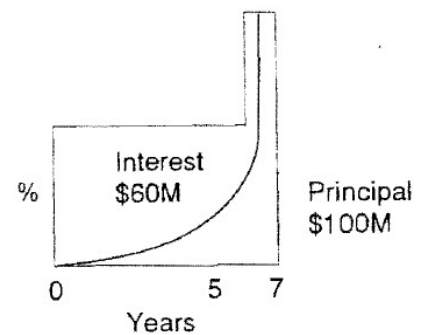
In recent years, there has been a significant increase in consumer demand for balloon mortgages. This product is structured the same as a 30-year fixed-rate mortgage with one substantial difference—the

mortgage matures or "balloons" in a five- or seven-year time period. This product has become increasingly popular as homeowners become more mobile. The advantage to the homeowner is an increased cost savings because mortgages are offered at a lower rate (e.g., 50 basis points below the 30-year rate). The balloon mortgage is attractive to the lender because funds are only locked in at a fixed-rate for five or seven years versus 30 years, thus the lower rate.

Because a balloon loan amortizes on a 30-year basis, the cash flows from a balloon mortgage are similar to a 30-year fixed-rate mortgage, except for the final balloon. At maturity, (e.g., the balloon due date), the balloon loan will generate a cash flow reflecting the principal balance on the loan outstanding. If the mortgage is held to maturity, the consumer must refinance the mortgage. However, as with other mortgage products, the consumer has the right to prepay the mortgage. In either case, the lender, and thus, the investor, is paid on or before the balloon date.

The ensuing chart illustrates the typical cash flows for five-to-seven-year balloon mortgages:

Total Monthly Payment



The importance of cash flows in analyzing mortgage-backed securities cannot be overstated. Note that in each of the above cases (traditional, ARM, GPM, balloon), the original mortgages had the same principal amount. However, the cash flows on each of these mortgages varies substantially. The amount and timing of cash flows will have an effect on the value of any security collateralized by mortgages.

Mortgage Market Participants

Originator—The bank or other lender who provides the funds to a consumer obtaining a mortgage loan. As a mortgage is originated, the loan is approved using the underwriting standards of the bank or other lender. The government agencies providing insurance (FHA), guaranties (VA), and securitization (GNMA, FNMA, FHLMC) all have underwriting standards to which the lender must adhere in order to have the loan approved for the desired federal agency program. The two primary factors in determining whether or not a loan will be made are the payment-to-income ratio (mortgagor's ability to service the loan) and the loan-to-value ratio (mortgagor's equity in the property). Mortgages which are not acceptable for a federal agency program will remain with the originator or be pooled in a private label mortgage-backed security (discussed later).

Servicer—The bank or other entity responsible for receiving monthly mortgage payments and distributing appropriate funds to the mortgage investor. Once originated a mortgage can either be held by the originator, sold to an investor or conduit or used as collateral for a mortgage-backed security. If the mortgage is sold, it can be sold in total or servicing rights may be retained. The loan servicer will require a fee for servicing the mortgage(s) and the responsibilities of the servicer will be agreed upon in writing before the loan is sold.

Investor—The owner of purchased mortgages, mortgage-backed securities, or other such derivative securities.

Finance Concepts

This subsection discusses some fairly complex mortgage finance concepts. These concepts are incorporated into Banking Circular 228, the Federal Financial Institutions Examination Council (FFIEC) Supervisory Policy Statement on Securities Activities, which the OCC adopted January 10, 1992 with an effective date of February 10, 1992. Bankers and examiners must understand these concepts before buying or reviewing mortgage-related products.

Some of the key concepts that are critical to an understanding of mortgage-backed securities (MBS) and mortgage derivative products (MOP) are average life, average life variability, duration, and negative convexity. This section discusses these measures of

interest rate risk and the important role that prepayments play in each of them.

Average Life (or Weighted Average Life)—Average life is defined as the weighted average time to principal repayment. For bonds that have a single principal payment at maturity, average life is simple to measure. For example, the average life of a two-year Treasury security with a bullet principal is two years.

For mortgage-related securities, calculating average life is somewhat more complicated because of the effect of prepayments. For example, a newly issued Federal National Mortgage Association (FNMA) 30-year fixed-rate MBS has a stated maturity of 30 years but an average life of about 10 years.

Average life variability is another measure of interest rate risk. The average life calculation assuming current economic conditions is the first in a series of calculations that attempts to quantify the risk of a mortgage-related security. It is also important to have an estimate of the sensitivity of the average life of the MBS to changes in prepayment assumptions. An analysis of the average life in "shocked" interest rate scenarios helps measure this sensitivity.

Many analysts estimate prepayments in scenarios of plus and minus 300 basis points and project cash flows for those scenarios. Then they calculate the average life for the principal cash flows.

Generally, a newly issued 30-year FNMA mortgage-backed security has an average life of about 14 years if interest rates rise 300 basis points. If rates fall 300 basis points, prepayments speed up, and the average life contracts to about four years, a change of six years.

Average life is used, not only as a barometer of interest rate risk, but also to determine the relative returns of mortgage-related products. Most fixed-income securities are priced relative to Treasury securities. Because a Treasury security has no credit risk and no cash flow uncertainty, it serves as a useful yardstick for other securities.

Mortgage-backed securities (MBS) and mortgage derivative products (MOP) have prepayment risk—that is, the timing of the cash flows is uncertain. To induce investors to purchase MBS and MOPs, the

return must be greater than that of comparable Treasury securities, relative to the amount of risk involved. This difference in return is known as the spread to Treasury. The market has adopted the convention of pricing MBS/MDPs at a spread over the Treasury security that has a similar average life. For example, a two-year planned amortization class (PAC) tranche of a collateralized mortgage obligation would usually be priced about 60 basis points over the two-year Treasury security. Thus, if the two-year Treasury security is paying 5 percent, the yield on the two-year PAC would be 5.60 percent.

Duration—Duration is a more accurate measure of interest rate risk than average life. Effective duration is the price change that results from a given change in interest rates (usually expressed in increments of 100 basis points).

A useful rule of thumb to remember is that a newly issued 30-year fixed-rate FNMA mortgage-backed security has an effective duration of roughly 5 percent - i.e., a newly issued, current coupon 30-year MBS priced at par would have a price sensitivity of roughly 5 percent for every 100 basis point change in interest rates. A 300 basis point rise in interest rates would cause the price of a newly issued 30-year MBS to decrease about 17 percent. Effective duration is more accurate in estimating prices when rates are rising.

When rates are falling, effective duration is not as useful an estimate of price sensitivity. Prepayments increase when rates fall, and investors become more and more hesitant to purchase MBS/MDPs priced significantly above par. The price increase becomes less and less as rates continue to fall. For example, if rates fall 100 basis points, the price of an MBS may rise from 100 to 104. If rates then fall another 100 basis points, the price may rise from 104 to 107. A third 100 basis point fall in rates would result in a price of 109. This price compression, caused by rising prepayments, is commonly known as "negative convexity."

Negative Convexity—All MBSs and most MDPs have negative convexity. One way to view negative convexity is to realize that when consumers pay off their loans, they pay off only the existing balance, no more. Investors would be reluctant to pay significantly more than par for an MBS if they believed that the mortgages in the pool may all pay off in the near future - they would lose the premium. This reluctance

to pay high premiums is reflected in the market as price compression.

Negative convexity may also be viewed from an average life perspective. When rates are rising and investors want their money back sooner to reinvest at a higher rate, the average life extends. At the worst possible time, the security becomes longer. Conversely, when rates are falling and investors do *not* want their money back sooner, the average life contracts. At the worst possible time, the security becomes even shorter.

Prepayment Option—An examiner should look at a mortgage as two separate financial instruments. The first component is the monthly payment made by the consumer to the bank. The second component is the consumer's right to prepay the mortgage at any time. This right to prepay is an option, similar in many respects to the options purchased and sold by broker dealers. A significant difference, however, between consumer prepayments and exchange-traded options is that the former are determined by the individual circumstances of each borrower. The prepayment option may be inefficiently exercised, whereas the exchange-traded option is considered to be efficiently exercised.

This embedded prepayment option has value to the consumer and thus must be a cost to the bank or the investor if the bank sells the mortgage. The correct measure of value of a mortgage consists of the present value of the monthly payments to the bank minus the value of the embedded option (the right to prepay).

To understand the value of the prepayment option, put yourself in the place of the borrower with the mortgage underlying or supporting the MBS—what would you do if you have the same opportunity to refinance that faces this borrower?

For example, suppose you review a FNMA mortgage-backed security at 10 percent, on which the underlying loans would probably be between 10.60 percent and 10.75 percent. What is the incentive to prepay one of the underlying mortgages if current mortgage rates are at about 8.50 percent? Generally, most people consider a savings of 200 basis points enough of an incentive to prepay. That consideration will enable you to know whether or not the prepayment option has value, before checking historical prepayment or using a prepay-

ment model. In the preceding example, the option is clearly "in the money." If the FNMA MBS were at 7.50 percent, the underlying loans would probably be somewhere between 8.10 percent and 8.25 percent, and the incentive to prepay would be much less. The prepayment option would be "out of the money" and have little value.

Most consumers use a rule of thumb savings approach that requires a loan rate about 150 to 200 basis points lower to induce them to refinance. This difference of 150 to 200 basis points essentially reflects the present value savings compared to the costs to refinance. Most consumers look at the potential monthly savings, "discount" those savings at an appropriate rate based on their particular characteristics, and compare them to the costs of refinancing. If the present value savings are greater than the costs to refinance, most consumers will choose to refinance.

Different consumers have different tolerance levels, in effect, different discount rates, that they use to arrive at the present value savings. Some consumers, for example, may build a higher discount rate into their decision-making because they dislike the paperwork required to refinance. Because of these differences among consumers in valuing mortgage savings, the value of prepayment options is much more difficult to measure than for other options.

Factors Affecting Prepayments

Although the interest rate differential is the most influential factor in determining prepayments, other factors such as the age of the loan, seasonality, borrower burnout, and demographics also have an effect.

Age—Most consumers do not have the financial ability to refinance for some time following the initial purchase of a home because their savings have been used up to handle the down payment and other costs. Many prepayment models assume 30 months (2.5 years) as the length of time that must pass before consumers become fully able to take advantage of refinancing opportunities.

Many investment banking firms divide mortgage pools into three categories: newly issued, moderately seasoned, and fully seasoned. Newly issued mortgages are 0 to 30 months old, moderately seasoned ones 30 through 60 months, and fully seasoned ones more than 60 months.

Seasonality—Consumers are more likely to move or put their homes up for sale during the summer and fall rather than winter or spring.

Burnout—The burnout phenomenon partly explains why there are still MBSs with coupon rates of 15 percent and higher outstanding. After a pool of mortgages has aged sufficiently, the largest percentage of consumers will refinance during the first available down cycle, that is, the first time that rates drop 150 to 200 basis points. After the first refinancing opportunity has passed and rates have risen again, a smaller percentage of consumers will refinance the next time rates fall 150 to 200 basis points. During each succeeding down cycle, a smaller percentage of consumers will refinance.

Loan-to-value ratio—If the market value of the home has dropped, the consumer may not have a satisfactory loan-to-value ratio and may have to raise additional equity to refinance. This increases the implied costs and the present value savings needed to make refinancing attractive.

Demographic factors—Characteristics, such as the percentage of older people in the population, the number of two-earner households, and regional economic conditions, can affect prepayments.

Prepayment Standards

The two prepayment standards most commonly used are the conditional prepayment rate (CPR) and the Public Securities Association (PSA) standards.

CPR is the simpler approach. The CPR percentage applies to either the dollar amount of the loans or the number of loans expected to prepay during the year. For example, a pool of mortgages is expected to prepay at 6 percent a year. If the original loan balance is \$100, the outstanding balance after the first year would be \$94. If the prepayment assumption remains the same for the next year, the outstanding balance would be \$88.36 ($\$94 \times (1-.06)$).

Frequently, industry participants look at CPR in terms of the number of loans rather than dollars. If the mortgage pool has 100 loans, a 6 percent CPR implies that six loans would prepay during the year and 94 would be outstanding at the end of the year. If the prepayment rate increases to 16 percent the second year, 15 loans would prepay, leaving 79 outstanding at the end of year two.

A drawback of CPR is that it ignores the aging factor. During the early 1980s, the Public Securities Association recognized the deficiency of the CPR standard for newly originated mortgages, which are often used as collateral for collateralized mortgage obligations (CMOs). PSA created a prepayment standard that addressed the aging issue, using a 30-month aging period.

Once a mortgage has passed the 30-month aging period, it is easy to convert PSA to CPR — 100 percent PSA is equal to 6 percent CPR. Similarly, if a mortgage is 30-months-old and a broker quotes 200 percent PSA, you can translate that into 12 percent CPR. Obviously, prepayments change with changing rates. However, the *relationship* between CPR and PSA is always the same after a mortgage is 30 months old.

During the first 30 months, the PSA-CPR relationship is slightly more complicated. A mortgage that prepays at 100 percent PSA goes from 0 percent to 6 percent CPR —.2 percent per month. Therefore, if a mortgage is one month old and the broker quotes 100 percent PSA, you know that the CPR is .2 percent. If the mortgage is five months old and the broker quotes 100 percent PSA, that mortgage pool is prepaying at 1 percent CPR. And if the mortgage is five months old and 200 percent PSA, you can convert that to 2 percent CPR.

Prepayment "Rules of Thumb"

When relying on information from their broker/dealer, bankers should ask if the CPR/PSA is the street consensus CPR/PSA. As is apparent, a broker/dealer could use his/her own CPR/PSA to value a mortgage-backed security differently than the market. A rule of thumb helpful in evaluating the prepayment speeds applied to a mortgage-backed security can be provided using a FNMA 8.5 percent pass-through security. A current coupon FNMA 8.5 percent pass-through has a pricing prepayment assumption of about 150 percent PSA (9 percent CPR). If rates rise 300 basis points, a reasonable estimate (using the median of five Wall Street brokers) is 100 percent PSA. If rates fall 300 basis points, a reasonable estimate (again using the median) is 500 percent PSA. Whatever the prepayment speed used to value a mortgage-backed security, the prepayment assumption should reflect a reasonable assessment of those variables which will affect prepayments: long-term interest rate projections, rate structure of the

underlying mortgages (e.g., fixed-rate versus adjustable rate), seasoning of the underlying mortgages, demographic concentrations, etc. For example, if an investor finds out that all the loans are originated in a depressed region, the prepayment speeds used to evaluate the value of the security should be adjusted for anticipated changes in the prepayment behavior of the underlying consumers (i.e., prepayments will probably slow down faster in a rising rate environment and speed up faster in a falling rate environment).

Pricing mortgage-backed securities—Mortgage-backed securities are priced at a spread over a Treasury security with the same average life. The WAL is highly sensitive to prepayment assumptions. As such, banks purchasing mortgage-backed securities should have a sound basis for their prepayment assumptions. Altering the prepayment assumptions can affect materially the WAL and yield of a mortgage-backed security which will ultimately affect the market value. Using a high prepayment speed will reduce the WAL because a high prepayment speed assumes more principal dollars are received up front. This may result in an over-valued security, because the investor pays for anticipated cash flows which may not be received until later than projected. As an example, a mortgage-backed security priced with a PSA of 200 percent may reflect a WAL of seven years. The investor purchasing this security should be able to assess the spread paid relative to a seven-year Treasury security to determine whether the yield received is adequate compensation for the commensurate risks. If the PSA of 200 percent is inaccurate and the actual PSA is 100 percent, the WAL may extend to 12 years. In this case, the investor should have conducted an analysis comparing the price of the mortgage-backed security to the price of a 12-year Treasury security. The premium or spread received by the investor may be totally inadequate for the additional risk.

MBS/CMO Seminar

The Chief National Bank Examiner's Office has conducted several training seminars on MBS and CMOs. The Kansas City MBS/CMO seminar was videotaped, and a copy of the videotape, the overheads, and the seminar outline was sent to each duty station in March 1992. If you are interested in obtaining these training aids, contact your field manager. A study guide that will test your understanding of mortgage-related products is being

prepared by the Training and Performance Development Division.

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Pass-through Securities

(Government National Mortgage Association "Ginnie Mae" GNMA; Federal National Mortgage Association "Fannie Mae" FNMA; Federal Home Loan Mortgage Corporation "Freddie Mac" FHLMC; Private Label Issuers)

I. Product Description

A mortgage pass-through security is a certificate that provides the investor with direct ownership of a proportional, or pro rata, share of a portfolio or pool of mortgages. For example, if the outstanding balance of a mortgage pool is \$2,000,000, an investor holding a mortgage pass-through certificate with a face value of \$200,000 will receive a 10 percent share of the monthly principal and interest cash flows generated from that pool of mortgages.

Pass-through mortgage-backed securities can be divided into two general categories: federal agencies and private label. The federal agency issues originate from one of three government agencies: GNMA, FNMA, and FHLMC. The pass-through certificates issued by these agencies are backed by residential (either single family or multiple family) mortgages. Private label certificates are issued by mortgage banking firms, savings and loans, commercial banks and investment banks, and are typically secured by residential property.

The mortgage-backed pass-through market originated in 1970 with a GNMA issuance. FHLMC entered the market in 1971 and FNMA offered its first pass-through investment in 1981. Private label issuers first offered pass-throughs in the early 1980s, but the market continues to be dominated by the federal agencies. The overall size of the federal agencies pass-through market has grown dramatically. Mortgage-backed pass-through securities are held in portfolios of every class of institutional investor, including commercial banks, savings and loans, and mutual funds.

Federal Agencies

GNMA

Although the pass-through securities issued by the three federal agencies are similar, the differences are significant enough to affect the pricing of these securities. A 15-year, 10 percent GNMA will *not* be

priced the same as a 15-year, 10 percent FHLMC. Of the three agencies, only GNMA pass-through certificates are backed by the full faith and credit of the U.S. government. Additionally, GNMA accepts FHA-insured or VA-guaranteed mortgage loans as collateral for GNMA certificates. This is significant because these loans are assumable, which results in slower prepayment speeds.

GNMA pass-throughs are known as "fully modified," which means that the holder of the security will receive timely payments of interest and principal, regardless of whether or not the underlying mortgages are paid. GNMA pools are the most homogeneous of pass-throughs, because all mortgages in a pool must be of the same type and have a similar coupon rate. GNMA is considered to be the highest quality of the federal agency mortgage-backed pass-through securities.

In addition to the requirement that the underlying mortgages be FHA-insured or VA-guaranteed, GNMA has established standards for the interest rate, maturity and past-due status of mortgages included in the pools underlying GNMA pass-throughs. GNMA pools to include only new mortgages (less than 24 months old). GNMA also requires minimum principal balance¹ on the underlying mortgage pools for GNMA certificates.

GNMA has two primary pass-through programs. They are subdivided into a variety of issues, depending on the characteristics of the mortgages that make up the underlying pool.

The most commonly held pools are from the GNMA I program: 30-year maturity, fixed-rate, level payment mortgages on single family residences (GNMA SFs). Generally, the servicing margin is 50 basis points, which means that the underlying mortgages have a rate which is 1/2% higher than the GNMA pass-through security coupon rate. Dealers typically quote a weighted average coupon (WAC) when referring to the coupon on mortgage-backed securities. GNMA SF pools with 15-year mortgages, known as "Midgets," have similar characteristics as the 30-year securities, except for the shortened maturities. Monthly payments are received with a stated 45-day delay. This is because consumers pay at the end of the month, not at the beginning of the month (30 days), and it takes time to collect the payments and

forward them to the investors (15 days). GNMA servicers must provide principal and interest payments to the investors, regardless of whether the consumer has made the monthly mortgage payment. The GNMA I program also includes pools of nontraditional mortgages, including: Graduated Payment Mortgage (GPM), mobile home, construction, project and buydown loans. The maturity structure for the nontraditional mortgage pools will vary within guidelines provided by GNMA. The minimum pool balance for the GNMA I program is \$1,000,000.

The GNMA II program includes the same types of loans as the GNMA I program, except GNMA II includes Adjustable-rate Mortgages (ARMs) and excludes project, construction, and buydown loans. A significant difference between the two programs is that GNMA I pools require that all mortgages originate from the same lender. The GNMA II program allows for pooling loans from multiple originators. This feature provides for more geographically dispersed pools and securitization of smaller portfolios. Monthly payments for the GNMA II program have a stated 50-day delay, a wider acceptable coupon rate range and the minimum pool balance is \$7,000,000.

FNMA

FNMA pass-through securities are not explicitly guaranteed by the full faith and credit of the U.S. government (refer to "FNMA & FHLMC Debt Securities"). However, FNMA pass-throughs do have an implicit government guarantee, and the market factors this implicit guarantee into the pricing of FNMA pass-throughs. In addition to FHA-insured and VA-guaranteed mortgages, most FNMA pools are secured by conventional mortgages. Conventional refers to mortgages that do not meet the qualifications for FHA insurance or VA guaranty. Typically, conventional mortgages are larger than FHA/VA mortgages and cannot be assumed (i.e., the mortgages are due on sale and cannot be passed on to a buyer of the property). The fact that conventional mortgages cannot be assumed affects the prepayment characteristics of loans securing FNMA and FHLMC pass-through securities. FNMA pass-through certificates vary in maturity from long-term (30 years) to intermediate term (15 years) to short-term (7 years). FNMA 15-year pass-throughs are referred to as "Dwarfs." Pool sizes for FNMA start at \$1,000,000 and loans may originate with multiple lenders. The servicing margin varies from 50 to 250

basis points, and pools may include new or and/or seasoned mortgages. The payment delay on FNMA pass-throughs is 55 days, and the certificates are "fully modified." FNMA has been aggressive in issuing adjustable-rate pass-throughs. As noted in the Mortgage-backed Securities section, ARMs may be less sensitive to interest rate risk but more complicated to analyze than a fixed-rate mortgage.

FHLMC

FHLMC pass-through certificates are similar in characteristic to the securities issued by FNMA. The major difference between FNMA and FHLMC pass-throughs is that the original FHLMC pass-throughs only guarantee the timely payment of interest. The eventual payment of principal is guaranteed, but not the timing of principal payments. In recent years the FHLMC created the FHLMC gold program. The FHLMC gold guarantees the timely payment of principal and interest. An additional difference between FNMA and FHLMC is that original FHLMC pass-throughs have a longer stated payment delay (75 days, and the FHLMC gold program has a 45-day stated delay). All new FHLMC pass-throughs are issued as FHLMC gold certificates. Finally, the FHLMC pools have a much larger minimum pool size of \$50,000,000.

FHLMC also has a special program called the FHLMC Swap. This guarantor program was established to provide liquidity to the thrift industry by allowing originators to swap pooled mortgages for certificates in those same pools. The certificates can be held, used as collateral for short- and long-term borrowings, or sold. The underlying mortgage pools are similar to those backing regular FHLMCs.

Similar coupon FNMA and FHLMC pass-through securities generally trade at a lower price (higher yield) than GNMA certificates for these reasons: (1) differences in stated payment delay; (2) risk-based capital requirements; and, (3) perceived credit risk. However, market supply and demand conditions resulted in a similar coupon FNMA and/or FHLMC MBS trading at a higher price than a comparable GNMA.

Private Label Issuers

The structure of a private-label pass-through is similar to the government agency securities. A pool or portfolio of mortgages is placed in a trust, and the

trustee issues bonds which provide the investor with an ownership interest in the pool or portfolio. The mortgages may be originated by the issuer or purchased from other mortgage bankers and pooled by the issuer.

The private-label pass-through differs from an agency security, because of the importance placed on the counterparties involved in a deal. Because of the real or implied government guaranty, investors of federal agency pass-through certificates are usually not concerned about the counterparties involved in packaging the mortgage-backed security. The "originator" underwrites the mortgage, and it is against the originator's underwriting standards that the borrower will be evaluated. The "loan servicer" is responsible for receiving monthly mortgage payments and distributing appropriate funds to the trustee. In most private-label and agency pass-throughs, the servicer must advance scheduled principal and interest payments even if borrowers are delinquent. The "trustee" protects the investor's interest and maintains the relevant documentation needed to perfect the investor's interest in the mortgage loans. The "credit enhancement provider," as noted below, provides the investor with protection against losses. And finally, the "dealer firm" underwriting the private-label pass-through provides the link between the investor and the servicer, in addition to providing (or not providing) liquidity.

Most mortgages pooled under a private-label pass-through are "nonconforming," because their balances exceed government agency maximums. As such, the loans are typically jumbo loans and the terms often vary from the traditional 15- or 30-year contracts. The diverse nature of the collateral behind these securities makes it difficult to compare between issues and/or issuers. In addition, this compromises the liquidity of the private label MBS.

Most private-label pass-throughs are rated by S&P or Moodys. To achieve an AA or AAA rating, the issuer provides a credit enhancement other than a government guaranty. This enhancement, unlike the government guaranty, only protects a portion of the private-label structure (typically 6 percent to 10 percent of principal). The loss coverage is limited, because historically losses on residential mortgages have been quite low. The credit enhancement will typically take on one of the following forms: senior/subordinated (senior/sub) structure, letter of credit, corporate guaranty or pool insurance. The senior/

sub form of enhancement is an "internal" credit enhancement, while the other three options are "external" enhancements. A senior/sub enhancement is arranged so that a subordinated piece (typically 6 percent to 10 percent of the principal balance of the loans) provides protection to the senior class investors. Assuming losses on the pool of loans do not exceed 6 percent to 10 percent, the senior class investors will not withstand any loss of principal. Historically, the subordinated class certificates have been retained by the issuer, but this is changing because of the negative implications of recourse and risk-based capital requirements. A letter of credit, corporate guaranty, or pool insurance enhances the security by providing recourse against an external provider (LOC issuer, corporate guarantor, or insurer). The amount of protection provided by the external provider is also typically 6 percent to 10 percent of the principal balance of the loans. The "internal" versus "external" distinction is important because the security rating is based on the credit enhancement feature. An externally enhanced private-label pass-through cannot have a credit rating higher than that assigned to the enhancement provider. If the provider is downgraded, the private-label pass-through also will likely be downgraded.

Credit enhancements are designed to cover different types of losses. Some enhancements cover all losses from foreclosures to natural disasters. Others are less comprehensive. Letters of credit and corporate guaranties are typically comprehensive in loss coverage. Shifting interest rate structure is an enhancement often provided with a senior/sub issue. This structure requires mortgage prepayments to be used exclusively to retire the senior class for some defined period. Under the shifting interest rate structure, if rates fall and mortgage prepayments increase, the senior class will not be left with those mortgage holders who could not refinance because of their financial condition.

II. Market—Where to Find Current Value and Ratings

Federal Agencies

Quotes on representative issues can be found in the "Bond Market Data Bank" in the "Money and Investing" section of *The Wall Street Journal*, or check your local newspaper's financial section. Remember that each pass-through certificate will vary in terms of underlying collateral, so actual bids will differ from

those quoted in newspapers. Market quotations for federal agency pass-throughs are available in such services as "Bloomberg" or "Telerate." If the bank does not have access to these quotation services management should contact a broker/dealer.

Private Label Issues

There is no published source for quoting market values of private label pass-throughs. Services such as "Bloomberg" and "Telerate" will provide quotes for larger name deals. For the market value of a small private label pass-through, the bank must contact a broker/dealer making a market for such issues.

III. What You Should Look for (Suitability)

Mortgage-backed pass-through securities are acceptable investments for national banks. Federal agency issues have little or no credit risk and most issues are widely traded. Agency pass-throughs with nonstandard terms (i.e., mobile home loan pools and GPMs) may have less liquid markets. Management must understand the underlying collateral on federal agency issues.

Private label issues introduce more risk. For them, management must:

- Identify all the counterparties and assess the credit risk of doing business with any of them.
- Evaluate the asset quality of the supporting collateral.
- Assess the adequacy of the credit enhancement.
- Evaluate the liquidity of the private label security.

One objective of Banking Circular 228 (BC-228) is to encourage financial institutions to understand the economic characteristics of MBS prior to purchase and to document the reasons for the purchase.

Though section 111 of BC-228 focuses on the classification of mortgage derivative products for accounting purposes, the documentation and testing requirements make sense and should be applied to ordinary pass-through MBS. However, ordinary pass-through MBS are not subject to low risk and high risk accounting classifications.

Banks must perform the BC-228 average life, aver-

age life sensitivity, and price sensitivity tests on ordinary pass-through MBS and document the assumptions and test results used for that determination. At year end, the institution must review the security to ensure that its economic characteristics have not changed.

There are three pieces of information that should be contained in each documentation file for regular pass-through MBS.

The first piece of documentation is an investment summary in the banker's own words. This includes a brief explanation of the security in lay terms by the investment officer, outlining the characteristics of the security and the objective of the purchase. These three questions should be answered by the banker in his/her own words:

1. What is the banker buying?
2. Why is the banker buying it?
3. How do prepayments affect it?

The second piece of information is BC-228 test results. Each investment file should have a copy of the BC-228 test. This applies to regular pass-through MBS, though MBS do not have the adverse accounting potential like mortgage derivative products. From a safety and soundness perspective, the banker should have this information for MBS as well as low risk mortgage derivative products.

The third piece of documentation is information that supports the prepayment assumptions used to measure the average life, average life volatility, and price sensitivity. A copy of the Bloomberg prepayment consensus page, or other industry equivalents, like Almont or Telerate, should support the prepayment assumptions used.

IV. Accounting Treatment

Total book value must include unamortized premium and unaccreted discount on securities purchased at other than par or face value. Premiums and discounts should be amortized or accreted into income using the interest method over the expected life of the pass-through security. This amortization/accretion is recorded as an adjustment to the yield of the underlying security.

Because of the nature of the underlying collateral, pass-through securities always have an expected life shorter than their contractual life. An accelerated amortization schedule should be used to account for the premium or discount over the expected/average life of the security. The method of amortization should be the interest method. Straight-line amortization is generally not appropriate. When it is used, the results must not be materially different from those obtained using the interest method.

The preferred method for reporting purchases and sales of securities is as of the trade date. However, settlement date accounting is acceptable if the reported amounts would not be materially different.

Some bond accounting systems do not easily handle the periodic, and often uneven, principal payments that these securities provide. The examiner should ensure that the bank has a system to properly account for these issues.

V. Risks

Interest Rate Risk: Interest rate risk for pass-through securities is moderate. The price volatility of a pass-through security can be compared with a Treasury security with a similar weighted average life. Because of prepayments, the WAL of a pass-through security will always be shorter than the stated maturity. However, as noted in the "Finance Concepts" section, as the WAL and duration of a security increases, so does its price volatility. Long-term mortgages will typically have longer WALs and durations and therefore higher price volatility. An exception is ARMs which will commonly exhibit less interest rate risk because of the adjustable rate feature.

Credit Risk: Credit risk must be evaluated differently for federal agency MBS versus private label issues. GNMA pass-throughs are considered to be free of credit risk, because they are backed by the full faith and credit of the U.S. government. FNMA and FHLMC issues typically require a very small, if any, risk premium, because the credit risk is borne by the respective agencies (i.e., *not* the U.S. government). FNMA and FHLMC are generally considered to be of higher quality than AAA rated pass-through securities.

Credit risk must be evaluated on a case-by-case basis with private label issues. Management must

assess the credit risk of the collateral and the credit enhancement. Most mortgage-backed pass-throughs are AAA or AA rated at issuance, but that may change over the life of the security. Management's evaluation of the credit risk in a private label issue should parallel analysis performed on loan participations.

Liquidity Risk: Most federal agency pass-throughs have active and well established secondary markets. For example, if a bank purchased a FNMA pass-through in the morning for 100 (the offer side of the market) and rates did not change, the bank could sell the pass-through for about 99 7/8ths (the bid side of the market). This is an extremely efficient market, thus the very low transaction costs. Market conditions for nonstandard federal agency pass-throughs may be more limited.

Liquidity risk can be an issue for private-label pass-through securities. The liquidity of these securities depends on the size of the issue, the perceived quality of the servicer and originator, the adequacy of the credit enhancement, and general market conditions. Management should be aware of the secondary market availability of any mortgage-backed pass-through considered for purchase.

VI. Legal Limitations

Federal agency pass-through certificates are Type I securities for purposes of 12 USC 24(7th) (as interpreted in 12 CFR 1), and therefore the bank's holdings of these securities can be unlimited and are subject to prudence. However, examiners should evaluate management ability to monitor and control excessive holdings and decide if safety and soundness issues are involved.

Private label pass-throughs and MBS derivatives must be evaluated on a case-by-case basis. Most CMOs qualify for unlimited investment through provisions of the Secondary Mortgage Market Enhancement Act (SMMEA). SMMEA may also apply to certain mortgage-backed pass-through securities. Additionally, some private label pass-throughs and MBS derivatives may also qualify as Type I securities for purposes of 12 USC 24(7th) (as interpreted in 12 CFR 1). If the private label pass-through or MBS derivative does not qualify for national bank investment under provisions of 12 USC 24(7th), it can only be purchased as a loan participation. If purchased as a loan participation, the

legal lending limit provisions of 12 USC 84 would apply.

VII. Risk Asset Capital Weight

GNMA	0 percent
FNMA & FHLMC.....	20 percent
Private Label.....	50 - 100 percent

Note: The risk-based capital weight for the subordinate piece of a senior/sub private label issue may be even greater than 100% because of recourse considerations.

VIII. References

(See the Mortgage-backed Securities section in this guide.)

Collateralized Mortgage Obligations (CMO'S)

1. Product Description

This section describes the basic CMO structure, the risks and returns associated with various CMO tranches, and the effects of prepayments on these tranches.

CMOs developed because the secondary market for mortgages was relatively narrow during the early 1980s. Wall Street realized that more investors would be interested in the mortgage market if bonds could be created that segmented the mortgage cash flows. In fact, more investors became interested in the CMO market once the mortgage cash flows were "tranching," or carved into separate distinct classes.

Many banks have become large purchasers of CMOs. Initially, banks focused on the shorter term CMO tranches like the A class or the B class. Unfortunately, merely knowing the letter of the class is no longer indicative of the risk associated with these CMO tranches. For example, the B class can be the companion bond and have significant extension and some contraction risk.

Basic CMO Structure

The basic CMO structure is relatively simple. A large number of MBS pools, usually agency guaranteed, are purchased and deposited into a trust. The trust receives income monthly from the MBS placed in the trust. But instead of passing these receipts on a pro rata basis to the CMO investors, the CMO's trustee disburses them according to predetermined principal and interest payment priority rules.

In the beginning of the CMO market, the CMO principal payment rules were straightforward. Most of the early CMOs had three or four "vanilla" tranches, a Z tranche (interest accrued but not received), and a residual interest. To illustrate this principal allocation process, assume that \$100 million of B percent FNMA MBS are deposited into a trust and that a CMO is created with three vanilla classes, a Z tranche, and a residual.

The first tranche, class A, will receive the principal cash flows from the underlying mortgages before any principal is paid on the other classes, and interest cash flows based on the coupon rate for class A. This sequential pay feature is fairly commonplace. Although principal and interest is paid to the class A

investor, Classes B and C are receiving interest only on their outstanding balances. This is similar to most corporate and Treasury bonds, i.e., once class A is paid off, class B starts to receive principal; once class B is paid off, class C starts to receive principal, etc.

Z Tranches

However, the Z tranche, also known as the accrual bond, does not receive interest until all the other bonds ahead of it are completely paid off. Though interest is earned, it is not paid out. Instead, the Z bond's principal balance increases. In concept, it is similar to negative amortization. The interest that would have been paid out to the Z bond investor is instead used to pay off the class A investor a little earlier. And when the class A investor is paid off, the interest is used to pay off the class B investor and so on. The Z bond investor always receives the full principal amount due, but the timing is uncertain.

There is a good marketing reason for this accrual bond. The larger the Z bond, the quicker the earlier classes are paid off. As more investors want shorter term investments, the Z bond helps to accomplish this objective. The long bond investors (e.g., pension funds and insurance companies) have liability structures that are much longer and look for investments with long average lives.

Examiners should note that this relatively simple CMO structure (i.e., A class, B class, C class, Z class structure) has changed significantly. Recently issued CMOs have as many as 50 to 60 tranches with complex principal and interest payment rules. Planned amortization class CMOs, companion CMOs, CMO floaters, discussed later in this section, are only a few of the more common complex tranche types.

In fact, the Z tranche has developed a number of sub-classes like "jump Z" bonds and "sticky jump Z" bonds. The "jump" features cause the principal payment rules to change if certain conditions are met. Most frequently, the condition relates to increased prepayments. For example, a "jump Z" bond may be 10th in principal payment priority unless prepayment speeds hit 250 PSA. At this point, the "jump Z" jumps to the front of the principal payment priority and begins to receive principal payments. If

prepayment rates slow back down, then the original principal payment rules are reinstated, unless the CMO tranche is a "sticky jump Z." In this case, once the "jump Z" jumps, the principal payment rules "stick" in place until the "sticky jump Z" tranche is paid off.

Planned Amortization Classes (PACs)

Planned amortization classes (PACs), because of their structural characteristics, have less prepayment risk than other CMO classes and are generally suitable investments for banks. Examiners should, however, be aware that some PACs offer more prepayment protection than others. Bankers need to do their homework on all mortgage derivative products prior to purchase and cannot rely on "labels" to provide information about a CMO's risk.

Structural Characteristics of PACs

PACs have more prepayment protection and less risk than other CMO classes. In some respects, PACs are similar to sinking fund bonds - both have a high degree of certainty about the timing of the principal payments. When the CMO is issued, PACs are structured so that the investor will receive a specified amount of principal each month as long as prepayments remain constant within a range.

As mentioned earlier in the Prepayment Standards subsection of the section on Mortgage-backed Securities, prepayments are often measured according to the Public Securities Association (PSA) prepayment standard. The PSA standard attempts to recognize the way mortgages age—new mortgages rarely prepay within the first year or two. To address this aging, the PSA chose a 30-month standard. For example, 100 percent PSA indicates that prepayments will increase .2 percent a month for the first 30 months of a mortgage and level off at a 6 percent conditional prepayment rate per year. If a 200 percent PSA assumption is used, prepayments are assumed to level off at a 12 percent rate after month 30.

Prepayment risk cannot be reduced for the CMO as a whole, but it can be reassigned to certain tranches, for example, companion tranches, that reduce risk for other tranches such as PACs. For example, if a PAC has prepayment protection between 80 percent PSA and 250 percent PSA, the PAC will follow a specified principal pay-down schedule as long as prepayments are constant within this range.

If interest rates change, causing prepayments to increase or decrease, but to stay within the specified prepayment range, the PAC will closely follow the specified principal repayment schedule. Any shortfalls in principal will be taken from the support tranches, and any excess principal will be reassigned to the support tranches. Thus, PACs have yields, average lives, and durations that are relatively stable over the prepayment protection range. The prepayment range between 80 percent and 250 percent PSA cited above would cover approximately a 200 basis point fall in interest rates or a 300 basis point rise in rates for current coupon agency collateral.

Most PACs Differ

Most CMOs contain multiple PACs. In general, a three-year average life PAC would have greater prepayment protection than a 10-year average life PAC. For example, the 10-year average life PAC (let's assume it's the fourth PAC bond) will have some uncertainty as to the steady payment of principal if prepayments exceed 250 percent PSA. However, this fourth PAC protects the third, second, and first PAC classes. Likewise, once the fourth PAC is paid off, if prepayments remain above 250 percent PSA, the third PAC protects the second and the first classes. Effective PAC ranges attempt to quantify the actual prepayment protection afforded the shorter PAC CMOs. It is not unusual for short average life PACs, such as the first and second classes, to have an effective prepayment protection range of 50 percent PSA to 750 percent PSA.

A CMO structure is possible that combines PACs that have a normal prepayment protection range (e.g., 80 percent to 250 percent PSA) with PACs that have narrower prepayment protection ranges (e.g., 120 percent to 225 percent PSA). These latter PACs have less protection and more risk and are known as second tier PACs.

PAC Structure

Let's assume that a PAC has prepayment protection range from 80 percent PSA to 250 percent PSA. If prepayments were to decrease to 80 percent PSA (in response to a rise in interest rates), the collateral principal payments would still be sufficient to meet the PAC principal payment schedule. The companion tranches would *not* receive their respective principal payments until the scheduled PAC principal payments had been made. The CMO is structured so that under this scenario the PACs would take

principal from the companion tranches to ensure timely payments to the PAC investors.

On the other hand, if prepayments increased to 250 percent PSA (reflecting a fall in interest rates), the principal payments would also be made to the PAC investors as scheduled. Under this prepayment scenario, the principal is coming in too fast for the PAC investors and is reassigned to the companion class investors. The companion class investors get their principal back earlier than scheduled (probably in a lower interest rate environment), while the PAC investors get their principal back as scheduled.

Why Banks Buy PACs

Banks are large buyers of PACs mainly because of their increased prepayment certainty. To the extent that banks can protect themselves from most of the prepayment risk and earn a reasonable spread over their cost of funds, PACs are suitable investments.

Another benefit of PACs is that they return a predictable monthly principal stream that can be reinvested or loaned. In an uncertain credit environment, PACs are perceived by many banks as a safe haven for funds.

Banks also buy PACs because the market is fairly deep and liquid. The bid-ask spreads on PACs are relatively narrow—about 1/8 to 1/2 a percentage point. Because of this relatively narrow spread, the transaction costs of getting in and out of a PAC position are low compared to other higher risk CMO tranches, such as companions.

Because there is less risk in the PACs than in the companions (and other more volatile tranches), PACs offer lower returns. For example, a three-year average life PAC would offer a return about 70 to 80 basis points over the three-year average life Treasury note (PACs, like all CMO tranches, trade off the comparable average life Treasury). The three-year average life companion tranche, with more prepayment risk, would trade at about 250 to 300 basis points over the three-year Treasury.

Examiners should understand that the companion bonds provide protection to the PACs only as long as these companions exist. Given the recent low mortgage origination rates, many consumers have prepaid, and many companion tranches have paid down quicker than expected. This means that less

cushion is available to PAC investors. Banks should understand how much protection is actually remaining in PAC tranches purchased in the secondary market

As more and more thrifts go out of business, more and more banks are getting into mortgage-related products, such as PACs. For the most part, banks have been buying the shorter PAC tranches (i.e., the three- and five-year average life PACs). These tranches have less interest rate risk than the typical thrift investment in fixed-rate 30-year mortgages.

From an investment limit perspective, almost all CMOs, including PACs, are subject to the Secondary Mortgage Market Enhancement Act (SMMEA) and are not subject to any investment limitations. The CMO prospectus should contain a disclosure on whether the GMO is SMMEA eligible or not.

Examiners should be aware that labels are sometimes deceiving. Unknowing bankers may purchase CMO classes labeled "PACs" that have more risk than regular PACs. Examiners should also remember that many bankers are under considerable pressure to increase earnings and may knowingly reach for yield at the expense of excessive risk.

Companion CMOs

The ensuing discussion considers the structural characteristics of companions, how and why they present more prepayment risk, and whether they are suitable investments for banks.

Companion tranches ("companions") of CMOs are higher risk tranches that support or protect less risky CMO tranches, such as PACs. Companions accept more than their pro rata share of prepayment risk.

Structural Characteristics of Companions

As the name implies, companions are designed, or engineered, simultaneously with other types of CMO tranches, such as PACs. PACs have less sensitivity to changes in prepayments than the companions. In other words, the companions support or accept additional prepayment risk to provide protection to the PACs. Prepayment risk cannot be reduced for the CMO as a whole, but it can be reallocated among the various CMO tranches.

As interest rates fall (and prepayments rise), companion CMOs receive their regularly scheduled

principal payments and the excess prepayments from the PACs. Thus, banks that have invested in companions recoup their money when interest rates are falling—a bad time to reinvest.

However, when interest rates rise (and prepayments slow), companions give their regular principal cash flows to the PACs. This transfer of principal cash flows provides the PACs with additional certainty, but causes increased insecurity for the companions. When banks want to get their money back to reinvest it at the prevailing higher rates, the companions extend.

Examiners must understand the overall structure of the GMO to correctly assess the risk of the companions. For example, if the companions support PACs, they present risk both with a *rise* in prepayments and a *fall* in prepayments. However, because Targeted Amortization Classes (TACs) only offer prepayment protection from a fall in rates (and thus a rise in prepayments), companions that support TACs do not have extension risk.

Companion Structure

Let's assume that the PAC has prepayment protection from 80 percent PSA to 250 percent PSA. If interest rates rise and prepayments slow to 80 percent PSA, the PACs are protected and the additional risk is assumed by the companions. In some cases, the average lives of the companion tranches extend 15 to 20 years. For the 5- and 10-year average life bonds, this is a significant extension that indicates a loss in value. For example, at purchase the bank may have received a spread over the comparable 5-year Treasury, yet the average life of the companion could now be 20 years, with no additional compensation for the longer term maturity.

If rates fall and prepayments rise to 250 percent PSA, the PACs are again protected and the additional risk is absorbed by the companions. In this scenario, the average lives of the companions contract significantly. If the companions were priced at a significant discount, the prepayment can result in significant price appreciation. However, if the companions were priced close to par, or at a premium, their market value would decrease.

Why Banks Purchase Companions

Companions are popular with banks that believe interest rates and prepayments will remain stable. If

rates and prepayments remain stable (near the speed assumed in the pricing), the bank will receive the cash flows as expected and gain, in some cases, an extra 100 to 150 basis points in yield over a similar average life PAC bond.

However, many banks, rather than basing their investment decision on the expectation of rate and prepayment stability, are merely "reaching for yield." Because current earnings and loan demand are relatively low, many banks are willing to accept the additional yield and market value risk.

Accepting additional risk is understandable *if* the additional return (a higher spread to the comparable Treasury bonds) is efficiently priced. Unfortunately, many bankers are not as efficient as brokers at pricing risk. Thus, many banks accept spreads to Treasury that do not compensate the bank adequately for the additional risk.

Banks (and bank examiners) must understand that companions have more price sensitivity and less liquidity than other, less risky GMO tranches, such as PACs. For example, because of the greater price sensitivity, the bid-ask spread for companions (e.g., 1/2 to one percentage point) is larger than the bid-ask spread for PACs (e.g., 1/4 to 1/2 a percentage point).

Prior Purchase Precautions

Before purchasing any GMO tranche, banks should understand its structure and the underlying mortgages that make up its collateral. Subjecting companion CMOs to the BC-228 tests should help the bankers understand the bond's risk and return profile.

If a companion is highly sensitive—the GMO structure allocates much of the prepayment risk to that companion and the prepayment sensitivity of the collateral is high—the BC-228 tests will identify the added risk.

Companions have more than their pro rata share of prepayment risk and generally only perform well when rates remain stable. Because of the large degree of negative convexity, any realized instability in interest rates leads to poor performance by the companion. Most companions have more risk than a current coupon fixed-rate mortgage-backed security and are not suitable investments for banks. The key word here is "investment." Most companions would

not be suitable if held at cost in the investment account.

However, all high risk mortgage derivative products (like most companions) can be purchased and held for sale at the lower of cost or market (LOCOM) or in a trading account (marked to market or LOCOM) by banks that are well capitalized and that have strong earnings, internal expertise, and good modeling capabilities.

CMO Floaters

CMO floaters are CMO tranches with a coupon rate that is not fixed, but tied to an index. The two most important risks are cap risk (i.e., the coupon rate will adjust up to its maximum level) and index risk (i.e., the risk that the funding costs will adjust up, but that the asset returns will not).

The appeal for CMO floaters is based mainly on banks' appetite for an agency credit and an adjustable rate asset with a reasonable spread over a common index rate, such as the London Interbank Offered Rate (LIBOR). The periodic rate adjustment causes the price of CMO floaters to remain close to par, giving them much less price risk than a 30-year fixed-rate mortgage-backed security. Only when the CMO floater is near its lifetime interest rate cap does it present price risk similar to that of a fixed-rate bond.

Most CMO Floaters Differ

As with other CMO classes, not all CMO floaters are created equal. The price sensitivity of a CMO floater depends largely on how close its current coupon rate is to the lifetime cap, the index, and its principal payment priority structure.

The coupon rates on CMO floaters adjust periodically, usually monthly or quarterly. As long as the coupon rate is sufficiently (about 100 to 150 basis points) below the lifetime cap, the coupon can reset freely, and the market price remains close to par. However, once the current coupon begins to approach the lifetime cap, the market will trade the CMO floater as if it were more like a fixed-rate CMO (i.e., one that presents much more interest rate risk). Therefore, CMO floaters with relatively high lifetime caps—currently those higher than 10 percent—have less risk than those with lower lifetime caps. Examiners should review carefully CMO floaters with caps below 10 percent.

In evaluating a CMO floater, the examiner must understand how and when it will receive its principal repayments. Different CMO structures have varying principal payment priorities. The first CMO floaters issued were part of "vanilla" CMO structures that had fairly simple sequential principal payment priorities. Since then, CMO floaters have been included in CMO structures that have more complex principal payment priorities, such as planned amortization classes (PACs) and companion classes.

PAC floaters have stable principal payment schedules and reprice to par periodically. Thus, they are low risk CMOs. Because of this low risk, the effective margins over LIBOR are relatively narrow—generally 50 to 75 basis points.

Companion floaters, which are more common, have fairly unstable principal payment schedules, although they also reprice to par unless the lifetime cap is reached. The risk with a companion floater is that the average life may extend, allowing more time for the CMO floater's coupon rate to reach the lifetime cap. Moreover, if the CMO floater does reach its lifetime cap and its average life has extended significantly (e.g., to 10 years), the price sensitivity (or interest rate risk) will exceed that of a 30-year, fixed-rate mortgage-backed security. Because of this added risk, the effective margins over LIBOR are relatively wide—75 to 100 basis points.

LIBOR, CMT, and COFI Indexes

LIBOR, the rate at which banks in London offer Eurodollars, is the most common index used to compute the coupon rate for CMO floaters. The coupon rate is computed by adding a spread, or margin, to the LIBOR index rate. Other indexes, besides LIBOR, are sometimes used to set floater coupon rates.

Another of the more common indices is the CMT (Constant Maturity Treasury) index. Many CMO floaters are priced at a spread over the one-year CMT. Still others are priced at a spread to the 7-year and 10-year CMT. Examiners should be aware that CMO floaters priced at a spread over these longer term indices have more interest rate risk. Although these CMO floaters perform well in a steep yield curve environment, banks should recognize that they do poorly in a flattening or inverted yield curve environment.

The Eleventh District Cost of Funds Index (COFI) has been used in many CMO deals and is considered a longer term index. Based on the cost of funds for all thrifts located in California, Nevada, and Arizona, it is known as a lagging index.

Without overstating the obvious, there is considerable risk for CMO floaters tied to the longer term indices. For example, assume a bank funds the purchase of a CMO floater tied to 10-year CMT with a short-term deposit. The bank is at considerable risk if the yield curve flattens or inverts. That is, the cost of funding rises, and yet there is little or no increase in the asset returns. Margins get squeezed and the price of the CMO floater decreases.

Backed by Fixed-rate Mortgages

Many people assume that GMO floaters are backed by ARMs. In fact, all CMO floaters are backed by fixed-rate mortgage-backed securities or fixed-rate whole loans (mostly the former). Because the collateral supporting GMO floaters is fixed, almost all CMO floaters are issued with corresponding inverse floaters (some are issued with corresponding deep discount CMO tranches that have coupons with very low fixed rates).

The GMO is designed so that the weighted average coupon rate on the GMO floater added to the weighted average coupon rate of the inverse floater equals the coupon rate on the underlying collateral, the fixed-rate mortgage-backed security. Inverse floaters and deep discount GMO tranches have illiquid markets and generally are extremely price sensitive.

Market Liquidity

The market for GMO floaters, unlike that for inverse floaters and deep discount GMO classes, is fairly deep and liquid. The bid-ask spread on most recently issued GMO floaters has been relatively tight, although not as tight as for agency fixed-rate pass-through securities.

GMO floaters are low-risk and low-return GMO classes. CMO floaters offer a reasonable spread over banks' cost of funds and have relatively low interest rate risk and low credit risk. The primary risk is the exposure resulting from the lifetime cap, and if it is a longer term indexed floater, the index mismatch.

This exposure is of particular concern for companion floaters that are issued with low lifetime caps. GMO companion floaters have extension risk and thus, run the risk of becoming, in effect, fixed-rate CMO tranches with significant price sensitivity if the lifetime cap is reached. Banks that invest in CMO floaters must understand and manage the cap risk and the index risk.

Inverse Floaters

Basically, examiners should understand that inverse floaters offer coupon rates that float inversely with common interest rate indices, have a very high degree of interest rate risk, and very limited liquidity. As a result, inverse floaters rarely, if ever, pass the BC-228 tests and generally are not suitable for banks, although banks are often attracted to the very high yields.

Definition

Examiners should understand that inverse floaters are GMO tranches that have coupons that adjust in the opposite direction to their index. Frequently the adjustment is a multiple of the change in the index. For example, a GMO inverse floater may have the following formula used to set the coupon rate for the inverse floater each month: (36 minus (4 times LIBOR)). If LIBOR is 6 percent, the inverse floater earns a substantial coupon rate (e.g., 12 percent). If LIBOR rises 2 percent to 8 percent, the inverse floater receives a 4 percent coupon rate. If LIBOR falls from 6 percent to 4 percent, the inverse floater receives a coupon rate of 20 percent.

Examiners should also remember that LIBOR is not a domestic interest rate index. Generally, but not always, LIBOR moves in concert with domestic short-term rates.

In addition, examiners should understand the relationship between regular floater GMO tranches and inverse floater GMO tranches. Generally, floaters and inverse floaters are issued to pay interest and principal simultaneously. If the fixed rate mortgage supporting the CMO is 9 percent, the combined amount of interest to be paid out cannot exceed 9 percent. Therefore, in this case, the floater tranche and inverse floater tranche on a weighted average basis cannot pay out more than 9 percent.

Caps and Floors

All inverse floaters must have caps and floors be-

cause fixed rate collateral supports the inverse floater. Using our previous example, the inverse floater would have a maximum coupon rate of 36 percent (if LIBOR dropped to 0 percent) and a minimum coupon rate of 0 percent (if LIBOR rose to 9 percent). Many recent GMO issues have contained inverse floaters that have "floors" that increase the minimum coupon rate from 0 percent to the 4 percent to 6 percent range. Obviously, this improves the performance of the inverse floater, but generally means that the regular floater has been made more risky. Since the issuance of BC-228, many dealers have tried to design inverse floaters that would pass all three of its tests.

Price Sensitivity

Two issues drive the price sensitivity of inverse floaters. The first is the multiple contained in the inverse floater coupon rate equation. In our example, the multiple is 4. This is quite high. Historically, inverse floaters have been issued with multiples ranging from around 7 to less than 1. Obviously, the higher the multiple, the more sensitive and more risky the inverse floater. Inverse floaters like most mortgage derivatives have negative convexity. The degree of negative convexity is specific to each inverse floater, though an inverse floater priced fairly close to par has more negative convexity than one priced at a discount.

The second issue relates to marketability. Inverse floaters are the most difficult piece of the GMO to sell. Many in the industry have labeled it "toxic waste," because the market for inverse floaters is weak. Once an inverse floater is sold, the broker dealer community generally does not want it back. They will take it back only by bidding a very low price and reoffering it at a much higher one (generally a 3 to 5 point market). A 3 to 5 point bid/ask spread represents a good market when rates are falling and supposedly the inverse floater is doing well. The bid/ask spread will widen even more when rates begin to rise.

This means that the price has very little upside (unless the inverse floater was priced at a deep discount) and extreme exposure on the downside. The downside to this instrument is a rising rate environment, generally when the fixed rate MBS portfolio is taking a beating.

The obvious reason that banks buy inverse floaters is because of the very high yields. In the example, with

LIBOR around 6 percent, the bank receives a coupon of 12 percent. Factor in that most inverse floaters are sold at a fairly significant discount and the yields look attractive. However, banks should factor in the marketability issue. Examiners should ask banks that currently own inverse floaters the following questions. If the bank gives up 5 points (or perhaps as much as 10 points) in price loss without rates moving, what is the overall return on the bond? How bad could it get if rates rise 200 basis points?

Inverse floaters are GMO tranches that have coupons that adjust in the opposite direction as interest rates. Historically, inverse floaters have had price sensitivities that were very high, while liquidity has been very low.

Inverse floaters generally fail one of the BC-228 tests and thus, are unsuitable for banks. However, brokers try to make them more attractive, and examiners should critically evaluate the marketability issue. One solution is to factor a healthy bid/ask spread into the BC-228 test number 3, the price sensitivity test.

II. Market—Where to Find Current Value and Ratings

Generally, First Boston offers a GMO pricing system through Bloomberg. The market value of a GMO must be obtained from a dealer making a market for such issues.

III. What Should You Look for (Suitability):

Banking Circular 228

Section III of the Federal Financial Institutions Examination Council's (FFIEC) Supervisory Policy Statement on Securities Activities contains guidance on the suitability of national banks acquiring and holding mortgage derivative products. The statement was adopted by the OCC in Banking Circular 228 on January 10, 1992 effective February 10, 1992.

Mortgage derivative products include Collateralized Mortgage Obligations (CMOs), Real Estate Mortgage Investment Conduits (REMICs), GMO and REMIC residuals, and Stripped Mortgage-backed Securities. A set of questions and answers explaining the key concepts of BC-228 is provided at the end of this section.

The OCC encourages national banks to purchase low-risk mortgage derivative securities and to avoid

high risk ones. In general, BC-228 requires that any mortgage derivative security with more interest rate risk than a recently issued 30-year mortgage-backed security (e.g., a Federal National Mortgage Association security at 9 percent) be considered "high risk." The previous version of BC-228 issued in April 1988, was tied to specific mortgage derivative products, or labels: IOs, POs, and residuals were considered high risk. Because of the development of hybrid tranches within the GMO market, labels have lost their value as risk indicators, and the OGG has moved toward a more quantitative standard.

Overall, BC-228 divides all mortgage derivative products (not pass-through MBS) into two separate groups: high risk and low risk. Low risk GMOs may be held by banks as investments at cost. High risk mortgage derivatives may not be held at cost, but must either be held for sale at the lower of cost or market (LOCOM) or in a trading account at mark to market or LOCOM. All mortgage derivative products purchased prior to February 10, 1992 are subject to the previously existing rules. CMO floaters are exempt from the average life tests and are subject only to the price sensitivity test

"High Risk" Classification Tests

If a mortgage derivative product meets any one of the following three tests, it is considered to be "high risk:"

- The average life in the base case interest rate scenario is longer than 10 years.
- The average life extends by more than 4 years for a 300 basis point rise in rates or if the average life contracts by more than 6 years for a 300 basis point fall in rates.
- The price sensitivity is greater than 17 percent for a 300 basis point change in rates.

These tests replicate the interest rate risk characteristics of a newly issued 30-year fixed-rate FNMA/FHLMG agency mortgage-backed security (MBS). The rationale behind the selection of the 30-year MBS benchmark was that banks can purchase a 30-year fixed-rate MBS without limit and that GMO tranches with equal or less risk should be treated similarly.

The only exception to the three-part test is for floating rate CMOs. Regular floating rate CMOs (not inverse

floaters) that have coupon rates less than their respective lifetime caps are not subject to the average life and average life sensitivity tests. They are subject only to the price test

Accounting Treatment

Under BC-228, low-risk securities can be reported in the investment account, at cost. Securities defined as "high risk" cannot be reported in the investment portfolio, at cost. These securities should be reported as held for sale at LOCOM, or held for trading, marked to market or LOCOM.

High-risk securities can be purchased only to reduce a bank's overall interest rate risk, except for trading purposes by banks that have strong capital and earnings, adequate liquidity, and a closely supervised trading account.

Securities Purchased Prior to February 10, 1992

Securities purchased prior to February 10, 1992 (i.e., trade date prior to 2/10/92) are exempt from the current version of BC-228. However, these purchases are subject to the OCG's earlier version of BC-228 that focused on national banks' existing holdings of IOs, POs, and residuals. This earlier version of BC-228 recognizes that these instruments can be used by sophisticated banks to manage interest rate risk. However, if these instruments are not part of a well-managed hedging program, BC-228 treats them as speculative and inappropriate for a bank's investment portfolio.

Examiners should review a bank's holdings of IOs, POs, and residuals and evaluate management's hedging program. A well-managed hedging program should include an analysis of the bank's interest rate risk and how the IOs, POs, or residuals help to reduce that risk. The documentation should be updated periodically to demonstrate that the hedge is performing as expected or to explain why it is not

If the examiner believes that the instruments are being used effectively as hedging tools, they can be kept in the investment portfolio and accounted for at cost. If they are not eligible to be held as investments at cost, the bank must transfer the securities to either the held-for-sale account (i.e., reported at LOCOM) or the held-for-trading account (i.e., marked to market or LOGOM).

The earlier version of BC-228 did not discuss other potentially high risk mortgage derivative products, like

companions, jump Z tranches, etc. Those bonds are "grandfathered," because the OCC had no previously existing policy for them. For products that were purchased prior to February 10, 1992 that were not covered by the OCC's original version of BC-228, cost accounting is appropriate (these can be held as investments). Notwithstanding the favorable accounting treatment, banks must have the same level of documentation as the four requirements outlined for purchases of low-risk mortgage derivative products (discussed later). The reasoning is that the bank should understand the securities it owns, and examiners should be able to review this level of understanding. The intent of the examiners is not to force a bank to liquidate a "grandfathered" mortgage derivative product, but to ensure that the banker understands the risks associated with it.

Low Risk CMOs Documentation

One objective of BC-228 is to encourage banks to purchase low-risk securities. Therefore, the documentation requirements are minimized for them compared with those for high-risk ones.

Under BC-228, a bank must determine before purchasing a security that it is low risk and document the assumptions and test results used for that determination. At year end, the bank must review the security to ensure that its economic characteristics have not changed and the security still meets the low-risk definition.

There are four pieces of information that should be contained in each documentation file for low-risk mortgage derivatives and for regular pass-through MBS.

The first piece of documentation is an investment summary in the banker's own words. This includes a brief explanation of the security in lay terms by the investment officer, outlining its characteristics and the objective of the purchase. The banker should answer in his/her own words these three questions:

1. What is the banker buying?
2. Why is the banker buying it?
3. How do prepayments affect it?

The second piece of information is BC-228 test results. Each investment file should have a copy of

the test results for both low-risk mortgage derivatives and regular pass-through MBS. Although MBS do not have the adverse accounting potential, the banker should include results for MBS to satisfy safety and soundness concerns. BC-228 should be reviewed by the banker at year end to ensure that the bond is low risk.

The third piece of documentation is a copy of the Bloomberg prepayment consensus page, or other industry equivalents like Almont, Telerate or GAT, to support the prepayment assumptions used in the BC-228 test.

The fourth piece of documentation is a copy of the CMO prospectus outlining the principal payment rules. If the prospectus is not available, a copy of the Deal Summary that explains the principal payment rules should be included. This information is not necessary for regular MBS, because the principal payment rules are easy (i.e., *pro rata* basis).

High Risk MDPs Documentation

Under BC-228, the requirements for the purchase of high-risk mortgage derivatives are more stringent. Four requirements exist for high-risk mortgage derivative products.

First, a bank must determine and document, before purchase, that the high-risk security reduces its overall interest rate risk. It must demonstrate its existing overall risk profile and show that the purchase of the high-risk mortgage derivative security reduces this overall exposure.

Second, the bank must document all the assumptions used in the calculation, including those on the asset, liability, and off-balance sheet positions. These assumptions are critical to the measurement of interest rate risk and will be reviewed by examiners.

Third, the interest rate risk reduction evaluation must be conducted every quarter. The bank must review quarterly the high-risk security and measure its effectiveness in reducing the bank's overall interest rate risk. If the bank has purchased more than one high risk derivative, its portfolio of derivatives must be shown to reduce the bank's overall risk. If upon subsequent testing, the portfolio of derivatives is found to exacerbate the bank's overall interest rate risk, further analysis is required to identify the specific

high risk instrument that is not performing as expected.

Fourth, management must have the internal expertise and modeling capabilities to manage these high-risk mortgage derivatives. The bank should have people knowledgeable of the mortgage derivative market, quantitative modeling techniques, and the bank's overall interest rate risk.

Analysis of Assumptions

Examiners are expected to identify and review the key assumptions used in the BC-228 tests. Of particular importance are the prepayment rate and discount rate assumptions.

The prepayment assumptions are used to arrive at the weighted average life and price sensitivity estimates. In the base case, prepayment estimates can be obtained easily from market sources, such as Telerate, Almont, Bloomberg, or GAT. For the shocked rate environments, prepayment estimates can be obtained from Bloomberg and, in specific cases, from Wall Street firms.

The more problematical set of assumptions consists of the appropriate discount rates to be used to estimate the price sensitivity. The two key components of the discount rate assumption are the yield curve and the spread to Treasury. To price a GMO tranche, the market determines the average life of the tranche and compares it to the yield on the comparable Treasury security. The spread to Treasury (the additional yield necessary to compensate a CMO investor for the additional risk) added to the yield of the relevant average life Treasury security results in the discount rate, or yield, used to discount the cash flows and arrive at a price for the GMO.

In addition to the spread to Treasury issue, BC-228 incorporates the fact that banks buy at the offer side of the market and sell at the bid. For high-risk securities, the bid/ask spread represents a significant source of price sensitivity. The markets for these CMOs are illiquid and thus, have wide bid/ask spreads. One of the more commonly used standard industry calculators, Bloomberg, has incorporated the prepayment assumptions, the discount rate assumptions, and the bid/ask spread into the FFIEC High Risk Securities screen.

IV. Accounting Treatment

(Refer to the Pass-through Securities section for the accounting treatment for non-"high-risk" CMOs.)

(Consult your supervisory office for the accounting treatment of "high-risk" CMOs.)

A bank that has acquired "high-risk" mortgage securities to reduce interest rate risk needs to actively manage its holdings of these securities because of their substantial prepayment and average life variability. Such active management implies that the bank does not have both the intent and ability to hold these mortgage derivatives for the long term. Accordingly, high-risk mortgage securities used to reduce interest rate risk should not be reported as investments at amortized cost, but as trading assets at market value or the lower of cost or market value (LOCOM) or as held-for-sale assets at LOCOM.

Mortgage derivative products that do not meet the definition of high-risk mortgage securities at the time of purchase should be reported as investments, held-for-sale assets, or trading assets, as appropriate. A mortgage derivative product that was not a high-risk security when it was purchased as an investment may later fall into the high-risk category. BC-228 requires banks to document annual reviews of their mortgage derivatives to ascertain whether or not they qualify as high risk. Such documentation will be reviewed by examiners. If a mortgage derivative product that was not a high-risk mortgage security when purchased later meets that definition, it must be redesignated as held for sale.

Examiners may seek the orderly divestiture of high-risk mortgage securities that do not reduce interest rate risk. These securities must be reported as held-for-sale assets at LOCOM until their disposition.

V. Risks

Also refer to the Pass-through Securities section.

Interest Rate Risk: Interest rate risk for CMO tranches can range from low (sequential-pay or PACs) to high (inverse floaters, Z tranches, and most residuals). The price volatility of a CMO tranche must be analyzed on a case-by-case basis. As is true with pass-through securities, a longer WAL will typically result in higher interest rate risk. Nuances of individual CMO tranches may also affect the prepay-

ment exposure for other CMO tranches, so the entire CMO structure must be understood by the investor before the degree of interest rate risk can be assessed. As noted in the Finance Concepts section, as the WAL and duration of a security increases, the price volatility of the security also increases.

Credit Risk: Credit risk must also be evaluated on a case-by-case basis. The credit risk in a given CMO should parallel that of the underlying mortgages or mortgage-backed securities. However, a CMO introduces at least one other counterparty (the CMO issuer). In most cases, credit risk will not be significant with CMO tranches.

Liquidity Risk: As with the mortgage-backed pass-through market, most CMOs have active and well established secondary markets. In general, the liquidity of the CMO market is less than that afforded federal agency pass-throughs, but better than that afforded private label pass-throughs. Additionally, the secondary market for agency-backed CMOs is more liquid than whole loan or private-label-backed CMOs. The type of CMO tranche also affects market liquidity. For example, the bid/ask spread for sequential-pay and PAC tranches is typically 1/8th – 1/4th of a point. The high risk tranches generally have a wider bid/ask spread of anywhere from 1/2 – 5 points. The investor should assess market liquidity prior to purchasing any CMO tranche. Investors must understand that the structure of other tranches in the CMO will affect the interest rate risk of any given tranche and this may also affect the market liquidity afforded specific tranches.

VI. Legal Limitations

(See discussion on private label pass-throughs in the Pass-through Securities section.)

VII. Risk Asset Capital Weight

Backed by GNMA, FNMA, FHLMC securities20 – 100 percent

Backed by whole loans or private label pass-throughs50 – 100 percent

VIII. References

(Refer to the Mortgage-backed Securities section.)

IX. Additional Information

Questions and Answers on Mortgage Derivative Securities

The following questions and answers are designed to explain the key concepts contained in Section 111 of the Supervisory Policy Statement on Securities Activities issued by the Federal Financial Institutions Examination Council (FFIEC) that was adopted by the OCC on January 10, 1992, with an effective date of February 10, 1992. Section III divides mortgage derivative securities into high-risk and low-risk classes. Overall, OCC policy encourages national banks to purchase low-risk mortgage derivative securities and to avoid high-risk ones.

- Q. Does section III of the new policy apply to regular mortgage pass-through securities or other investment securities?
- A. No, this policy applies *only* to mortgage derivative products, such as CMO tranches or interest-only strips (IOs) and principal-only strips (POs). Section 111 of the policy statement does *not* apply to regular mortgage-backed securities, such as Government National Mortgage Association (GNMA) pass-through securities, Federal National Mortgage Association (FNMA) pass-through securities, or Federal Home Loan Mortgage Corporation (FHLMC) pass-through securities.

However, the documentation requirements discussed in section III for low-risk mortgage derivatives provide valuable information to management about the interest rate risk characteristics of MBS and should be part of the documentation for MBS.

- Q. Are existing positions of mortgage derivatives grandfathered?
- A. Yes. Mortgage derivative products purchased before the effective date of this policy statement (i.e., trade date before 2/10/92) are grandfathered and are subject to previously existing policies.
- Q. For national banks, what is the previously existing policy?
- A. The original BC-228 was issued in April 1988 and contained the original OCC policy on

mortgage derivatives. The original version of BC-228 identifies IOs, POs, and residuals as generally unsuitable for the investment account, unless they are used effectively as hedges.

If an examiner is satisfied that a bank understands these products and with management's ability to use them to hedge interest rate risk, the bank can hold IOs, POs, and residuals as investments at cost. Otherwise, the bank can hold these securities only for sale at lower of cost or market (LOCOM) or for trading (at market to market or LOCOM).

- Q. How does the FFIEC policy define high-risk, and why were these particular tests chosen?
- A. If a mortgage derivative security meets any one of the following three tests it is considered to be high-risk, according to the FFIEC statement:
- (1) The weighted average life in the base case exceeds 10 years, assuming a reasonable prepayment speed.
 - (2) The weighted average life extends by more than 4 years due to a 300 basis point increase in rates, or contracts by more than 6 years due to a 300 basis point decrease in rates.
 - (3) The estimated price change for a 300 basis point change in rates is greater than 17 percent.

These tests represent an estimate of the average life, average life sensitivity, and price sensitivity of a newly issued FNMA/FHLMC current coupon mortgage-backed security (the most commonly used collateral for collateralized mortgage obligations).

- Q. Can a bank rely on a broker to do the tests?
- A. Yes, but only for purchases of GMO tranches designated as low-risk. However, even in those cases, the bank must review and understand the assumptions that go into the calculation (e.g., prepayment speed). All brokers should have industry standard calculators (e.g., Bloomberg and GATT) screens that demonstrate the three tests. Bloomberg has developed a "regulatory" screen designed specifically for these tests.

- Q. What assumptions should banks make about prepayments, and how can they get information on prepayment speeds?
- A. The prepayment assumption is the most critical one used to measure average life and price sensitivity for mortgage derivative securities. Fortunately, estimates of prepayments in the current market environment are easily obtainable. Industry information sources (e.g., Bloomberg and Telerate) offer prepayment assumption screens that provide useful estimates. These prepayment estimates are displayed for several levels of mortgage coupon rates for the current interest rate environment.

Prepayment estimates in the plus and minus 300 basis point environments are more difficult to obtain. The Chief National Bank Examiner's Office will provide examiners with Wall Street firms' estimates of prepayments in these environments upon request. Bloomberg expects to supplement its current prepayment screen with screens that provide prepayment estimates in the plus and minus 300 basis point scenarios. At this time, we are unaware of the intentions of the other industry standard information sources.

- Q. What is the accounting treatment for low-risk mortgage derivatives versus high-risk mortgage derivatives?
- A. Low-risk mortgage derivatives may be held in the investment account (at cost). High-risk mortgage derivatives may not be held in the investment account. They should either be held for sale (at LOCOM) or held in a trading account (marked to market or LOCOM).
- Q. What is the periodic testing requirement for low-risk mortgage derivatives versus high-risk mortgage derivatives?
- A. Low-risk mortgage derivatives must be tested only at the time of purchase and annually (or at year end) thereafter. As with the initial tests, the annual (or year end) tests may be done by brokers. If the low-risk GMO passes the annual (or year end) test, it can continue to be held in the investment account (at cost). However, if the GMO fails any one of the three tests, it must be reclassified as high-risk and either held for

sale (at LOGOM) or held in a trading account (marked to market or LOGOM).

High-risk mortgage derivatives must be tested at time of purchase and quarterly thereafter. The high-risk mortgage derivative should reduce the bank's overall interest rate risk. The quarterly test should demonstrate that the mortgage derivative is still high-risk and that it is reducing the firm's overall interest rate risk.

- Q. If a mortgage derivative is tested as high-risk, does it remain high-risk forever?
- A. No. The accounting treatment follows the economic characteristics. If a mortgage derivative ages or for other reasons no longer meets any of the three tests for two successive quarters, the high-risk mortgage derivative may be reclassified as low risk and held as an investment. GAAP requires that the fair market value of the mortgage derivative be used as the cost basis for any transfer from the held for sale account (or trading account) to the investment account.
- Q. What are the documentation requirements for low-risk mortgage derivatives?
- A. The purchase of low-risk mortgage derivatives should be supported by the following documentation. First, the bank should have an investment summary that explains in the banker's own words:
- What the banker purchased?
 - Why the banker purchased it?
 - How will prepayments affect it?

Second, the bank should have a copy of an industry standard calculator (e.g., Bloomberg or equivalent analyses) showing that the CMO tranche is low risk, (i.e., it does not meet any of the three tests).

Third, documentation should support the prepayment assumptions used in the tests, for example, a copy of the Bloomberg prepayment screen. For GMO tranches that are purchased from the secondary market (or that have

seasoned collateral), documentation of the historical prepayments is valuable.

Fourth, there should be a copy of the prospectus. If the GMO tranche is purchased in the secondary market (i.e., not at issuance), the prospectus may not be available and an electronic version of the principal payment rules is permitted (e.g., Deal Summary or CMO Description pages from Bloomberg). However, it should be possible to get the first 10 or 15 pages of the prospectus. These pages should contain the important information about principal payment priorities and collateral characteristics.

- Q. Is there an exception to the weighted average life tests for CMO floaters?
- A. Yes, CMO floaters are not subject to the average life and average life sensitivity tests, as long as the coupon rate on the floater is less than the interest rate cap on the floater GMO. However, the price test is applicable in all cases. And, if the coupon rate is equal to the cap on the floater, the average life and average sensitivity life tests are applied. At that point, the CMO floater tranche will not be "floating" and may be high-risk.
- Q. How does a bank (or Bloomberg) calculate the price sensitivity test?
- A. In general terms, the same cash flows used to estimate the average life sensitivity test (i.e., cash flows in plus and minus 300 basis point scenarios) are used. The only additional step is the discounting process. The assumption used in the price test is a constant spread over the comparable Treasury yield. This is best illustrated by an example.

Assume that a three-year companion extends to seven years in a plus 300 basis point scenario (the extension of four years meets the extension test). Further assume that the offer side of the market is 100 (or par) and that the bid side of the market is 99.75. The constant spread to Treasury is estimated based on the bid side of the market.

For example, the three-year Treasury might be 6 percent. Let's also assume the spread to the

bid side of the market is 200 basis points (2 percent). If the cash flows from the base case scenario were discounted at 8 percent, the price would be very close to 99.75.

In the plus 300 basis point scenario, the three-year companion extends to seven years. Thus, the seven-year Treasury is the appropriate benchmark, not the three-year Treasury. Assume that the seven-year Treasury is 7.50 percent. With a constant spread to Treasury and a 300 basis point shock in rates, the discount rate would be 12.50 percent (i.e., 7.50 + 2.0 (spread) + 3 (shocked)). Discounting the cash flows (based on the plus 300 basis point scenario) estimates a price. For this example, assume a price estimate of 81 (19 percent price change from par).

This price estimate is compared with the benchmark price sensitivity of a 30-year mortgage-backed security - i.e., 17 percent. In this case, 17 percent of the offer side of the market is 83. The estimated price change is thus greater than that of a 30-year mortgage-backed security and would fail the price sensitivity test. The companion would be classified as high risk.

- Q. What if the bank inputs the same price for the bid and offer?
- A. The broker dealer should put in an estimate of the bid and of the offer. If these are the same, the test is not valid. The banker should be aware of normal bid/ask spreads.

Stripped Mortgage-backed Securities and Residuals

I. Product Description

Stripped Mortgage-backed Securities (SMBSs)

SMBSs were introduced in the market in 1986. Interest only (IO) and principal only (PO) SMBSs are created in much the same manner as U.S. Treasury STRIPS. The cash flows from a pool of mortgages or mortgage-backed securities (MBS) are separated with the monthly interest and principal allocated to the two SBMSs. In the case of IO/PO strips, the IO class receives 100 percent of the interest payments and the PO class receives 100 percent of the principal payments.

An IO consists of the interest receipts from a pool of MBS. The pool of MBS is deposited into a trust. The trustee is responsible for receiving the interest, scheduled principal, and prepayments from the agencies issuing the securities (e.g., Federal National Mortgage Association (FNMA), Federal Home Loan Mortgage Corporation (FHLMC), or their designees) and passing the interest receipts to the IO investors.

A PO consists of the principal receipts from a pool of MBS. Like IOs, the pool of MBS is deposited into a trust, and the trustee is responsible for receiving the interest, scheduled principal, and prepayments from the agencies issuing the securities (e.g., FNMA, FHLMC, or their designees) and passing the principal receipts on to the PO investors. Not all IOs and POs are backed by agency MBS. Other types of loan products are commonly "stripped" to create an IO class and a PO class.

IOs and POs are often sold to banks as hedging instruments for mortgage-related products. In addition to their alleged hedging function, IOs and POs earn a significant yield for banks' investment portfolios.

The hedging characteristic is a great sales tool and has helped the development of the IO and PO market. At year end 1991, more than \$22 billion in IOs and POs were outstanding in the mortgage derivative market. This market is dominated by IOs and POs issued under the FNMA strip program. For these issues, credit risk is not the issue, interest rate risk is.

Although IOs and POs are structurally the simplest

product in the mortgage derivative market, their interest rate risk characteristics are not easily understood. The following discussion will identify some characteristics affecting the interest rate risk of IOs and POs.

Collateral

The most important characteristic of IOs and POs is the underlying collateral, or the mortgage loans that make up the MBS pool. An understanding of the prepayment sensitivity of the pool of loans underlying the MBS is the key to determining whether an IO or PO is efficiently priced.

For example, an IO backed by a premium coupon MBS (for example, one with a 10 percent pass-through rate where, in today's market, the current MBS coupon is 8 percent) would actually have underlying mortgage loans at about a 10.75 percent rate. A mortgage loan with a 10.75 percent coupon rate prepays at a much faster speed than a discount loan — for example, a mortgage with an 8.25 percent coupon rate. This variation in prepayment speed affects the pricing of the IO. To understand IO valuation, an investor must understand the prepayment characteristics of the underlying mortgage loan.

IOs as Hedges

An IO backed by premium mortgage loans can be a useful hedging instrument from a duration perspective if an investor is exposed to rising interest rates and is not concerned with the additional negative convexity associated with IOs.

If a bank owns an IO backed by premium loans, it is likely that if interest rates rise, prepayments will fall, and the IO's value will increase. When the IO backed by the premium loans was originally priced, that pricing was based on a fast prepayment assumption. Rising interest rates and falling prepayments alter that assumption and increase the IO's value.

An IO supported by premium coupon mortgages will increase in value when interest rates rise, and prepayments fall, because the principal balance of the pool of loans is not paid off as quickly as expected. If the principal stays around longer, there is more interest to be earned. The longer stream of interest receipts more than offsets any decrease in

value caused by an increased discount rate. If interest rates continue to rise, however, prepayments stop slowing down and at some point the discount effect becomes dominant, causing the IO's price appreciation to slow dramatically.

IOs backed by current coupon or discount coupon loans offer very little hedging value and are primarily investment vehicles. Many bankers have purchased such IOs for hedging purposes without fully understanding how prepayment assumptions and changes in prepayment speed affect their value. Examiners must look through to the underlying loans when evaluating IOs as hedging instruments.

An IO that is backed by a discount loan (e.g., 8.25 percent) might be priced using a relatively low prepayment speed, for example, 100 percent based on the Public Securities Association (PSA) standard or 6 percent a year for seasoned loans. Even if interest rates rise, the prepayment speed will not slow down much below 100 percent PSA, because of demographic factors, such as age, family size, and local economic conditions. Once the rate of prepayments has slowed to a certain point, prepayment factors other than interest rates keep it from slowing further.

This "natural" resistance limits the potential price appreciation for IOs backed by discount loans. A bank that purchases these IOs expects that prepayments will not increase. If prepayments do increase, the yield on the IO is affected negatively. IOs backed by discount loans perform as investments, not hedges, and should be viewed as such by banks.

POs as Hedges

A PO backed by discount loans ("Discount POs") can be a useful hedging instrument if a banker is exposed to falling interest rates. Mortgage bankers assert that Discount POs offer protection for servicing portfolios. If a bank owns a PO backed by discount loans, it is likely that if interest rates fall, prepayments will rise, and the PO's value will increase. When the PO backed by the discount loans was priced, that pricing was based on a slow prepayment assumption (e.g., 100 percent PSA). Falling interest rates and rising prepayments alter that assumption and affect the PO's value.

A discount PO's value increases when interest rates fall, and prepayments rise, because the principal

balance of the pool of loans is paid off more quickly than expected. If the principal is paid back more quickly to the banker, the banker amortizes the original issue discount more quickly and recognizes more income. Remember that all POs are purchased at a deep discount because there is no interest receipt attached.

Unlike IOs where the prepayment rate effect and the discount rate effect move counter to each other, for POs, the prepayment effect and the discount rate effect move together. For example, when rates are falling, prepayments speed up which increases the PO's value. Moreover, the falling rate environment means that the yield curve is lower and the discount rates used to determine market value are lower which also increases the PO's value. POs, therefore, are more volatile from a price sensitivity perspective.

POs backed by current coupon or premium coupon loans offer very little hedging value in a decreasing rate scenario and are primarily investment vehicles. Many bankers have purchased such POs for hedging purposes without fully understanding how prepayment assumptions and changes in prepayment speed affect their value.

Examiners must look through to the underlying loans when evaluating POs as hedging instruments. A PO backed by a premium loan (e.g., 10.50 percent in today's market where the current market rate is 8.75 percent) is priced using a relatively high prepayment speed, for example, 400 percent based on the Public Securities Association (PSA) standard or 24 percent a year for seasoned loans. Even if interest rates fall, prepayment speed will not increase much above 400 percent to 500 percent PSA for any significant length of time. Once those consumers that can refinance do, the "burnout" factor will begin to take effect and prepayments will slow.

This "natural" resistance limits the potential price appreciation for POs backed by premium loans. A bank that purchases these POs expects that prepayments will not decrease. If prepayments do decrease, the yield on the PO is affected negatively. POs backed by premium loans perform as investments, not hedges, and should be viewed as such by banks.

POs have more liquidity than IOs because they are often used in CMOs, or REMICs, as collateral. The demand for collateral keeps the PO market more

efficient than the 10 market (e.g., tighter bid/ask spreads).

IO and PO Pricing Risk

The largest abuse in 10 and PO pricing arises from incorrect prepayment speed assumptions. Many brokers price IOs and POs using "adjusted" prepayment speeds that show the instrument in the best possible light.

For example, if a broker prices an IO with artificially slow prepayment speeds that do not reflect the market's actual prepayment expectations, the yield on the 10 looks better and justifies a higher price to the broker (more commission).

If a bank looking for a hedge buys an IO backed by premium mortgage loans that is based on an incorrect prepayment speed assumption, the IO will not perform its expected hedging function. A prepayment speed assumption that is too low results in a price higher than the IO's economic value. Brokers are motivated to use inaccurate assumptions because a higher price for the 10 means a higher commission. If a bank has paid too much for an IO, even if rates increase and prepayments slow down, the 10 still would not appreciate in price. The price appreciation that the bank would normally expect from a slowdown in prepayments has already been paid to the broker.

Purchasing an IO that was priced based on an artificially low prepayment assumption is similar to buying a house at an inflated price based on an inaccurate appraisal. Other houses in the neighborhood may appreciate in price, but a house bought at an inflated price will not appreciate until prices for comparable houses have caught up.

Liquidity

Although the market for IOs and POs is quite large, more than \$22 billion at year end 1991, the bid/ask spread for IOs and POs remains relatively wide. For large institutional buyers, the bid/ask spread is about 1/4 to 1/2 of a point for POs, and slightly more for IOs. For smaller buyers, the spread is larger and is limited only by whatever the market will bear. *Caveat emptor* applies to this market! If a buyer agrees to a price that reflects an incorrect prepayment assumption, the offer side of the market can be as much as two or three points over the bid. Inaccuracy in the prepayment assumption is the most influential factor affecting pricing.

Discount Rate Assumptions

This IO/PO discussion has focused on the importance of the prepayment assumption, but equally important is the effect of a changing yield curve (the discount rate effect). Remember that, when evaluating market value, cash flows are generated (prepayments effect) and discounted (discount rate effect).

An IO investor must avoid purchasing an IO in a steep yield curve environment in which short-term rates are low and long-term rates high and then have the yield curve invert. If the yield curve inverts, so that long-term rates are low and short-term rates high, prepayments would not change, because they are driven off the long end of the curve. The discount rates, however, would have risen dramatically in the short end, where the present value effect is greatest. The stream of interest receipts would remain the same, while discount rates rise, causing a decrease in value.

PO investors must avoid an increase in the overall level of the curve, for example, a 200 basis point shift up in the curve, followed by an inversion. Prepayments slow down because mortgage origination rates have risen, and the short end of the curve rises even more which increases the discount rate, and lowers the value of the PO.

Residuals

The residual interest, originally, was merely the "leftovers" associated with each bond payment period. This "leftovers" term is a little vague, but does connote the idea that most of these "traditional residuals" were risky and difficult to sell once owned by an investor. Unfortunately for the thrift industry, many of these traditional residuals found their way into thrift investment portfolios. They were found attractive by the thrifts for their tremendously high yields (not a good measure of risk if the market for the product is highly illiquid). Many examiners confuse the Z tranche with the residual. Although this can be true under the Real Estate Mortgage Investment Conduits (REMIC) legislation, these are generally two different bonds.

Generally, there were three sources of receipts for the residual investor. The first was merely the interest rate differential. The weighted average coupon of the underlying MBS was 8 percent, in our example, and let's assume that the weighted average coupon rate for all the GMO tranches was 7.90

percent. This leaves 10 basis points that would flow through to the residual holder every bond payment period.

A second source was the over-collateralization of the CMO. In the early years, many CMO structures deposited more collateral for tax purposes than was actually needed. Once the collateral needed to support the remaining bonds was determined, some collateral could be released to the residual holder.

A third source of receipts came from reinvestment income. Many early CMOs received interest from the MBS in the trust on a monthly basis, but paid out interest and principal on the bonds quarterly. The trustee was required to reinvest idle funds. This generated some income that was distributed to the residual holder.

Since the REMIC legislation, many of the tax reasons for over-collateralization and other inefficient structuring features were removed from CMO structuring. In fact, a REMIC and a CMO are identical from an economic perspective and only differ from a tax perspective. Simply put, a REMIC is a "tax improved" CMO.

The REMIC legislation was one reason that led to the demise of the "traditional" residual discussed earlier. However, the REMIC legislation did require the CMO/REMIC issuer to designate one of the classes of the CMO/REMIC as the residual class. Some of these residual classes have risky interest rate profiles and poor bid/ask spreads. Some others are limited risk classes with strong bid/ask spreads. The label "residual" does not carry as much information as it once did.

II. Market—Where to Find Current Value and Ratings

(Refer to Collateralized Mortgage Obligations section.)

III. What You Should Look for (Suitability)

Under BC-228, most SMBs and residuals will be considered "high risk." As such, these securities typically will be unsuitable for national bank investment.

As a general rule, most banks should not purchase IOs and POs. Only well-capitalized banks with expert personnel, sophisticated models, and strong

control systems can purchase IOs and POs safely. IOs and POs are relatively risky securities that are highly sensitive to prepayment and discount rate assumptions.

If efficiently priced, IOs backed by premium mortgage loans perform both an investment function and a limited hedging function (duration hedge, but increased negative convexity). IOs backed by discount mortgage loans perform only an investment function. If efficiently priced, POs backed by discount mortgage loans perform both an investment function and a hedging function. Other POs are purely investments.

Although residuals originating from early CMOs occasionally behave like IOs, residuals in general are not effective hedges. An investor proposing to use a residual for hedging purposes must analyze the prepayment speeds used in pricing the residual and the anticipated prepayment behavior of consumers and the impact on the residual's value or price.

In any case, a banker using SMBs or residuals to hedge interest rate risk must demonstrate that the "high risk" security reduces the interest rate risk exposure of the bank.

IV. Accounting Treatment

(Refer to the sections on Pass-through Securities and Collateralized Mortgage Obligations.) Accounting for IOs and POs is similar to accounting for a zero-coupon bond. However, with an IO, estimates of the total amount to be received must also be determined."

V. Risks

Interest Rate Risk: Interest rate risk for IOs, POs, and residuals is high. As with U.S. Treasury STRIPS, the volatility of SMBs can be different than the volatility of the underlying mortgage-backed security. Residuals typically have a price volatility similar to zero coupon bonds. As is true with pass-through securities, a longer WAL will result typically in higher interest rate risk. The longer WAL of SMBs and residuals results in higher price volatility. As noted in the Finance Concepts subsection of the Mortgage-backed Securities section, as the WAL and duration of a security increases, the price volatility of the security also increases. Unless the investor can reasonably estimate the prepayment behavior

anticipated for mortgages underlying a SMBS or residual CMO tranche, a sound assessment of the price or value of the securities cannot be performed.

Credit Risk: Credit risk must also be evaluated on a case-by-case basis. The credit risk in a given SMBS or residual should parallel the credit risk of the underlying mortgages or mortgage-backed securities. In most cases, credit risk will not be significant with SMBSs and residual tranches.

Liquidity Risk: Unlike the mortgage-backed pass-through and CMO markets, most SMBSs and residuals have limited secondary markets. These high-risk tranches generally have a wider bid/ask spread of anywhere from 1/2 to 5 points. The

investor should assess market liquidity prior to the purchase of any SMBS or residual CMO tranche.

VI. Legal Limitation

(See discussion on private label pass-throughs in the Pass-through Securities section.)

VII. Risk Asset Capital Weight

SMBSs 100 percent
Residuals 100 percent

VIII. References

(Refer to the Mortgage-backed Securities section.)

Municipal Securities

I. Product Description

Municipal securities are debt obligations of a U.S., state or political subdivision, such as a county, city, town, village, or municipal authority. The two principal classifications of municipal securities are "general obligation" and "revenue" bonds.

General obligation (GO) bonds are secured by the pledge of the municipality's full faith, credit, and taxing power, including property taxation, for the payment of principal and interest. GO bonds are considered the safest type of municipal bond.

Sources of revenue for general obligations include property taxes, sales taxes, income taxes, or other taxes. Revenue bonds are payable from the revenues derived from a particular project or facility and generally depend solely on a specific revenue source.

Municipal securities have maturities ranging from one month (notes) to 30 years (bonds). Some municipal securities, known as serial bonds, mature in scheduled stages. Municipal securities may have call or put features. A call feature gives the issuer the right to redeem (call) the bond prior to maturity. A put feature allows the bondholder to submit the bond for payment (put) at some point prior to maturity.

The prospectus will state whether interest income on a municipal bond is exempt from federal taxes. Interest income also may be exempt from state taxes (usually if the municipal bond is issued by a municipal entity in the investor's state of residence). A tax-exempt bond generally will pay a lower rate of interest than a "taxable" U.S. government or federal agency issue of comparable maturity. Therefore, the examiner must compare tax equivalent yields to determine the relative impact of taxable and tax-exempt bonds on earnings. The tax equivalent yield is equal to: the tax-exempt yield divided by $[1 - \text{the marginal tax rate}]$.

Prior to the 1986, banks were allowed to deduct 80 percent of the interest expense on deposits used to purchase or carry most tax-exempt obligations. The 1986 Tax Reform Act eliminated this deduction for all but a limited number of tax-exempt obligations acquired after August 7, 1986. After this date, the deduction is allowed only for obligations of "small issuers" that do not issue obligations aggregating

more than \$10 million a calendar year. As a result, municipal investments that do not meet the "small issuer exemption" are now much less attractive as a bank investment, unless their yield is increased to compensate for the higher cost to carry. Banks can deduct the interest expense used to carry "grandfathered" municipal bonds acquired on or before August 7, 1986.

Banks are also authorized to purchase bond anticipation notes (BANs), tax anticipation notes (TANs), and revenue anticipation notes (RANs). A bond anticipation note is a short-term security issued by a community and repaid from the proceeds of planned permanent financing. A tax anticipation note is a short-term security against which expected future real estate levies are pledged. RANs are issued for much the same purpose as TANs, except that the revenues anticipated are not general tax receipts.

As previously mentioned, a general obligation bond is supported by the full borrowing and taxing authority of a government. Sources of revenue may include property taxes, sales taxes, income taxes, or other taxes. When evaluating the credit quality of a general obligation bond, financial analysts consider factors such as the debt level of the municipality, the issuer's budget, sources of revenue, and the overall economic health of the community.

Revenue bonds are repaid from the cash flow generated by the operating projects being financed. It is important to understand what the bond proceeds are to be used for and what revenues are available for repayment. The following are several examples of revenue bonds and information concerning proceeds and repayment sources.

- *College and University Revenue Bonds.* The revenue securing college and university revenue bonds usually includes dormitory room rental fees, tuition payments, and sometimes the general assets of the college or university.
- *Multifamily Revenue Bonds.* These revenue bonds are usually issued for multifamily housing projects for senior citizens and low-income families. Housing revenue bonds are usually secured by mortgages that are federally insured, by federal government operating subsidies, or by local property tax reductions.

- *Single-Family Mortgage Revenue Bonds.* Single family mortgage revenue bonds are usually secured by the mortgages and mortgage loan repayments on single-family homes. Security features vary, but can include FHA, VA, or private mortgage insurance.
- *Airport Revenue Bonds.* The revenues securing airport revenue bonds usually come from either traffic-generated sources—such as landing fees, concessions fees, and airline apron-use and fueling fees—or lease revenues from one or more airlines for the use of a specific facility, such as a terminal or hangar.
- *Hospital and Nursing Home Revenue Bonds.* The security for these bonds depends on federal and state reimbursement programs (such as Medicaid and Medicare), third-party commercial payers (such as Blue Cross, HMOs, and private insurance), and individual patient payments.
- *Public Power Revenue Bonds.* Public power revenue bonds are secured by revenues to be produced from electrical operating plants.
- *Sewer Revenue Bonds.* Revenues for sewer revenue bonds come from hookup fees and user charges. For many older sewer bond issuers, substantial portions of their construction budgets have been financed with federal grants.
- *Industrial Development Bonds (IDBs)* are another specific type of revenue bond. IDBs are typically issued by local industrial development authorities to benefit private commercial and industrial development. Although IDBs are issued by a state, political subdivision or agency, the municipality's credit does not support the IDB. The IDB is an obligation of the private owners of the project. Depending on the particular issue, IDBs provide either taxable or tax-exempt income. The Tax Reform Act of 1986 was designed to restrict the issuance of IDBs, but many issues are still outstanding. (See section RC-B of the Call Report Instructions.)

II. Market—Where to Find Current Value and Ratings

Prices for municipal securities normally are not available in daily newspapers. Two publications that

quote municipal prices are *The Daily Bond Buyer* (mainly new municipal issues) and the *Blue List of Current Municipal Offerings* published by Standard and Poor's. This second publication has details of secondary market offerings and is available through subscription or through a broker.

Municipal securities are rated by Moody's Investors Service and Standard and Poor's.

III. What You Should Look for (Suitability)

Municipal securities should be of investment grade, e.g., credit risk should be very small. The legal restrictions of 12 CFR '1 apply to municipal securities. Special tax treatments must be considered when a bank is purchasing municipal securities.

IV. Accounting Treatment

A municipal security should be booked at cost. If the security is purchased at other than par value, the book value must reflect any unamortized premium or unaccreted discount. Any accrued interest included in the purchase of a security should be recorded separately as an "Other Asset" to be offset upon collection of the next interest payment.

The preferred method for reporting purchases and sales is as of "trade date." However, "settlement date" is acceptable if the reported amounts will not be materially different.

Generally, if a security has a call feature, premiums and discounts are amortized/accreted from the date of purchase to maturity. However, if it is probable that the security will be called, amortization/accretion would be over the period up to the call date. If amortization/accretion is taken to the call date and the investments are not called, the premium/discount should be adjusted to the amount that would have been outstanding had the amortization/accretion not been to the call date.

For tax accounting treatment of zero coupon Original Issue Discount municipal bonds, see Banking Bulletin 85-15.

V. Risks

Interest Rate Risk: For fixed-income bonds, prices fluctuate with changes in interest rates. The degree

of fluctuation depends on the maturity and coupon of the security. Variable rate issues are tied to a money market rate, such as U.S. Treasuries, and as such interest rate risk will be significantly less.

Credit Risk: Credit risk is a function of the credit quality of the issuer and the type of obligation (mainly general obligations vs. revenue obligations).

Municipal securities may include credit enhancements, such as insurance from a municipal bond insurance company or a letter of credit issued by a commercial bank or savings and loan. The enhancer is liable for the full and prompt payment of principal and interest on the bonds when due. Credit enhancements are often used to improve the credit rating of a security, thereby lowering the interest that the issuer must pay.

The economic substance of the investment must be considered. When the issuer is not the "economic obligor," it is necessary to assess the economic obligor's creditworthiness. In the case of industrial development bonds (IDBs), for example, the industrial tenant is the "economic obligor" since it, and not the issuer of the bonds, is relied upon to repay the obligation represented by the bonds.

Many of the currently identified problems in the municipal bond market have resulted from the economic obligor's inability to perform. The problems have arisen when the economic obligor or a credit or liquidity enhancer experiences credit or liquidity problems. The default of bonds supported by First Executive GICs and the Mutual Benefit Life "put" bonds are good examples of those problems causing difficulties for municipal bond investors.

Although many municipal securities are rated (see II above), banks may own issues that are not rated. In either case, the bank should perform a periodic credit analysis.

"Refunded bonds" have limited credit risk. Refunded bonds are secured by an escrow fund usually consisting of direct U.S. government obligations in amounts sufficient to pay off the bondholders. If the underlying obligations produce interest earnings sufficient for the full and timely payment of interest on, and principal of the obligation, these bonds may be purchased in unlimited amounts. (See 12 CFR 1.120(e).)

(For any bonds with a below "investment" grade rating as described in the Municipal and Corporate Bond Ratings section, the classification guidelines in Banking Circular 127 apply.)

Liquidity Risk: "General market name" municipals have good liquidity, but issues of obscure municipalities or small issues have inactive markets and may be hard to sell. There is a secondary market for IDBs, but liquidity will vary with each issue.

Other Risk: When a municipality issues a security, it must have the legal authority to issue the debt and must have followed the appropriate legal process in doing so. Since many individual bondholders are not qualified to make such an assessment, municipal securities will have an attached legal opinion. The legal opinion provides added security to any bondholder that must go to court to enforce his or her security rights.

Bonds may contain call features that work to the disadvantage of bondholders. Callable bonds empower the issuer to redeem the issue prior to maturity. If the bond has a high coupon and rates have declined, the issuer will benefit from calling the bond to avoid payment of the higher rate.

VI. Legal Limitations

The limitations of 12 CFR 1 apply to municipal securities. Municipal securities that are general obligations are Type I securities and may be purchased by national banks in unlimited amounts. Municipal securities that are revenue bonds are "Type II or III" securities, and purchases are limited to 10 percent of capital and surplus (5 percent based on reliable estimates.)

Type II securities include "obligations issued by any State or political subdivision or any agency of a State or a political subdivision for housing, university, or dormitory purposes. Investment in these securities is limited to 10 percent. (For a description of these securities, see 12 CFR 1.140.)

If Industrial Development Bonds (IDBs) are considered to be revenue bonds, purchases are limited to 10 percent of capital and surplus. If the IDB is considered to be a loan per Call Report Instructions, the investment is limited to 15 percent of capital. These limits must be considered in light of similar

investments or loans to the IDB's "economic obligor," not the IDB issuer.

VII. Risk Asset Capital Weight

General Obligations—20 percent, BANs and TANs-20 percent, RANs-50 percent, Municipal Housing, University or Dormitory Bonds-50 percent, Hospital Bonds-50 percent, Municipal Revenue Bonds-50 percent, Industrial Development Bonds-100 percent.

(For others, see ISD Notice 25.)

VIII. References

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Comptroller's Handbook for National Bank Examiners, Section 203 (Washington, D.C., March 1990).

Banking Bulletin 85-15, Investment Limits, July 8, 1985.

Banking Circular 127 (Rev.), Uniform Agreement on the Classification of Assets and Appraisal of Securities Held by Banks, April 26, 1991.

Investment Securities Division Information Notice 25, Listing of National Bank Securities Activities, November 7, 1989.

Off-balance Sheet Products

This section describes the primary off-balance sheet products used by commercial banks; namely, options, swaps, futures, and forwards. The information is designed to identify the products, provide definitions, and aid examiners in evaluating bank management's proficiency in using the products. This section focuses on a purchasing bank's use of the products, but sometimes refers to dealer operations to clarify and provide more comprehensive background information.

Since managing financial risk is becoming more important to banks, the use of off-balance sheet products will continue to grow. As the markets become more liquid and information is proliferated, more banks will use off-balance sheet products to manage various risks or to improve income through speculating on price movements. Examiners must understand the characteristics of these products and the techniques for managing the risks they create.

Options

I. Product Description

The owner of an option contract has the right to buy or sell a specified asset, at a specified price, on or before a specified date. The party granting the right is referred to as the option seller, or writer, and the party receiving the option is called the option buyer. The seller is obligated to perform on the contract, whereas the purchaser has a right, but not an obligation, to perform on the contract.

A call option gives the buyer the right to purchase the underlying instrument and a put option gives the buyer the right to sell the underlying instrument. Purchasing a call option is considered a long position and the buyer expects to profit from the price of the

underlying instrument exceeding the strike, or exercise price, within the life of the contract. The put purchaser expects to profit from the price of the underlying instrument declining below the exercise price of the contract. The exercise price is the price at which the contract owner has the right to buy or sell the underlying instrument. Return profiles of a long call, a long put, a short call, and a short put are shown in the facing column.

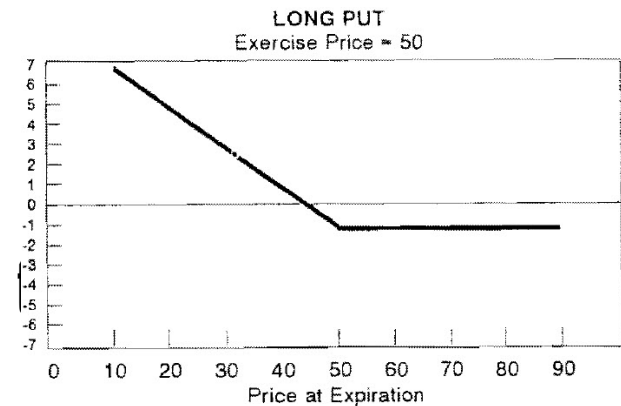
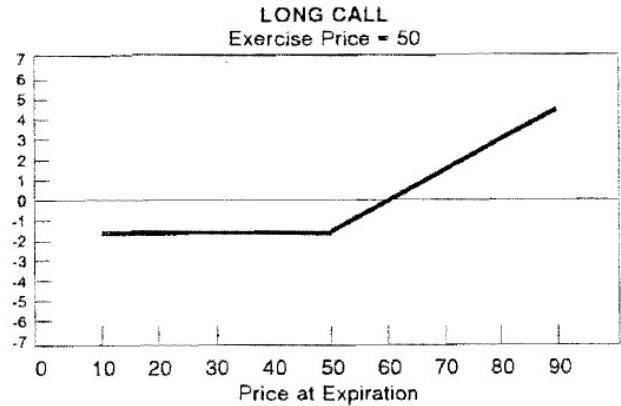
Options are available on a myriad of instruments.

However, commercial banks typically use interest rate and currency options. These types of options can be used in bank dealer activities, in a trading account, or to hedge various risks associated with the underlying instruments or portfolio. This discussion will be limited to the uses of purchased instruments, rather than the trading or warehousing of products.

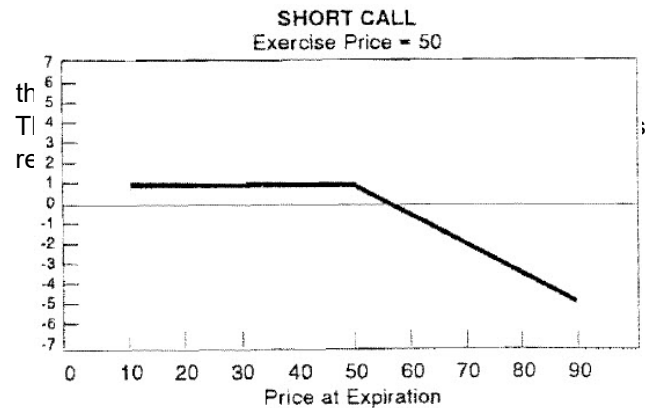
Interest Rate Options

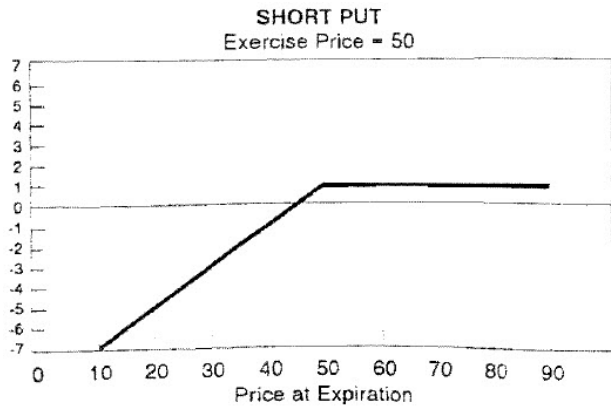
Interest rate options are available on several different contracts, indices, and futures contracts traded on various exchanges. The presence of an exchange offers liquidity to the market and reduces credit risk because the exchange stands between all trades. Banks are permitted to engage in these contracts to manage overall interest rate exposure, exposure on a specific contract, or in conjunction with the trading department.

Options on short-term interest rates are available on



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rates. Other short-term interest rate options include options on Eurodollar time deposit futures contracts and those on T-bill futures contracts. These instruments are available on the International Monetary Market (IMM) of the Chicago Mercantile Exchange.

Options on long-term interest rates are also available on the CBOE. These options are based on the average yield to maturity of the 7- and 10-year T-notes and the 30-year T-bond. Other long- and intermediate-term interest rate options include options on T-bonds and T-notes and are available on the Chicago Board of Trade (CBOT).

Interest rate options are also available in the OTC market. OTC interest rate options are used by banks because they can be specially tailored to fit a bank's particular risk management needs. They are not standardized like the exchange traded options and can have as long a maturity as required to hedge the particular interest rate risk. The OTC options used primarily by banks are interest rate caps, floors, and collars.

An interest rate cap, or ceiling, allows a party to hedge against increasing interest rates over a predetermined rate for a specified period of time. The purchaser of an interest rate cap receives from the cap writer the excess of a reference rate (usually a floating rate index), over the cap rate. The payment received, if any, will occur on specified settlement dates. If the cap rate equals or exceeds the reference rate, no payments are made. An example of when management would purchase an interest rate cap would be if the bank were liability sensitive, when asset repricing maturities were longer than their liability repricings, and management decided that the probability of rates increasing was high. An interest rate cap could be purchased, and if rates increased as expected, the profit on the interest rate cap could be used to offset the bank's increased funding costs.

An interest rate floor allows the purchaser to hedge against rates declining below a specified (floor) rate over a period of time. The purchaser of the floor will receive payments from the floor writer when the reference rate falls below the floor rate. The payments will be the difference between the floor rate and the reference rate. If the floor rate is less than the reference rate, no payments are made. An

example of when management would purchase an interest rate floor would be if the bank were asset sensitive, where asset repricing maturities were shorter than liability repricings, and management decided that the probability of rates declining was high. An interest rate floor could be purchased and if rates did decrease as expected, the profit on the floor could be used to offset lower yields on the variable rate assets.

An interest rate collar is a combination of a cap and a floor. The purchaser of a collar buys a cap and sells a floor. The premium earned on the floor offsets the price paid for the cap. The collar essentially allows the bank to receive cap protection at a reduced premium cost. However, the bank sacrifices the right to fully benefit from a substantial drop in rates since the collar only allows the bank to benefit from falling rates until the floor is reached.

Currency Options

Currency option trading is a large part of many large banks' trading operations. These options are traded for customers, traded for profit, and used in the overall management of exposure to foreign exchange. Exchange traded options are available on all major currencies, including the U.S. Dollar, Japanese Yen, German Deutschemark, British Pound Sterling, Swiss Franc, Canadian Dollar, French Franc and Australian Dollar. Options on the futures contracts of these "major" currencies are also traded on various exchanges. Options on several other currencies are available on various exchanges. The most liquid of the currencies are the Mark, Yen, Pound, and \$US.

Currency options can be used to hedge a bank's exposure to foreign exchange rate movements. This exposure can come from various sources, including loans and securities denominated in foreign currencies. An example of when a bank would use a foreign currency option would be if it had a bond denominated in German Marks. If the mark depreciates against the dollar while the bank holds the bond, the bank will lose money when converting the marks back to dollars. Bank management could purchase a put option on the mark which allows the bank to sell the mark at a given price. If the mark does depreciate, the profit on the put could be used to offset the exchange loss on the mark-denominated bond.

II. Market—Where to Find Current Value and Ratings

Options contracts can be exchange traded, standardized, and traded on an organized exchange, or over-the-counter (OTC), which are customized and usually to accommodate a specialized hedging requirement. Exchange-traded options are traded on several exchanges, both in the U.S. and abroad. Exchange-traded options have standardized specifications and the exchange is the counterparty on all trades, thus reducing credit risk. The counterparty on an OTC option can be a broker-dealer, institution, or an individual. Therefore, OTC options usually contain more credit risk, along with the other risks associated with exchange-traded options. The "Money and Investing" section of *The Wall Street Journal* contains price information on exchange-traded options traded in the U.S.

III. What You Should Look for (Suitability)

Options are legitimate products that commercial banks may use to hedge various interest rate and currency risks. The most obvious approach would be hedging a specific instrument with a specific option. For example, management has a T-bond that it wants to hedge to counter a rise in interest rates, which would cause the price of its bond to drop. Management could purchase a put on the T-bond giving it the right to put the bond to the option seller at a pre-determined price. If rates rise, the bank can put the bond and avoid a loss. If rates do not rise, management has only lost the money paid for the option.

Options strategies can also be used to enhance returns on specific instruments or on a portfolio of instruments. An example of this would be covered call writing. The premium received on the call option will enhance the overall return on the bond. Management must consider, however, that if the price of the bond rises, it risks having the bond called away. Banks that write covered call options must report the underlying security as held for sale at the lower of cost or market value. However, if the bank chooses to continue to carry the underlying security at amortized cost, its policies and procedures must prohibit the delivery of the underlying security. A written agreement with the option holder must state that the bank will settle only in cash upon exercise of the option.

Options can also be used to speculate on price movements. This activity should be limited to banks with strong capital and the management sophistication to manage the risks involved. Management must be able to explain the reasons for their options strategies. The line between hedging and speculating is often thin.

The examiner must ensure that bank management understands the risks associated with these products and implements systems and controls to quantify and manage those risks. Specifically, this will include an analysis of the following:

Policies: Management must implement specific written policies which authorize the activities in which the bank will engage. The policies should set limits for all the risks associated with these products including, but not limited to, position limits, maturity limits, credit limits, and earnings-at-risk limits. These limits should be incorporated into the risk management system used by the bank. Limits should also be established for delta, gamma, vega, and theta (refer to the paragraph on Other Risk in this section).

Procedures: Management must establish procedures and internal controls to ensure that policy limits are enforced. Procedures should be written for credit approval; segregation of duties in operations; revaluation, if necessary; and, provision of periodic reports to management.

Risk Management System: The risk management system must include a model to quantify accurately the risk associated with the position and to provide the means to manage the risk effectively. The risk should be monitored relative to the limits imposed by the policies. In hedging situations, correlation studies for the appropriate instruments should detail the mechanics of the hedge. Examiners must ensure the accuracy of the models used to measure and monitor the risk. This may include analyzing earnings of the position, or the gains and losses associated with given hedges, and comparing these to the expected result. The system must incorporate all risks associated with the product and accurately reflect them relative to limits on earnings at risk.

Audit: Internal and external audits should be performed on this area. Examiners must determine the adequacy of each. This should focus particularly on the effectiveness of internal controls and the adequacy of the management information system. This

area should also address management's willingness to implement the proper control systems to monitor activities of this sophistication. Examiners will also determine the expertise of the auditors.

The lack of the above information may lead to unsafe and unsound banking practices.

IV. Accounting Treatment

A bank engaging in options should have accounting policies and procedures that include recordkeeping requirements, and methods for determining whether options are reducing or increasing risk and for accounting for each option, based on its type and purpose. Accounting policies and procedures for options should be approved by the board of directors. They should be designed to ensure consistent and appropriate accounting for options.

Regulatory accounting requirements for options are in the Call Report. The accounting method used depends on whether the bank has sold (written) or purchased the option.

Accounting by the Purchaser

The purchaser of an option does not record market valuation adjustments. If the market value of the underlying financial instrument is unfavorable relative to the contract price, the purchaser will generally allow the option to expire unexercised. The purchaser recognizes a gain only at the time the option is exercised.

The par value of the instruments underlying each outstanding option contract purchased should be reported in Call Report Schedule RC-L "Off-Balance Sheet Items." The notional principal amount of caps, floors, and collars is also included in Schedule RC-L of the Call Report.

For all options contracts, netting of purchased options against written options is not permitted. In addition, banks may not offset their written options to buy against their written options to sell.

Accounting by the Seller

The seller of an option must account for that option at the lower of its cost or market value. In addition, fee income received by the seller of an option must be deferred until the option expires, is exercised, or is

terminated. Market values of outstanding written options should be determined at least monthly and more often if the bank maintains a material amount of these contracts.

The determination of the lower of cost or market adjustment depends on whether the seller of the option is obligated to purchase or sell the underlying asset. If the seller of the option is obligated to *purchase* the underlying asset, losses are recorded if the market value of the asset is less than the contract price minus the deferred option fee. For example, assume the bank wrote an option to purchase a Treasury note in 30 days for \$100,000. The bank received a fee of \$1,000 for a net contract price of \$99,000. If the current market value of the Treasury note is \$98,000, the bank would record an unrealized loss of \$1,000.

If the seller of the option is obligated to *sell* the underlying asset, losses are recorded if the market value of the underlying asset is greater than the contract price plus the deferred option fee. For example, assume the bank wrote an option to sell a Treasury note in 30 days for \$100,000. The bank received a fee of \$1,000 for a net contract price of \$101,000. If the current market value of the Treasury note is \$102,000, the bank would record an unrealized loss of \$1,000.

Unrealized losses are reported as other noninterest expense in the Call Report with an offsetting entry to other liabilities. If there is no unrealized loss, deferred fees are recorded as other liabilities. If an option contract expires unexercised, any related deferred fee income may be reported as other income.

If an option contract is settled prior to its maturity, the deferred fee income is accounted for as an adjustment of the settlement amount. Net settlement gains are reported as other noninterest income. Net settlement expenses are reported as other noninterest expense.

If an option requires the seller to purchase an asset, the deferred fee income is used to reduce the cost basis of the acquired asset if the option is exercised. Assets acquired should be recorded at the lower of this adjusted cost or their market value on the date of purchase. If an option requires the seller to sell an asset, the deferred fee income should be accounted for as an increase in the sales price of the asset sold.

V. Risks

Interest Rate Risk: Only open positions will possess interest rate risk. Using an option as a hedging vehicle is intended to reduce interest rate risk.

Credit Risk: Negligible for exchange-traded options because the exchange is the counter party on every trade. OTC options contain credit risk because the purchaser (and not the seller) is exposed to the counterparty performing on the contract. The exposure is limited to the amount of the cost to maintain the required position if the counterparty fails to perform. Also, credit risk is only evident if the option is in-the-money. There is no risk if the option is out-of-the-money because it will go unexercised.

Liquidity Risk: Liquidity risk depends on the contract and the expiration. Usually, OTC contracts contain more liquidity risk since they are customized contracts that may serve only a specified purpose.

Other Risk: Theoretical risk measures.

Delta measures the sensitivity of an option's price for a given change in the spot price of the underlying commodity.

Gamma measures the sensitivity of Delta to changes in the price of the underlying instrument. It measures the amount Delta will move when the spot rate moves. It is very important when hedging because it determines the amount the option book will have to change to maintain an effective hedge.

Theta, or time decay, is the sensitivity of an option's price to the passage of time. The value of an option will decrease as time passes, but it does not do so at an even rate. Theta can also be thought of as "rent" paid for maintaining a gamma position.

Vega, or volatility risk, is the sensitivity of the price of an option to changes in volatility.

VI. Legal Limitations

Options are not considered investment securities under 12 USC 24(7th). However, the use of these contracts is considered to be an activity incidental to banking, within safe and sound banking principles. Refer to subsection III, Suitability, in this section for details on the systems, controls and limits which bank management must implement prior to engaging in options activities.

VII. Risk-based Capital Requirement

Foreign exchange, commodity, and interest rate contracts have the following process for determining the risk-based capital requirement. Three steps determine: the current credit exposure; the potential credit exposure; and the risk-weight. Additional details follow:

1. Mark to market (positive values only).
2. Add-on for potential credit exposure:
 - Interest Rate 0 % (\leq 1 Yr.) .5 % ($>$ 1 Yr.)
 - Exchange Rate 1 % (\leq 1 Yr.) 5 % ($>$ 1 Yr.)
3. Assign to Risk Category, Maximum 50 percent.

The risk-based capital requirement is computed by multiplying the sum of the current and potential credit exposure (step one plus step two) by the risk weight (step three).

Note also that exchange rate contracts that have an original maturity of 14 calendar days or less and instruments traded on exchanges and subject to daily margin requirements are *exempt* from the risk-based capital calculation.

(Further details relative to the risk-based capital calculation can be found in the *Comptroller's Manual for National Banks* under 12 CFR 3.1, Appendix A. If the regulation is still not clear, the Chief National Bank Examiner's Office can assist in finding an answer.)

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Swaps

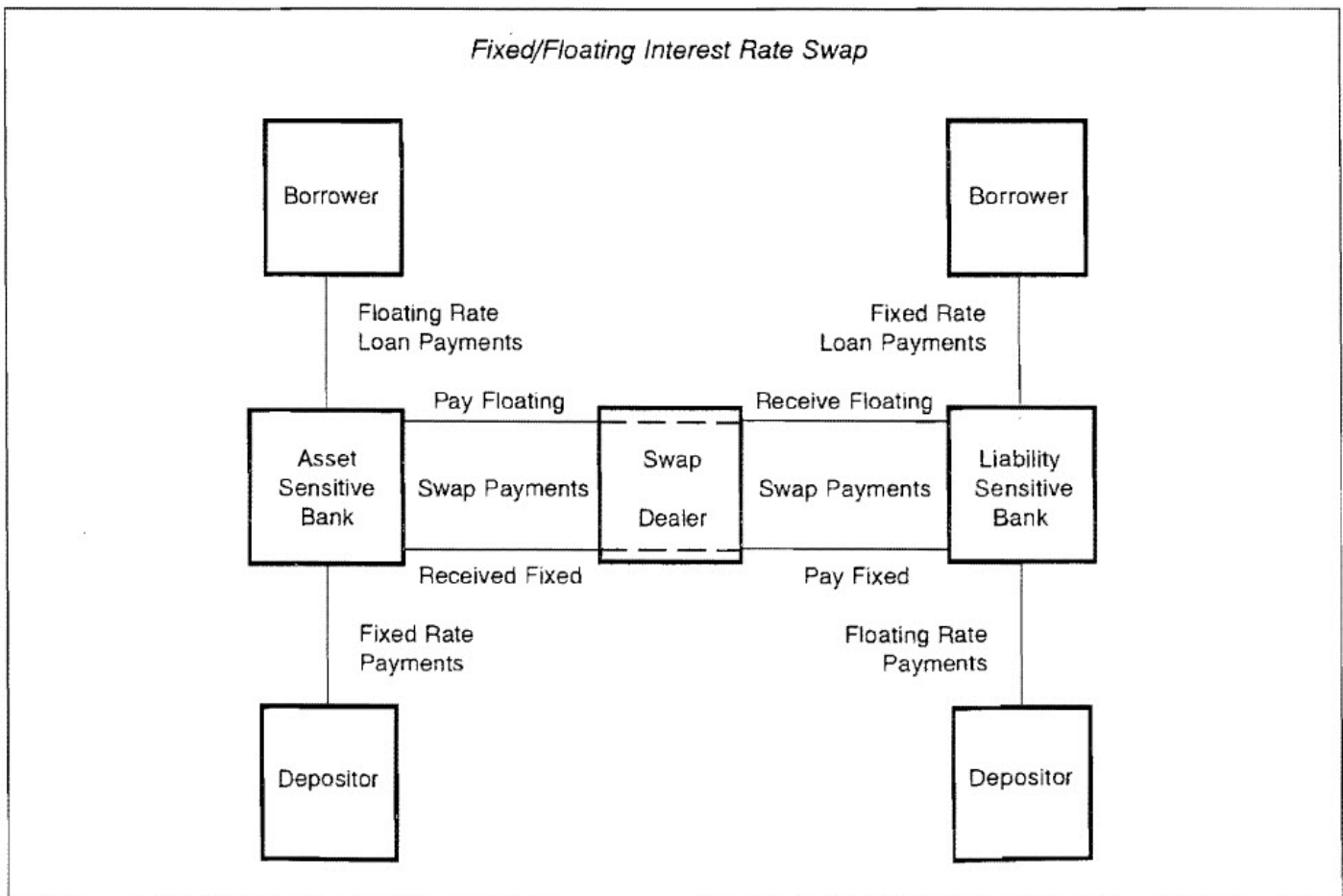
I. Product Description

A swap is a contract between two counterparties to exchange net cash flows on agreed upon dates, for a specified period of time, on an established notional principal. The payment to one or the other counterparties is the difference between the two cash flows. The contracts are usually done between a swap dealer and a customer, rather than between two customers. The swap market originated in the foreign exchange markets in the early 1970s and has since spread to interest rates and commodities.

Banks use interest rate swaps as an asset/liability tool to hedge undesired mismatches. The notional principal outstanding of interest rate swaps has grown to well over \$1 trillion. The commodity swap market is relatively new to domestic banks and is continuing to evolve. The basic structure of a swap is shown below. The example uses a fixed for floating interest rate swap, but the basic structure and mechanics are similar for all swaps.

Although swaps are over-the-counter instruments meaning they are not traded on an organized exchange, there is a degree of standardization in the contracts since the advent of International Swap Dealers Association (ISDA). Counterparties often form a master swap agreement that establishes the basic language of a swap agreement. Master agreements often incorporate the *ISDA Code of Standard Wording, Assumptions, and Provisions for Swaps* to provide basic wording and assumptions. Counterparties can change the master agreement as required.

Banks are a natural intermediary in the swap markets because they, and their customers, have exposure to interest rate, currency and commodity price movements. Banks can offer swaps as a risk management tool for their customers. Also, since banks are in the business of evaluating credit risk, they are suited to analyze their customers' credit risk with the bank itself. Customers do not have to find a



counterparty for their transaction or analyze the counterparty's credit quality.

Banks can run a book of swaps and manage the overall risk on a portfolio basis rather than on a contract-by-contract basis, which is virtually impossible because of the inherently unmatched nature of the swap market.

Currency Swaps

Currency swaps, the oldest type of swap, originated as multinational companies began experiencing increased foreign exchange risk after the breakdown of the Bretton Woods fixed exchange rate system in 1973. A currency swap is similar to an interest rate swap, except the cash flows are based on two different fixed currency rates (e.g., fixed dollar rate for a fixed yen rate).

Interest Rate Swaps

Banks generally will use interest rate swaps in two ways. The first way is as an end user in the overall asset/liability and interest rate risk programs. The swaps will be used to lower their cost of funds or to manage exposure to interest rate movements. The second use normally seen in banks will be as a dealer in the swap market. Several large banks are market makers in interest rate swaps and act as principal for their customers. This type of operation is usually found in the trading or capital markets division of a bank.

Interest rate swaps can be broken into coupon swaps and basis swaps. A coupon swap exchanges an interest payment stream of one configuration for another on the same notional principal, e.g., fixed rate for floating rate. A basis swap bases payments on two floating rate indices, e.g., LIBOR for Prime. Interest rate swaps are also used to lower a bank's cost of funds by exploiting credit spreads between the fixed and floating rate markets.

Commodity Swaps

On July 17, 1989, the Commodity Futures Trading Commission (CFTC) gave banks broad exemption from regulation relative to swap transactions involving commodities. A commodity swap is a financial contract between two counterparties that has a periodic payout over its life equal to the net difference between a fixed price and the currently prevailing spot price for a given volume of a commodity. The swap allows an entity to hedge income or

expense structures that are sensitive to the price volatility of one or more commodities.

Since the CFTC exemption, bank participation in this market has been growing rapidly. The majority of the business has been in petroleum products, specifically crude oil and heating oil. The business escalated after the crisis in the Persian Gulf surfaced in August 1990. However, banks have begun to deal in other energy products, such as jet fuel and natural gas and in various metals. To date, the business has been concentrated in large, sophisticated institutions that have the systems capability and technical expertise to manage the risks associated with this product.

II. Market—Where to Find Current Value and Ratings

Swaps are not exchange traded products and have no easily accessible market prices and ratings. Swap dealers quote prices based on the terms of the swap and prices are quoted on a Reuters screen; however, there is no other easily accessible market data.

III. What You Should Look for (Suitability)

Interest rate, currency, and commodity swaps are legitimate products that banks may use to hedge various risks associated with interest rate, currency, and commodity price movements.

Interest rate swaps generally will be used as an asset/liability management strategy to hedge exposure to fixed or floating rates (coupon swap), to floating rate indices (basis swap), or to lower funding costs. For example, a coupon swap would be used by a bank which has a positive gap (fixed rate funding and floating assets). The bank could enter into a swap agreement with a dealer in which it pays a floating rate and receives a fixed rate, thus achieving a more neutral asset/liability position.

A basis swap could be used if the bank's deposits were tied to the commercial paper rate, while its loans were tied to LIBOR. Although both indices are floating, they do not have 100 percent correlation and could expose the bank to basis risk. The bank could merely enter into a swap in which it receives the commercial paper rate and pays LIBOR, thus limiting its exposure to the basis differentials between LIBOR and the commercial paper rate.

Only banks with sophisticated risk management systems should offer these products as risk management tools for customers (i.e., trading).

The examiner must determine whether bank management understands the risks associated with these products and implements systems and controls to quantify and manage those risks effectively. Specifically, this will include an analysis of the following:

Policies: Management must implement specific written policies that authorize the activities in which the bank will engage. The policies should set limits for all the various risks associated with these products including, but not limited to, position limits, maturity limits, credit limits, and earnings-at-risk limits.

Procedures: Management must establish procedures and internal controls to ensure that policy limits are enforced. Procedures should be written for credit approval; segregation of duties in operations; revaluation, if necessary; and, provision of periodic reports to management.

Risk Management System: The risk management system must include a model to quantify the risk associated with the position and to provide the means to manage that risk effectively. The risk should be monitored relative to the limits imposed by the policies. In hedging situations, correlation studies for the appropriate instruments should detail the mechanics of the hedge. Examiners must ensure the accuracy of the models used to measure and monitor the risk. This may include analyzing earnings of the position, or the gains and losses associated with given hedges, and comparing them to the expected result. The system must incorporate all risks associated with the product and accurately reflect them relative to limits on earnings at risk.

Audit: Internal and external audits should be performed. Examiners must determine the adequacy of each. This should focus particularly on the effectiveness of internal controls and the adequacy of the management information system. This area should also address management's willingness to implement the proper control systems to monitor activities of this sophistication. Examiners will also determine the expertise of the auditors.

The lack of the above information may lead to unsafe and unsound banking practices.

IV. Accounting Treatment

A bank engaging in swaps should have accounting policies and procedures that include recordkeeping requirements and methods for determining whether swaps are reducing risk or increasing risk and for accounting for each swap, based on its type and purpose. Accounting policies and procedures for swaps should be approved by the board of directors. They should be designed to ensure consistent and appropriate accounting for swaps.

Some banks may recognize interest income using the accrual method, similar to other earning assets of the bank. That is, they will accrue the interest income or expense associated with a swap, based on current rates. The income or expense is then recognized over the life of the swap.

Other banks may adopt a more aggressive approach and "upfront" their swap income for "matched" swap positions. This is done by recording, at inception, the present value of the total expected net cash flows of the matched swaps. Banks adopting this method generally believe that the swap is a trading account security and the present value of the net cash flows represents the fair market value of the swap position.

To illustrate the difference between the accrual method and the upfront method, assume a bank enters into a \$10 million notional amount interest rate swap to pay a fixed rate of 9.2 percent and receive LIBOR. They also enter into a \$10 million notional amount swap to receive a fixed rate of 9.3 percent and pay LIBOR. The term of both swaps is five years. The bank effectively has a built in spread of .1 percent on this position. Under the accrual method, the bank recognizes monthly swap income of \$833 (annual spread of .1 percent times \$10 million notional amount divided by 12 months). Using the upfront method, the bank recognizes an immediate gain of approximately \$38,000 (the present value of the five-year net cash flows from the swap, assuming a 10 percent discount rate). This \$38,000 is then amortized over the life of the swap agreements.

Upfronting swap income raises several concerns. First, the present value calculation is a mechanical process, subject to the assumptions of the bank. Discount rates used to compute this present value are difficult to establish and vary greatly between banks.

Another concern is the fact that significant interest rate, credit, operational, and legal risks remain over the life of the swap. These risks may cause the bank actually to realize less income than previously recognized.

In practice, banks that upfront their swap income rarely have perfectly matched swap contracts. Often, the maturities and notional amounts differ. Transactions involving the upfronting of income should be examined closely to ascertain that the bank has not overstated its income materially.

The notional value of all outstanding interest rate swap and similar agreements should be reported in Schedule RC-L. Netting swap agreements is not permitted for regulatory reporting.

V. Risks

Interest Rate Risk: When a swap is used to hedge existing interest rate risk, the overall risk should be lessened. Unmatched positions will have interest rate or basis risk; however, purchasing banks should not engage in this activity.

Credit Risk: Credit risk exists in the swap market because the counterparty may not fulfill the contract. The credit risk for swaps is greater than that for futures, but less than the amount for forwards (pure credit risk). Also, the swap will have credit risk only when it is in-the-money, and not when it is out of the money. The bank must ensure proper credit analysis and proper credit approval to manage this risk.

Liquidity Risk: Liquidity risk varies with the type of swap. Interest rate and currency swaps have liquid markets, but commodity swaps are relatively new and the liquidity in this market is not as deep.

Other Risk: Settlement Risk: Settlement risk exists on the days when the cash flows are exchanged. Bank management must establish proper settlement limits and procedures to monitor the processing of these limits.

VI. Legal Limitations

Swaps are not considered investment securities under 12 USC 24(7th). However, the use of these contracts is considered to be an activity incidental to banking, within safe and sound banking principles. (Refer to subsection 111, Suitability, in this section for

details on the systems, controls and limits that bank management must implement prior to engaging in swap activities.)

VII. Risk-based Capital Requirement

Foreign exchange, commodity, and interest rate contracts have the following process for determining the risk-based capital requirement. Three steps determine: the current credit exposure; the potential credit exposure; and the risk-weight. Additional details follow:

1. Mark to market (positive values only).
2. Add-on for potential credit exposure:
 - Interest Rate 0 % (≤ 1 Yr.) .5 % (> 1 Yr.)
 - Exchange Rate 1 % (≤ 1 Yr.) 5 % (> 1 Yr.)
3. Assign to Risk Category, Maximum 50 percent.

The risk-based capital requirement is computed by multiplying the sum of the current and potential credit exposure (step one plus step two) by the risk weight (step three).

Note also that exchange rate contracts that have an original maturity of 14 calendar days or less and instruments traded on exchanges and subject to daily margin requirements are *exempt* from the risk-based capital calculation.

(Further details relative to risk-based capital calculation can be found in the *Comptroller's Manual for National Banks* under 12 CFR 3.1, Appendix A. If the regulation is still not clear, the Chief National Bank Examiner's Office can assist in finding an answer.)

VIII. References

Fabozzi, Frank J., ed., *The Handbook of Fixed Income Securities*, 2d ed. (Homewood, Illinois: Dow Jones-Irwin, 1987).

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Futures

I. Product Description

A futures contract is an obligation to deliver or receive a specified amount of a commodity or financial instrument at a specified price on a specific date in the future. No cash is passed between the buyer and seller at the inception of the contract. Also, futures contracts rarely settle by actual delivery of the underlying commodity; instead, they are cash settled. Futures contracts are traded on several exchanges in the U.S. and abroad and are available on several financial instruments and commodities. This section will focus on futures on debt instruments and commodities because they are the contracts primarily used by banks.

Interest rate futures are used to speculate on interest rate movements or to hedge exposure to them. This section will focus on the hedging aspects of interest rate futures, although the line drawn between the hedger and the speculator is often indistinct.

Futures contracts are available on government securities, mortgage-backed securities, and Eurodollar time deposits, all of which can be used to hedge interest rate exposure. Typical uses will be to hedge the risk of a particular security, portfolio of securities, or as an asset/liability tool to hedge overall balance sheet exposure.

Using futures contracts in the ways listed above substitutes basis risk for interest rate risk. Although the interest rate risk may be hedged with the offsetting futures contract, the basis differential between the cash and futures markets must be managed. Bank management must determine the correlation between the cash and futures markets relative to all the hedging arrangements used by the bank.

Currency futures are available on major currencies and can be used to hedge exposure to currency movements. An example would be a bank that purchased a foreign currency denominated bond. In addition to the risks associated with domestic bonds, foreign bonds also have foreign exchange risk. If the currency in which the bond is denominated depreciates against the dollar over the term of the bond, the bank will lose money when the bond is exchanged for dollars. However, if the bank enters into a futures contract to ensure a specific amount (the amount of the bond plus interest), at a specific price, and at a

specific time (the maturity date of the bond), the foreign exchange risk can be managed.

Commodity futures will be used primarily to hedge commodity risk incurred from mismatches in swap positions. Since purchasing banks will not be running a commodity swap portfolio, the hedging uses of commodity futures used by commodity swap dealers will not be discussed. The principles are the same as those for interest rate or currency futures.

II. Market—Where to Find Current Value and Ratings

Futures on a variety of underlying instruments are traded on various exchanges around the world. The "Money and Investing" section of *The Wall Street Journal* has the prices of futures contracts traded on domestic exchanges.

III. What You Should Look for (Suitability)

Futures contracts are legitimate risk management products that banks may use to hedge risks associated with interest rate or currency price movements. One of the most common strategies is to hedge a specific instrument with a specific futures contract. For example, a bank owns a \$1MM T-bond and management believes interest rates may rise, thus causing the value of this bond to fall. Management could short sell the equivalent of \$1MM of T-bond futures (10 \$100M contracts). If rates rise and the price of the bond declines, the loss will be offset by the profit associated with the short futures position.

Bank management may also use futures contracts to hedge undesired asset/liability mismatches. For example, a negative gap position could be hedged by shorting interest rate futures. If interest rates rise and cause margins to narrow, the gain associated with the short futures position will offset this loss.

Conversely, long positions in interest rate futures contracts could be used to hedge an undesired positive gap. If rates decline, causing the interest sensitive assets to yield less, the gain on the futures position will help offset the loss. Keep in mind that with either of the above two strategies, the amount of futures contracts bought or sold should reflect the amount of interest sensitive assets or liabilities that management desires to hedge.

Speculating in futures should be done only by those banks with strong capital and the level of risk man-

agement sophistication necessary to manage this type of activity.

The examiner must ensure that bank management understands the risks associated with these products and implements systems and controls to effectively quantify and manage those risks. Specifically, this will include an analysis of the following:

Policies: Management must implement specific written policies that authorize the activities in which the bank will engage. The policies should set limits for the risks associated with these products including, but not limited to, position limits, maturity limits, credit limits, and earnings-at-risk limits that should be incorporated into the risk management system used by the bank.

Procedures: Management must establish procedures and internal controls to ensure that policy limits are enforced. Procedures should be written for credit approval; segregation of duties in operations; revaluation; and, provision of periodic reports to management.

Risk Management System: The risk management system must include a model to quantify accurately the risk associated with the position and provide the means to effectively manage that risk. The risk should be monitored relative to the limits imposed by the policies. In hedging situations, correlation studies for the appropriate instruments should detail the mechanics of the hedge. Examiners must ensure the accuracy of the models used to measure and monitor the risk. This may include analyzing earnings of the position or the gains and losses associated with given hedges and comparing them to the expected result. The system must incorporate all risks associated with the product and accurately reflect them relative to limits on earnings at risk.

Audit: Internal and external audits should be performed. Examiners must determine the adequacy of each. Audits should particularly focus on the effectiveness of internal controls and the adequacy of management information systems. This area should also address management's willingness to implement the proper control systems to monitor activities of this sophistication. Examiners will also determine the expertise of the auditors.

The lack of the above information may lead to unsafe and unsound banking practices.

IV. Accounting Treatment

A bank engaging in futures should have accounting policies and procedures that include recordkeeping requirements and methods for determining whether futures are reducing risk or increasing risk and for accounting for futures contracts. Accounting policies and procedures for futures should be approved by the board of directors. They should be designed to ensure consistent and appropriate accounting for futures.

Accounting for futures should follow the requirements of the Instructions to the Call Report. The Call Report requires banks to account for futures consistently, either at market value or at the lower of cost or market value.

Market values on all futures should be determined at least monthly, or more often, if the bank has a material amount of these contracts.

The par value of outstanding futures should be reported in Call Report Schedule RC-L "Off-Balance Sheet Items." For reporting purposes, contracts are considered outstanding until they have been cancelled by acquisition or delivery of the underlying security, or, for futures *only*, by offset. For Call Report purposes, offset is defined as the purchase and sale of an equal number of contracts on the same underlying instrument for the same delivery month, executed through the same clearing member on the same exchange.

Offsetting allows a bank to net the contracts involved to report in Schedule RC-L. Note, however, that offsetting is permitted only for futures contracts that meet the above requirements and not for forwards.

For futures that are accounted for on a mark-to-market basis, net valuation gains should be reported as other noninterest income in the Call Report. Net valuation losses should be reported as other noninterest expense. For futures that are accounted for on a lower of cost or market basis, write-downs to market are recorded as other noninterest expense on the Call Report.

Note that regulatory accounting does not permit loss or gain deferral for futures (hedge accounting). In other words, a bank accounts for these contracts the same, whether they are entered into for speculative or hedging purposes. The only exception to this

policy is for mortgage banking operations. Banks are permitted to use hedge accounting for mortgage banking operations.

V. Risks

Interest Rate Risk: Varies with the purpose and types of contracts used. Open futures positions will have interest rate risk just as an open position in other types of contracts. Futures contracts should be used to hedge (rather than increase) interest rate risk on a bank-wide basis.

Credit Risk: Virtually no credit risk because the exchange stands between all trades.

Liquidity Risk: Little liquidity risk involved with financial futures. However, open interest and other position limits should be implemented and monitored to ensure that a position does not become too large to unwind at a reasonable price. Furthermore, liquidity risk must be monitored and understood for the various products. Some types of futures have much more liquidity than other futures. Also, liquidity is generally greater for short dated contracts and less as the maturities increase.

Other Risk: Settlement Risk, Basis Risk

Settlement risk will exist when the contract expires and the underlying instrument will be delivered. Settlement limits should be established by contract and by counterparty.

Basis risk exists when using futures contracts as hedges because futures and cash prices do not always move in the same manner. Management needs to address and manage this risk particularly when the contract type or maturity of the two instruments is not exactly matched.

VI. Legal Limitations

Futures are not considered investment securities under 12 USC 24(7th). However, the use of these contracts is considered to be an activity incidental to banking, within safe and sound banking principles. Refer to subsection 111, Suitability, in this section for details on systems, controls, and limits that bank management must implement prior to engaging in futures contract activities.

VII. Risk-based Capital Weight

Futures contracts are exempt from risk-based capital weighting, because they are traded on organized exchanges which require daily margin payments.

(Further details relative to the risk-based capital weighting calculation can be found in the *Comptroller's Manual for National Banks* under 12 CFR 3.1, Appendix A. If the regulation is still not clear, the Chief National Bank Examiner's Office can assist in finding an answer.)

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Banking Circular 79 (3rd Rev.), National Bank Participation in the Financial Futures and Forward Placement Markets, April 19, i 983.

Forwards

I. Product Description

A forward contract is a customized obligation to receive or deliver a specified amount of a commodity or security, at a specified price, at a specific date in the future. The terms of the contract are negotiated directly by the counterparties and can only be terminated with the consent of both parties. The contract is sold or bought immediately, but not paid for until some future date. This feature, along with the lack of an exchange acting as an intermediary, gives forwards credit risk not evident in futures contracts.

Forward contracts are the oldest and simplest of the off-balance sheet products. They are very similar to a futures contract except there is no organized exchange present, no daily settlement, and no margin requirement. Since forwards are not standardized instruments, they can be negotiated on virtually any commodity or financial instrument. However, the most common forwards used by commercial banks are interest rate forwards and foreign exchange forwards. Commodity forward contracts may become more important to commercial banks with the increased activity in the commodity markets.

A foreign exchange forward contract is a contract to deliver or receive a specified amount of a foreign currency, at a specified price, at some date in the future. These contracts allow banks to hedge foreign currency risk by locking in a rate now, for delivery later. The advantage of a foreign exchange forward over a future is that it can be customized to the particular needs of the customer. For example, if a bank has foreign currency exposure that is longer than the available futures contract in that currency, it could enter into a forward contract at the required date and avoid the risk of rolling over the futures position when the longest contract expires.

Interest rate forwards, or forward rate agreements (FRAs), are contracts to pay or receive a specified interest rate, at a specified date in the future, on a specified notional amount. FRAs are agreements on interest rates only, not to make loans or receive deposits.

II. Market—Where to Find Current Value and Ratings

Forward contracts are not traded on organized

exchanges, thus there is no readily available published market value. Dealers of forward contracts will quote prices based on the terms of the contracts, but no published price quotes are available.

III. What You Should Look for (Suitability)

Forward contracts are legitimate risk management products that banks may use to hedge exposure to interest rate and currency price movements. The most important hedging feature is that the contracts are negotiated between the parties and not established by an exchange. This adds flexibility and allows a bank to hedge risks that go beyond the maturity of available futures or options contracts. For example, a bank has a loan to fund in three years because of a commitment issued by the loan department. It desires to hedge against rates rising above the agreed upon funding price. Because futures contracts do not extend three years, the bank could instead enter into a forward rate agreement in which it will receive the loan price less a spread, three years into the future. This way the bank will not be exposed to rates rising and being unable to fund the loan at a profitable rate. Forwards can be used when a bank has interest rate or foreign currency exposure that exists beyond the available futures strip or has other unique circumstances.

Speculating using forward contracts should only be done by banks with strong capital and the management sophistication required to manage risks of this type.

The examiner must ensure that bank management understands the risks associated with these products and implements systems and controls to effectively quantify and manage those risks. Specifically, this will include an analysis of the following:

Policies: Management must implement specific written policies that authorize the activities in which the bank will engage. The policies should set limits for all the various risks associated with these products including, but not limited to, position limits, maturity limits, credit limits, and earnings-at-risk limits that should be incorporated into the risk management system used by the bank.

Procedures: Management must establish procedures and internal controls to ensure that policy limits

are enforced. Procedures should be written for credit approval; segregation of duties in operations; revaluation, if necessary; and, provision of periodic reports to management.

Risk Management System: The risk management system must include a model to quantify accurately the risk associated with the position and provide the means to effectively manage that risk. The risk should be monitored relative to the limits imposed by the policies. In hedging situations, correlation studies for the appropriate instruments should detail the mechanics of the hedge. Examiners must ensure the accuracy of the models used to measure and monitor the risk. This may include modeling earnings of the position or the gains and losses associated with given hedges and comparing them to the expected result. The system must incorporate all risks associated with the product and reflect them accurately relative to limits on earnings at risk.

Audit: Internal and external audits should be performed. Examiners must determine the adequacy of each. This should particularly focus on the effectiveness of internal controls and the adequacy of the management information system. This area should also address management's willingness to implement the proper control systems to monitor activities of this sophistication. Examiners will also determine the expertise of the auditors.

The lack of the above information may lead to unsafe and unsound banking practices.

IV. Accounting Treatment

A bank engaging in forwards should have accounting policies and procedures that include recordkeeping requirements and methods for determining whether forwards are reducing risk or increasing risk and for accounting for each forward contract, based on its type and purpose. Accounting policies and procedures for forwards should be approved by the board of directors. They should be designed to ensure consistent and appropriate accounting for forward contracts.

Accounting for forwards should follow the requirements of the Call Report Instructions. The Call Report requires banks to account for forwards consistently, either at market value or at the lower of cost or market value.

Market values on all forwards should be determined at least monthly, or more often, if the bank has a material amount of these contracts.

The par value of outstanding forwards should be reported in Call Report Schedule RC-L "Off-Balance Sheet Items." For reporting purposes, contracts are considered outstanding until they have been cancelled by acquisition or delivery of the underlying security.

For forwards accounted for on a mark-to-market basis, net valuation gains should be reported as other noninterest income in the Call Report. Net valuation losses should be reported as other noninterest expense. For forwards accounted for on a lower of cost or market basis, write-downs to market are recorded as other noninterest expense on the Call Report.

Note that regulatory accounting does not permit loss or gain deferral for forwards (hedge accounting). In other words, a bank accounts for these contracts the same, whether they are entered into for speculative or hedging purposes. The only exception to this policy is for mortgage banking operations. Banks are permitted to use hedge accounting for mortgage banking operations.

V. Risks

Interest Rate Risk: Varies with the type and use of the contract. Forward contracts should be used to reduce interest rate exposure rather than speculate on future interest rate movements.

Credit Risk: Substantial since no cash is exchanged until the maturity of the contract. Management must effectively measure and manage this risk by incorporating proper credit procedures to analyze the credit risk with each counterparty with whom it participates.

Liquidity Risk: Limited, since the forward currency and interest rate markets are sophisticated, liquid markets. However, liquidity will vary among different contracts and management must understand and monitor liquidity risk in the forward portfolio.

Other Risk: Settlement Risk: Settlement risk will exist at the time the contract calls for delivery. Settlement limits should be established to limit this risk to the extent possible.

VI. Legal Limitations

Forwards are not considered investment securities under 12 USC 24(7). However, the use of these contracts is considered to be an activity incidental to banking, within safe and sound banking principles. Refer to subsection 111, Suitability, in this section for details on systems, controls, and limits that bank management must implement prior to engaging in forward contract activities.

VII. Risk-based Capital Requirement

Foreign exchange, commodity and interest rate contracts have the following process for determining the risk-based capital requirement. The three steps determine: the current credit exposure; the potential credit exposure; and, the risk-weight. Additional details follow:

- i. Mark to market (positive values only).
2. Add-on for potential credit exposure:
 - Interest Rate 0 % (\leq Yr.) .5 % ($>$ 1 Yr.)
 - Exchange Rate 1 % (\leq Yr.) 5 % ($>$ 1 Yr.)
3. Assign to Risk Category, Maximum 50 percent

The risk-based capital requirement is computed by multiplying the sum of the current and potential credit exposure (step one plus step two) by the risk weight (step three).

Note also that exchange rate contracts that have an original maturity of 14 calendar days or less and instruments traded on exchanges and subject to daily margin requirements are exempt from the risk-based capital calculation.

(Further details relative to risk-based capital calcula-

tion can be found in the *Comptroller's Manual for National Banks* under 12 CFR 3.1, Appendix A. If the regulation is still not clear, the Chief National Bank Examiner's Office can assist in finding an answer.)

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U.S. Treasury Bills

I. Product Description

U.S. Treasury bills are fully guaranteed direct obligations of the United States government. United States government obligations are the highest quality credits and are highly marketable.

BILLS: 13, 26, or 52-week maturity. Issued at a discount from face value. The difference between the discounted purchase price and the face value is the interest income the purchaser receives.

For example: A bill with a face value of \$100,000 is purchased at \$96,750. The difference of \$3,250 is the interest income the purchaser receives at maturity.

Bills are available in book-entry form only.

TAB's: Tax anticipation bills. Special issue T-bills that mature on quarterly income tax payment dates. TABs can be used at face value to pay tax liabilities.

You can purchase T-bills from broker/dealers for a fee, or you can purchase them directly from Fed auction through a competitive or a noncompetitive bid process. A noncompetitive bid gets a T-bill at a price equal to the average of the competitive bids accepted by Treasury.

II. Market—Where to Find Current Value and Ratings

Over-the-counter average quotes can be obtained from the "Money and Investing" section of *The Wall Street Journal* or your local newspaper's financial section. If you are trying to determine the current average price of a bill in a bank's portfolio, use the "bid" column.

III. What You Should Look for (Suitability)

T-bills are suitable for bank investment portfolios. They are standard products purchased by banks to shorten the maturity structure of the portfolio. To accurately compare a T-bill to a coupon security, you must calculate the bond-equivalent yield of the T-bill. The bond equivalent yield considers semiannual

interest payments so that the securities can be compared on similar terms.

IV. Accounting Treatment

The purchase price is recorded at book value and the discount is accreted to maturity using the interest method. However, because of their short maturities, a straight-line method may be used if the results do not differ materially. The preferred method for reporting purchases and sales of securities is as of trade date. However, regular-way settlement date accounting is acceptable if the reported amounts would not differ materially.

V. Risks

Interest Rate Risk: Buying bills at auction submits the purchaser to interest rate risk.

Credit Risk: Free from credit risk.

Liquidity Risk: Highly liquid because they are constantly traded in the secondary market in large volume and at narrow spreads.

Other Risk: N/A

VI. Legal Limitations

Type I security - None (prudence).
12 USC 24(7th)
12 CFR 1.110(a)

VII. Risk Asset Capital Weight

0 percent

VIII. References

Fabozzi, Frank J., ed., *The Handbook of Fixed Income Securities*, 3d ed. (Homewood, Illinois: Business One Irwin, 1991).

The First Boston Corporation, *Handbook of U.S. Government and Federal Agency Securities*, 34th ed. (Chicago: Probus Publishing Company, 1990).

U.S. Treasury Notes and Bonds

I. Product Description

U.S. Treasury notes and bonds are fully guaranteed direct obligations of the United States government. United States government obligations are the highest quality credits and are highly marketable. Notes and bonds are available in book-entry form only.

NOTES: Short to intermediate-term (maturity of one to ten years) interest-bearing debt. Interest is paid semiannually. The coupon rate on new Treasury notes is determined by the market.

BONDS: Longer-term interest-bearing debt. Treasury bonds generally have a maturity of between 10 and 30 years. Other than the longer maturity schedule, the characteristics of bonds are very similar to notes.

II. Market—Where to Find Current Value and Ratings

Over-the-counter average quotes can be obtained from the "Money and Investing" section of *The Wall Street Journal* or your local newspaper's financial section. Bonds and notes are traded in 32nds, but quotes can be refined to 64ths through the use of pluses; a 102:B+ bid, for example, means that the bid is 102 and eight and one-half 32nds, which is 102 17/64. If you are trying to determine the current average price of a bond or note in a bank's portfolio, use the "bid" column.

III. What You Should Look for (Suitability)

Notes and bonds are standard products purchased by banks. Because of the lack of credit and liquidity risk, notes and bonds are suitable for national bank investment. However, a large concentration of long-term maturities may subject the bank's portfolio to unwarranted interest rate risk.

IV. Accounting Treatment

Total book value must include any unamortized premium and any unaccreted discount on securities purchased at other than par or face value. The

premium or discount should be amortized/accreted into income over the life of the note or bond using the interest method.

The preferred method for reporting purchases and sales of securities is as of trade date. However, regular-way settlement date accounting is acceptable if the reported amounts would not be materially different. Accrued interest included in the purchase price of a note or bond security should be recorded separately as an "other asset," to be offset upon collection of the next interest payment.

V. Risks

Interest Rate Risk: Notes and bonds are subject to price fluctuations, because of changes in money market interest rates. Long-term issues fluctuate more widely than shorter term issues.

Credit Risk: Free from credit risk.

Liquidity Risk: Highly liquid, because they are constantly traded in the secondary market in large volume and at narrow spreads.

Other Risk: N/A

VI. Legal Limitations

Type I security - None (prudence).
12 USC 24(7th)
12 CFR 1.110(a)

VII. Risk Asset Capital Weight

0 percent

VIII. References

Fabozzi, Frank J., ed., *The Handbook of Fixed Income Securities*, 3d ed. (Homewood, Illinois: Business One Irwin, 1991).

The First Boston Corporation, *Handbook of U.S. Government and Federal Agency Securities*, 34th ed. (Chicago: Probus Publishing Company, 1990).

U.S. Treasury Derivatives: STRIPS, TIGRs, CATS

I. Product Description

Zero coupon bonds are not *issued* by the U.S. Treasury. Instead, the practice of physically separating a note or bond into its principal and interest *creates* a zero coupon bond. Zero coupon bonds are sold at a deep discount. Investors receive face value at maturity with no periodic payments. Zero coupon bonds are sold in terms of yield to maturity.

Proprietary Products

The proprietary market predates the STRIPS market. There are several proprietary stripped securities; considered proprietary because they were developed by independent brokerage houses. Examples of proprietary products include: Treasury Investment Growth Receipts (TIGRs), a product of Merrill Lynch; and Certificates of Accrual on Treasury Securities (CATS) from Salomon Brothers. The brokerage house buys Treasury bonds, puts them into a trust, and issues receipts against all future interest payments and the final principal repayment. This created a series of zero-coupon Treasuries, one maturing on every interest date, and one for the final principal repayment date.

The obligations are not issued by the U.S. Treasury.¹ They are obligations of a trust collateralized by U.S. Treasury securities.

STRIPS "Separate Trading of Registered Interest and Principal of Securities:" In 1985, the U.S. Treasury began issuing specific long-term notes and bonds eligible for stripping. The components (principal and interest) are assigned separate CUSIP numbers and may be owned and sold separately. STRIPS can also be reconstituted into the original note or bond and are direct obligations of the U.S. government.

II. Market—Where to Find Current Value and Ratings

Over-the-counter average quotes can be obtained from the "Money and Investing" section of *The Wall Street Journal* or your local newspaper's financial

¹ There have been changes to the proprietary stripped securities market. The changes may make the stripped securities "obligations" of the U.S. Treasury, rather than being only "collateralized" by the U.S. Treasury. You must review the bank's individual holdings to determine the status of each individual stripped security.

section. Bonds and notes are traded in 32nds. A 50:21 bid, for example, means that the bid is 50 and 21/32nds. If you are trying to determine the current average price of a STRIP in a bank's portfolio, use the "bid" column, not the "ask" price.

Call a broker/dealer for quotes on proprietary securities (TIGRs, CATS, etc.).

III. What You Should Look for (Suitability)

Stripped securities may be used to meet some specific investor objectives. According to Banking Circular 228, due to significant price and yield volatility, large holdings (relative to the total portfolio) of longer maturity stripped securities are not suitable investments for national banks.

The interest sensitivity of a stripped security may differ significantly from that of the underlying security. Buying stripped securities without examining potential price fluctuations in different interest rate environments is an unsuitable investment practice.

IV. Accounting Treatment

Stripped securities are sold at a deep discount and should be accreted to par value at maturity. The discount should be accreted using the interest method.

V. Risks

Interest Rate Risk: Stripped securities are very sensitive to changing interest rates. The volatility of stripped securities increases with the length of time to maturity. The price of a strip moves inversely to interest rates. The principal only strip is more sensitive to changes in market rates than the interest only strip.

Credit Risk: STRIPS are obligations of the U.S. Treasury and are considered to be free from credit risk. Proprietary products (TIGR's, CATS, etc.) are collateralized by the underlying U.S. Treasury, but whether they are considered "obligations" of the U.S. Treasury is uncertain. Each individual proprietary product should be reviewed thoroughly to determine whether credit risk exists.

Liquidity Risk: STRIPS are liquid. Proprietary products may have an uncertain marketability. Some of the products can be purchased only through the sponsoring dealer and do not meet the definition of a liquid asset. However, CATS, listed on the New York Stock Exchange, are considered to be liquid.

Issuer Risk: Some of the proprietary products are *collateralized* only by U.S. Treasury securities. There remains a risk that the custodian trust (issuer) may default on repayment.

VI. Legal Limitations

STRIPS - Type I security - None (prudence).

OTHERS: There is still legal uncertainty as to the treatment of proprietary products. Proprietary product legal limits vary. Consult with your supervisory analyst on specific issues.

VII. Risk Asset Capital Weight

STRIPS 0 percent; TIGRs, CATS 20 percent

VIII. References

Beckett, Sean, "The Role of Stripped Securities in Portfolio Management," *Economic Review*, Federal Reserve Bank of Kansas City, May 1988.

Fabozzi, Frank J., ed., *The Handbook of Fixed Income Securities*, 3d ed. (Homewood, Illinois: Business One Irwin, 1991).

The First Boston Corporation, *Handbook of U.S. Government and Federal Agency Securities*, 34th ed. (Chicago: Probus Publishing Company, 1990).

OCC Documents

Banking Circular 228, Supervisory Policy Statement on Securities Activities, January 10, 1992.

Investment Securities Division Information Notice 4, Zero Coupon Securities, November 1, 1984.

Investment Securities Division Information Notice 11, Treasury STRIPS, March 3, 1985.

Government Agencies and Sponsored Corporations (That Issue Debt Securities)

I. Product Description

Government agencies and sponsored corporations (hereinafter agencies) issue securities to provide funds for many different purposes, including money to finance housing and agriculture, and credit to small business firms and students. The issuing practices and types of securities vary considerably for each agency. But there are some similarities. Agency securities are sold through a syndicate of dealers, who also make an active secondary market. Most agency securities are exempt from registration with the Securities and Exchange Commission (SEC).

The following emphasizes the role of the major agencies that issue debt.

Federal National Mortgage Association—FNMA Fannie Mae Federal Home Loan Mortgage Corporation— FHLMC Freddie Mac

Established to support the housing market by purchasing mortgages and issuing and guaranteeing mortgage-backed securities. Along with issuing debt securities, both FNMA and FHLMC also issue mortgage-backed pass-through participation certificates to fund its operations. (Refer to the Pass-through Securities section for more information on pass-through participation certificates.)

Federal Farm Credit Bank—FFCB

Established as a consolidated funding source for obligations of Farm Credit Banks (Federal Land Banks, Federal Intermediate Credit Banks, a Bank for Cooperatives, and a Central Bank for Cooperatives). The notes and bonds are joint obligations of all of the farm credit banks.

Farm Credit System Financial Assistance Corporation—FCSFAC

Established in 1988 to bailout and recapitalize the Federal Farm Credit Bank system. The securities may be issued until September 30, 1992. The ceiling on such debt issues is currently \$2.8 billion, but may reach \$4 billion.

Student Loan Marketing Association—SLMA Sallie Mae

Established to support the credit needs of students by purchasing student loans that are either insured directly by the U.S. government or are guaranteed by state or nonprofit private agencies and reinsured by the U.S. government. SLMA finances its activities primarily from the sale of debt securities.

Federal Home Loan Bank—FHLB

Established to provide advances to member savings and loan associations to finance withdrawals and supply mortgage funds to the housing markets. FHLB finances its activities through the sale of debt securities. Although not guaranteed by the U.S. government, the securities are the joint and several obligations of the 12 federal home loan banks. The 12 federal home loan banks must maintain secured advances, guaranteed mortgages, U.S. government securities, or cash in an amount at least equal to the debt outstanding.

Financing Corporation—FICO

Established to recapitalize the Federal Savings and Loan Insurance Corporation (FSLIC). Funds raised through FICO public debt offerings are passed on to the FSLIC. To guarantee the full repayment of principal, the federal home loan banks purchase high-quality zero coupon debt instruments that match the maturity and amount of FICO debt outstanding. Repayment of interest comes from assessments on SAIF-insured thrifts.

Resolution Funding Corporation—REFCORP

Established to fund the Resolution Trust Corporation. The federal home loan banks purchase zero coupon Treasury bonds that match the maturity and amount of REFCORP bonds to guarantee the repayment of principal. Interest is ultimately guaranteed by the U.S. Treasury.

Federal Financing Bank—FFB

Established to buy and hold the debt issues of smaller agencies. Initially, all the agencies financed their activities by selling their own securities to the

public. An agency can sell its debt issue directly to the FFB, rather than to the public, thereby consolidating and reducing its cost of financing. To fund the debt purchases, the FFB borrows directly from the Treasury. The FFB can also issue debt securities to the public to fund its purchases, but to date has chosen not to do so.

Tennessee Valley Authority—TVA

Established to finance the development of the Tennessee River and adjacent areas. The bonds are secured by the Authority's net power proceeds {net income before interest and noncash expenses).

Interest and principal due on the bonds is paid before annual payments due to the Treasury.

Washington Metropolitan Area Transit Authority

Established to finance mass transit facilities in the greater Washington D.C. metropolitan area.

Maritime Administration

Established to guarantee merchant marine obligations. The obligations are Title XI bonds and notes issued by shipowners. The underlying mortgage collateral is guaranteed as to principal and interest by the U.S. government.

Status of U.S. Government and Agency-sponsored Corporations

Agency	Full faith and credit of the U.S. Government	Authority to borrow from the Treasury	Types of debt issues
Federal National Mortgage Association	No	Treasury may purchase up to \$2.25 billion	Short-term notes and debentures, residential financing securities, master notes, investment agreements, medium-term notes
Federal Home Loan Mortgage Corporation	No	Treasury may purchase up to \$2.25 billion	Short-term notes and debentures, discount notes, floating rate debentures
Federal Farm Credit Bank	No	No	Short-term and medium-term notes, long-term bonds The medium-term notes are either fixed or floating.
Farm Credit System Financial Assistance Corporation	Yes	Yes	15-year bonds
Student Loan Marketing Association	No	Treasury may purchase up to \$1 billion	Nonguaranteed discount notes, short-term floating rate notes, medium-term notes, long-term floating rate and fixed rate securities, zero coupon notes, master notes, indexed currency option notes, yield curve notes, exchange rate-linked notes, and various foreign currency-related securities
Federal Home Loan Bank Financing Corporation	No	Yes, up to \$4 billion	Discount notes, medium-term and long-term bonds
Resolution Funding Corporation	No	No	No obligations may be issued with a maturity beyond December 31, 2026, or greater than 30 years
		Yes, Treasury is the ultimate source of funds for interest payment	30-year bonds and 40-year bonds
Federal Financing Bank	Yes	Up to \$5 billion	FFB borrows directly from the Treasury
Tennessee Valley Authority	No	Yes, up to \$150 million	5, 7, 10, 30, and 40-year bonds
Washington Metropolitan Area Transit Authority	Yes	No	Issued as either fully registered or coupon bonds
Maritime Administration	Yes	Yes	Notes and bonds

(First Boston, U.S. Government & Federal Agency Securities, 34 ed., Probus Publishing Company, Chicago, Illinois, 1990, pp. 85-137)

II. Market—Where to Find Current Value and Ratings

Over-the-counter average quotes for debt securities can be obtained from the "Money and Investing" section of *The Wall Street Journal* or your local newspaper's financial section. Bonds and notes are traded in 32nds, a 100:05 bid, for example, means that the bid is 100 and 5/32nds. If you are trying to determine the current average price of a bond or note that is in a bank's portfolio, use the "bid" column.

III. What You Should Look for (Suitability)

Agencies are suitable investments for national banks. Instead of using the auction technique for issuing securities, agencies generally price off the market to determine the yield for a new issue. Agency securities typically trade at a yield spread above Treasuries. The reasons for the increased spread include: 1) agency issues are generally smaller and less liquid than Treasury issues; 2) only a few agencies have an explicit government guarantee; and, 3) interest income on some agency issues is taxable.

IV. Accounting Treatment

Total book value must include any unamortized premium and any unaccreted discount on securities purchased at other than par or face value. The premium or discount should be amortized/accreted into income over the life of the security using the interest method.

The preferred method for reporting purchases and sales of securities is as of trade date. However, settlement date accounting is acceptable if the reported amounts would not be materially different.

Accrued interest included in the purchase price of a security should be recorded separately as an "other asset," to be offset upon collection of the next interest payment.

V. Risks

Interest Rate Risk: Subject to price fluctuations, because of changes in money market interest rates. Long-term issues tend to fluctuate more than the shorter term ones.

Credit Risk: Virtually free from credit risk. Implied guarantee of the U.S. government.

Liquidity Risk: Liquid, because they are traded in the secondary market in large volume.

Other Risk: N/A

VI. Legal Limitations

12 USC 24(7th)

All are Type I securities, with the exception of the Tennessee Valley Authority which is a Type II security. Type I securities are eligible for purchase without limitation (prudence). Type II securities are limited to 10 percent of capital and surplus.

VII. Risk Asset Capital Weight

Federal National Mortgage Association.....	20 percent
Federal Home loan Mortgage Corporation.....	20 percent
Federal Farm Credit Bank.....	20 percent
Farm Credit System Financial Assistance Corporation.....	0 percent
Student loan Marketing Association.....	20 percent
Federal Home Loan Bank.....	20 percent
Financing Corporation.....	20 percent
Resolution Funding Corporation.....	20 percent
Federal Financing Bank.....	0 percent
Tennessee Valley Authority.....	20 percent
Washington Metropolitan Area Transit Authority.....	20 percent
Maritime Administration.....	0 percent

V/11. References

Fabozzi, Frank J. • ed., *The Handbook of Fixed Income Securities*, 3d ed. (Homewood, Illinois: Business One Irwin, 1991).

Stigum, Marcia, *The Money Market*, 3d ed. (Homewood, Illinois: Business One Irwin, 1990).

The First Boston Corporation, *Handbook of U.S. Government and Federal Agency Securities*, 34th ed. (Chicago: Probus Publishing Company, 1990).

SBA Pooled Loan Certificates (SBA)

I. Product Description

SBA financial assistance to small business firms includes both guaranteed loans and direct loans. These loans are packaged and sold by one of the following methods:¹

Regular Business Loan Program—The entire guaranteed portion of this type of SBA loan can be sold by the lender to broker/dealers or directly to investors.

Small Business Investment Company Program (SB/C)—SBIC is funded through debentures guaranteed by SBA. The debentures are pooled and sold. Pool certificates have a timely payment and full faith and credit guaranty of the U.S. government.

Single Loan Sales—Investors may purchase the SBA guaranteed portion of a loan on an individual basis. Single loan purchases are backed by the full faith and credit of the U.S. government, but lack the timely payment feature of pooled loan purchases.

SBA Loan Pools—Approved pool assemblers form and market pools of the SBA-guaranteed portion of loans. Pool certificates have a timely payment and full faith and credit guarantee of the U.S. government.

SBA Loan Pool STRIPS—SBA loan pooling procedures require the coupon on the pool certificate to equal the lowest rate paid on loans in the pool. To accomplish this, poolers will strip off on all the loans the portion of the interest income that exceeds the lowest rate paid on a loan in the pool. This income only (10) strip is then sold as a separate security. The value of the 10 strip depends heavily on the prepayment rates on the underlying loans. The slower the prepayments, the greater the value since the interest payments will be received for a longer period of time. Because the value of the SBA 10 strip is linked closely to very uncertain prepayment rates (see discussion under the subsection on Risks in this section), these instruments are considered to be unsuitable investments for national banks. Bank managers who contend they are holding SBA 10 strips as "hedges" should be severely criticized,

because their prepayment rates cannot be reasonably correlated to any other balance sheet item or grouping.

Those banks holding SBA 10 strips as a by-product of their SBA loan pooling activities should be criticized, unless they can demonstrate the success of their disposal program.

II. Market—Where to Find Current Value and Ratings

Quotes may be obtained from a broker/dealer that makes a market in SBA loan pools. The broker/dealer may take several days to obtain a quote, because there may not be ready market quotes for the pooled securities. Quotes will vary per broker/dealer, depending on his/her ability to obtain or sell the security.

III. What You Should Look for (Suitability)

SBA pooled loans are suitable investments for national banks.

The purchaser and the pool certificates are registered with SBA's fiscal and transfer agent. Transfers between buyer and seller must be re-registered with the fiscal and transfer agent to insure receipt of payments by the new holder. This process may take between 10 to 30 days.

SBA pools are either fixed or variable rate and are generally sold at a premium. However, some broker/dealers offer to sell a pool at a price closer to par value. To sell the pool at a reduced price, but maintain a profit, the broker/dealer also lowers the interest rate of the pool (i.e., offering a pool at prime minus 3/8, when the actual rate of the pool is prime plus 2). The broker/dealer keeps the spread (difference between prime plus 2 and prime minus 3/8).

As an example, a 10- to 15-year SBA pool at prime plus 2 may sell at 108. Prime minus 3/8 may sell at 101. The broker/dealer offers it at 101, sacrificing the premium, but keeping a 2 3/8 spread. Premiums on SBA loan pools are not guaranteed and will be lost if loans in the pool prepay. Loss of premium is a significant concern. To reduce the risk of premium loss, the buyer may be inclined to sacrifice some of the yield to buy at closer to par value.

¹ Except for the discussion on SBA Loan Pool Strips, this product description is condensed from The First Boston Corporation, Handbook of U.S. Government & Federal Agency Securities, 34 ed., Probus Publishing Company, Chicago, Illinois, 1990.

Banking Circular 197 states that premiums that do not reasonably relate to the yield on the loan pool can distort published financial reports by overstating the value of a bank's assets. Paying purchase premiums that result in a significant overstatement in the value of bank assets generally will be viewed as an unsafe and unsound banking practice.

Variable rate SBA loan pools normally should not trade at more than a modest premium or discount from par. You should review any loans being sold or purchased at significant premiums and criticize any involvement with excessive premiums as an unsafe and unsound business practice. Excessive purchase premiums should be classified loss. The loans should be required to be revalued to the market value at the time of the acquisition and the excessive premiums should be charged against current earnings.

IV. Accounting Treatment

Total book value must include the unamortized premium or unaccreted discount on pooled securities purchased at other than par or face value. Premiums and discounts should be amortized or accreted into income using the interest method over the expected life of the security. This amortization/accretion is recorded as an adjustment to the yield of the underlying security. The expected life of the security should consider anticipated prepayments.

The preferred method for reporting purchases and sales of securities is as of trade date. However, settlement date accounting is acceptable if the reported amounts would not be materially different.

Any unamortized premium must be immediately charged against income if the loan is prepaid, regardless of whether payment is received from the borrower or the guaranteeing agency.

Some bond accounting systems do not easily handle the periodic, and often uneven, principal payments that these securities provide. The examiner should ensure that the bank has a system to properly account for these issues.

V. Risks

Interest Rate Risk: SBA loan pools are subject to price fluctuations, because of changes in money market interest rates. Longer-term pools tend to

fluctuate more widely than the shorter term pools.

Credit Risk: Free from credit risk. SBA loan pools are backed by the full faith and credit of the U.S. government.

Liquidity Risk: Although there is a secondary market for SBA loan pools, bid and ask price quotes are not readily available. Quotes are obtained from the individual market-makers, and may vary considerably. Turnaround time for quotes may be up to a day or longer.

Other Risk: Premium/Prepayment risk: Regulatory concerns about certificates in SBA loan pools focus primarily on prepayment rates and risk of loss of purchase premiums. The purchase premiums are unusually high in this market especially because they are not guaranteed and are written off if the loans prepay.

Prepayment of SBA loans occurs for reasons independent of the level of interest rates. The rate of loan renewal, rewrite, and/or default appears to be the most significant influence on prepayments. Shorter term (2- to 7-year maturity) loans tend to prepay at constant prepayment rates (CPRs) as high as 20 percent. Loans with maturities between 7 and 15 years have CPRs as high as 10 to 15 percent, and loans with maturities over 15 years have CPRs in the 6 to 8 percent range. With high CPRs, purchase premiums are at considerable risk since the life of the loan will probably not be sufficient to recover the premium. The fewer loans in a pool, the greater the risk of premium loss on prepayment. If the aggregate of all premiums on purchased SBA loans or loan certificates is significant in terms of capital or current earnings, they may warrant a doubtful classification.

Classification of aggregate premiums is clearly warranted if they are sizable and bank management has not studied the composition and prepayment characteristics, history, and loan originators, of the particular pools they own. Unfortunately, only limited information on the prepayment history of pools and originators is available to investors. Bank investors sometimes rely on the explicit or implicit assurances of SBA loan dealers to make them whole in the event that rapid prepayments cause a loss on premiums. Reliance on these kinds of dealer provided assurances are ill-advised.

VI. Legal Limitations

Type I Security - None (prudence).
12 USC 24 (7th)

VII. Risk Asset Capital Weight

0 percent for SBA loan pools. 20 percent for the
guaranteed portion of a single loan sale.

VIII. References

The First Boston Corporation, *Handbook of U.S. Government and Federal Agency Securities*, 34th ed. (Chicago: Probus Publishing Company, 1990).

OCC Documents

Banking Circular 197, Premiums on U.S. Government Guaranteed Loans, May 7, 1985.

FHA Title I Loan Pools

I. Product Description

FHA Title I loan pools are often marketed as having a 90 percent government guarantee. Lenders pool (securitize) the loans and sell the 90 percent portion. The lenders either sell or retain the 10 percent unguaranteed portion.

However, most prospectuses have a boiler-plate disclaimer similar to the following:

THE PARTICIPATION CERTIFICATES DO NOT REPRESENT OBLIGATIONS OF OR INTERESTS IN THE SELLER/SERVICER, THE SUBSERVICER OR ANY OF THEIR AFFILIATES. THE PARTICIPATION CERTIFICATES ARE SOLD WITHOUT RECOURSE OR WARRANTY EXCEPT AS EXPRESSLY PROVIDED IN THE MASTER LOAN PARTICIPATION AND SERVICING AGREEMENT, THE PROVISIONS OF WHICH ARE INCORPORATED HEREIN BY REFERENCE. SEE "DESCRIPTION OF THE CERTIFICATES.» THE PARTICIPATION CERTIFICATES ARE NOT INSURED OR GUARANTEED BY THE FHA OR ANY OTHER AGENCY OR INSTRUMENTALITY OF THE UNITED STATES. THE UNDERLYING LOANS ARE INSURED BY THE FHA TO THE EXTENT SET FORTH HEREIN. THE HOLDERS OF THE PARTICIPATION CERTIFICATES HAVE NO DIRECT RIGHT TO RECEIVE INSURANCE PAYMENTS FROM THE FHA, AND THEIR RIGHT TO OBTAIN PAYMENTS IN RESPECT OF FHA INSURANCE PAYMENTS MADE TO THE SUBSERVICER IS LIMITED IN THE MANNER SET FORTH HEREIN. SEE "DESCRIPTION OF THE TITLE I LOANS" HEREIN.

The 90 percent "guarantee" is actually established per lender. The FHA Title I program places 10 percent of the dollar volume of loans made per lender into a reserve account. This 10 percent reserve account per lender covers the losses on the "guaranteed" portion of the Title I loans for each individual lender exclusively. If that lender's Title I portfolio experiences losses in excess of 10 percent, the "guarantee" does not cover the excess loss.

For example: A lender makes 60 Title I loans for a total of \$2MM. The FHA Title I program establishes a \$200M reserve account. Losses on the "guaran-

teed" portion of the portfolio over time equal \$255M. The program pays out the \$200M as losses occur, but the remaining \$55M, while a part of the 90 percent "guarantee," is actually not covered, because the losses to the lender exceeded the 10 percent reserve.

The "guarantee" does not pass through from the lender to the purchaser. To alleviate this problem, the parties can enter into a contract requiring the originator to pay the buyer immediately all payments received.

Most of the pools consist of second lien home improvement loans. Mobile home first liens make up only a small percentage of the pools.

II. Market—Where to Find Current Value and Ratings

Quotes may be obtained from a broker/dealer that is active in the private placement of FHA Title I loan pools. The broker/dealer may take several days to obtain a quote, because there is no immediate pricing mechanism for the pooled loans. Prices will vary according to the broker/dealer, depending on his/her ability to resell the pooled loans.

III. What You Should Look for (Suitability)

FHA Title I loan pools are ineligible for national bank investment. However, they can be purchased as *loans* if:

- The purchaser can conduct a thorough, independent analysis of the loans underlying the pool instrument.
- The purchaser obtains documentation it would normally require for a loan analysis, and uses this information in the analysis. The purchaser should not accept an analysis from the seller. In addition, purchase agreements should contain information on transfer provisions that allow initial and periodic transfers of pertinent financial and nonfinancial information about the quality and collectibility of the loans. Financial information should include, at a minimum, financial statements, collateral values, lien status, accrual status, status of principal and interest payments, and any factual information relevant to the obligations.

- The decision to purchase is based on the previously described analysis.
- The loans purchased conform to the purchaser's written credit policies. Loans purchased should meet the standards required of other loans made or purchased by the bank.

IV. Accounting Treatment

FHA Title I loan pools can be purchased only if the bank complies with the requirements of Banking Circular 181 (Rev.). The Title I pools must be recorded and accounted for as loans.

V. Risks

Interest Rate Risk: Subject to price fluctuations because of changes in interest rates. Long-term pools are more at risk than shorter term pools.

Credit Risk: Losses in the pool may exceed the available reserves of the original lender.

Liquidity Risk: Not very liquid.

Other Risk: N/A

VI. Legal Limitations

Ineligible as an investment. These securities generally are privately placed as loans. Depending upon the deal's structure, the limit often will run to the original lender, not to the borrowers on the underlying loans. 12 USC 84 allows up to 15 percent of capital if purchased as a loan. The purchaser must fulfill the requirements of Banking Circular 181 (Rev.).

VII. Risk Asset Capital Weight

100 percent

VIII. References

OCC Documents

Banking Circular 181 (Rev.), Purchases of Loans in Whole or in Part - Participations, August 2, 1984.

Glossary

accretion of a discount: In portfolio accounting, a straight-line accumulation of capital gains on discount bonds in anticipation of receipt of par at maturity.

accrued interest: Interest due from issue or from the last coupon date to the present on an interest-bearing security. The buyer of the security pays the quoted dollar price plus accrued interest.

at-the-money: An option is at-the-money if the underlying security is selling for the same price as the option's strike price.

bankruptcy remote: An issuer that is protected from bankruptcy by various structural and legal factors.

BANs: Bond anticipation notes (BANs) are issued by states and municipalities to obtain interim financing for projects that will eventually be funded long-term through the sale of a bond issue.

basis point: One one-hundredth of one percentage point, most often used in quotation of spreads between interest rates or to describe changes in yields on securities.

book-entry securities: The Treasury and federal agencies are moving to a book-entry system, in which securities are not represented by engraved pieces of paper, but are maintained in computerized records at the Fed in the names of member banks, which, in turn, keep records of the securities they own as well as those they are holding for customers.

book value: The value at which a debt security is shown on the holder's balance sheet. Book value is often acquisition cost less amortization or plus accretion, which may differ significantly from market value. It can be further defined as "accreted book" or "amortized book" value.

broker: A broker brings buyers and sellers together for a commission paid by the initiator of the transaction or by both sides; the broker does not take a position.

callable bond: A bond that the issuer has the right

to redeem prior to maturity by paying some specified call price.

call option: A contract granting the right to buy a given financial instrument, at a specific price for a specified period of time.

cash settlement: In the money market, a transaction is said to be made for cash settlement if the securities purchased are delivered against payment in Fed funds on the same day the trade is made.

competitive bid: (1) Bid tendered in a Treasury auction for a specific amount of securities at a specific yield or price. (2) Issuers, municipal and public utilities, often sell new issues by asking for competitive bids from one or more syndicates.

constant percent prepayment (CPP): Expresses single monthly mortality (SMM) on an annualized basis without correcting for the effects of compounding. CPP is SMM multiplied by 12.

constant prepayment rate (CPR): Reflects single monthly mortality (SMM) on an annualized basis, but unlike CPP it takes compounding into account. If a constant percent of the outstanding balance prepays each month, the dollar amount prepaid declines over time. Using a 4 percent SMM, on a \$100,000 mortgage, \$4,000 ($\$100,000 \times .04$) would prepay in the first month, but only \$3,840 ($\$96,000 \times .04$) would prepay in the second month. In the first year the CPR would be 38.73 percent, i.e. $[1 - (1 - .04)^{12}]$ and the remaining mortgage balance at the end of the first year would be \$61,270, i.e. $[(1 - .3873) \times 100,000]$

convertible bond: A bond containing a provision that permits conversion to the issuer's common stock at some fixed exchange ratio.

covered call writer: A seller of a call option who owns the underlying security on which the option is written.

credit enhancement: The backing of paper with collateral, a bank LOC, or some other device to achieve a higher rating for the paper. Any structural component of a transaction that

increases creditworthiness. Enhancement, usually provided by a third party, can take the form of a letter of credit, surety bond, and so forth.

credit risk: The risk of default as reflected by the financial and operating risks of the issuer. Relevant to corporate fixed income securities as well as municipal and institutional obligations.

current coupon: A bond selling at or close to par; that is, a bond with a coupon close to the yield currently offered on new bonds of similar maturity and credit risk.

current issue: In Treasury bills and notes, the most recently auctioned issue. Trading is more active in current issues than in off-the-run issues.

current maturity: Current time to maturity on an outstanding note, bond, or other money market instrument; for example, a 5-year note one year after issue has a current maturity of four years.

current yield: Coupon payments on a security as a percentage of the security's market price. Often the price should be gross of accrued interest, particularly on instruments where no coupon is left to be paid until maturity.

dealer: A dealer, as opposed to a broker, acts as a principal in all transactions, buying and selling for his/her own account.

debenture: A bond secured only by the general credit of the issuer.

debt securities: IOUs created through loan-type transactions-commercial paper, bank CDs, bills, bonds, and other instruments.

delta: A theoretical risk measure, which measures the change in an option price for a given change in the underlying spot price.

discount bond: A bond selling below par.

due bill: An instrument evidencing the obligation of a seller to deliver securities sold to the buyer.

duration: The duration is the average time to receipt

of cash flows weighted by their present value. This is a widely used measure of the sensitivity of a security's market value to shifts in the discount rate used to value it. For a bond with known cash flows, the percentage change in the security's price in response to a small change in the discount rate is approximately equal to the product of the security's modified duration and the rate shift. For mortgage-backed securities, such as CMOs, whose cash flows can only be estimated and are known to change systematically with movements in interest rates, the calculated duration is only an initial indication of market risk, since it does not adjust for the impact of changing interest rates on prepayment risks.

equivalent bond yield: Annual yield on a short-term, noninterest-bearing security calculated so as to be comparable to yields quoted on coupon securities.

Eurodollar: U.S. dollars deposited in a U.S. bank branch or a foreign bank located outside the U.S.

exempt securities: Instruments exempt from the registration requirements of the Securities Act of 1933 or the margin requirements of the Securities and Exchange Act of 1934. Such securities include governments, agencies, municipal securities, commercial paper, and private placements.

exercise: To put into effect the rights held by an option holder. To request the option writer to deliver a security at the stated price (call), or to pay the stated price for a security delivered to him (put).

exercise price: The price at which the option buyer may purchase (call) or sell (put) the underlying security. Also called strike price.

expiration date: The final date on which an option may be exercised. After the expiration date, the option is worthless.

Federal Financing Bank: A federal institution that lends to a wide array of federal credit agencies funds that it obtains by borrowing from the U.S. Treasury.

fully modified pass-through: A security for which the timely payment of both principal and interest is guaranteed. Investors in the security will receive mortgage interest and principal payments on a certain date regardless of whether the mortgage borrowers have actually made those payments.

gamma: A theoretical risk measure which measures the change in the option's delta given a change in the underlying spot price. This important risk measure tells management how fast delta will change when the underlying security price moves.

gap: Mismatch between the maturities of a bank's assets and liabilities.

general obligation bonds: Municipal securities secured by the issuer's pledge of its full faith, credit, and taxing power.

hedge: A strategy to limit one's risk should an investment not perform as anticipated.

indenture of a bond: A legal statement spelling out the obligations of the bond issuer and the rights of the bondholder.

in-the-money: A call option is in-the-money if the underlying security's price is higher than the option's strike price. A put option is in-the-money if the underlying security's price is below the option's strike price. An option in-the-money has intrinsic value.

interest-rate risk: The variability of returns/prices as caused by changes in the level of interest rates.

interest-rate swap: A contract between two counterparties to exchange net cash flows on agreed upon dates, for a specified period of time, on an established notional principal.

intrinsic value: A call option has intrinsic value when the price of the underlying security exceeds the option's exercise price. A put option has intrinsic value when the underlying security's price is less than the option's exercise price.

issuer: An entity that is selling or has sold its securities to the public.

junk bonds: High-risk bonds that have low credit ratings and/or are in default.

LIBOR: The London Interbank Offered Rate on Eurodollar deposits traded between banks. There is a different LIBOR rate for each deposit maturity. Different banks may quote slightly different LIBOR rates because they use different reference banks.

liquidity risk: The ease with which the issue can be sold at or near prevailing market prices.

liquidity support: Covers shortfalls in cash flow resulting from timing mismatches between payments on receivables and payments due certificate holders.

market value: The price at which a security trades and could presumably be purchased or sold.

medium-term notes (MTNs): Continuously offered notes, having any or all of the features of corporate bonds and ranging in maturity from nine months to 30 years. Bank deposit notes are a form of MTN.

modified pass-through: A security for which the timely payment of interest, but not principal, has been guaranteed by an institution or agency.

mortgage bond: Bond secured by a lien on property, equipment, or other real assets.

municipal (muni) notes: Short-term notes issued by municipalities in anticipation of tax receipts, proceeds from a bond issue, or other revenues.

municipal security: Issued by state and local governments and their agencies.

notional principal: In a swap transaction, the total amount of the contract in dollars. The notional amount is not exchanged.

option: The contractual right, but not the obligation, to buy or sell a specified amount of a given financial instrument at a fixed price before or at a designated future date. A *call option* confers on the holder the right to buy the financial instrument. A *put option* involves the right to sell the financial instrument.

option buyer: The purchaser of a call or put option, who pays a premium to receive the privileges of the contract.

option writer: The seller of a call or put option, who grants privileges to the buyer in exchange for receiving the premium.

out-of-the-money: An option that has no intrinsic value. A call option is out-of-the-money when the exercise price of the option is higher than the underlying security's price. A put option is out-of-the-money when the exercise price is lower than the underlying security's price.

over-the-counter: Has two separate and distinct meanings. (1) Refers to non-exchange traded off-balance sheet products, such as swaps and forwards. (2) Refers to an organized stock exchange. The two markets should not be confused.

par value: The stated value of a security printed on its certificate.

pass-through: A mortgage-backed security on which payment of interest and principal on the underlying mortgages are passed through to the security holder by an agent.

payout event trigger: A provision particularly common in securitized credit card transactions which calls for early principal payouts to investors upon the occurrence of certain adverse events.

point: (1) 1DO basis points (bp) = 1 percent. (2) One percent of the face value of a note or bond. (3) In the foreign-exchange market, the lowest level at which the currency is priced. Example: "One point" is the difference between sterling prices of \$1.8080 and \$1.8081.

premium: (1) The amount by which the price at which an issue is trading exceeds the issue's par value. (2) The amount that must be paid in excess of par to call or refund an issue before maturity. (3) In money market parlance, the fact that a particular bank's CDs trade at a rate higher than others of its class, or that a bank has to pay up to acquire funds. (4) The amount paid to purchase an option.

prepayment: A payment made ahead of the scheduled payment date.

private placement: An issue offered to a single or a few investors as opposed to being publicly offered. Private placements do not have to be registered with the SEC.

prospectus: A detailed statement prepared by an issuer and filed with the SEC prior to the sale of a new issue. The prospectus gives detailed information on the issue and on the issuer's condition and prospects.

put option: A contract granting the owner the right to sell a given security at a specific price for a specified period of time.

RANs (revenue anticipation notes): Issued by states and municipalities to finance current expenditures in anticipation of the future receipt of nontax revenues.

refunding: Redemption of securities by funds raised through the sale of a new issue.

revenue bond: A municipal bond secured by revenue from tolls, user charges, or rents derived from the facility financed.

secondary market: The market in which previously issued securities are traded.

serial bonds: A bond issue in which maturities are staggered over a number of years.

settlement date: The date on which trade is cleared by delivery of securities against funds. The settlement date may be the trade date or a later date.

short option: An option that has been sold.

single monthly mortality (SMM): Measures the percentage of the beginning mortgage balance prepaid each month. For example, if 4 percent of the mortgage balance prepaid in the first month, the SMM would be merely 4 percent.

single-premium life insurance: A whole life insurance policy requiring one premium payment. Since this large, up-front payment begins

accumulating cash value immediately, the policyholder will earn more than holders of policies paid in installments. This type of policy emerged as a popular tax shelter under the Tax Reform Act of 1986, because of its tax-free appreciation (assuming it remains in force); low or no net-cost; tax-free access to funds through policy loans; and tax-free proceeds to beneficiaries.

special-purpose corporation: A corporation organized solely to issue debt and purchase receivables, thereby isolating the receivables from bankruptcy concerns relating to the originator.

subordinated debenture: The claims of holders of these issues rank after those of holders of various other unsecured debts incurred by the issuer.

TANs: Tax anticipation notes (TANs) issued by states or municipalities to finance current operations in anticipation of future tax receipts.

term life insurance: A form of life insurance written for a specified period that requires the policyholder to pay only for the cost of protection against death; that is, no cash value is built up as in whole life insurance. Every time the policy is renewed, the premium is higher, since the insured is older and statistically more likely to die. Term insurance is far cheaper than whole life, giving policyholders the alternative of using the savings to invest on their own.

theta: A theoretical risk measure that measures the daily option price decay. It is the opposite of gamma.

time value: That part of the option premium that reflects the remaining life of the option. The more time that remains before the expiration date, the higher the premium, because more time is available for the value of the underlying security to move up or down.

trade date: The date on which a transaction is initiated. The settlement date may be the trade date or a later date.

uncovered call writer: A call writer is uncovered (naked) when he/she does not own the underly-

ing financial instrument on which the option is written.

universal life insurance: A form of life insurance that combines the low-cost protection of term life insurance with a savings portion, which is invested in a tax-deferred account earning money-market rates of interest. The policy is flexible, that is, as age and income change, a policyholder can increase or decrease premium payments and coverage, or shift a certain portion of premiums into the savings account, without additional sales charges or complications.

variable life insurance: Innovation in whole life insurance gives policyholders the opportunity to earn substantial capital gains on their insurance investment. Insurance companies began to underwrite a variable life policy that allows its cash value to be invested in stock, bond, or money market portfolios. Investors can elect to move from one portfolio to another or can rely on the company's professional money managers to make such decisions for them. As in whole life insurance, the annual premium is fixed, but part of it is earmarked for the investment portfolio. The policyholder bears the risk of securities investments and the insurance company guarantees a minimum death benefit unaffected by any portfolio losses. Variable life insurance differs from universal life insurance. Universal life allows policyholders to increase or decrease premiums and change the death benefit. It also accrues interest at market-related rates on premiums in excess of insurance charges and expenses.

vega: A theoretical risk measure which measures the change in an option's price for a given change in the volatility of the underlying security.

volatility: A measure of a security's actual or expected price movement over a specific time period.

weighted-average coupon (WAC): Describes the dollar-weighted-average coupon rate on the mortgages (same calculation used for WAM except using the mortgage coupon) in the pool as of its issue date.

weighted-average life (WAL): The weighted- average life of an amortizing security is the average time to receipt of principal, weighted by the size of each principal payment. Like projected final maturities, WALs for CMOs (and mortgage pass-throughs) are calculated under some specific prepayment assumption. The weighted-average life is the most commonly used maturity measure in the mortgage market. Since the weighted-average lives of Treasuries are equal to their maturities, the par yield curve for Treasuries provides a natural benchmark for pricing mortgage-backed securities of various projected average lives.

weighted-average maturity (WAM): The dollar-weighted-average maturity (in months) of all the mortgages in the pool as of its issue date. This is the sum of the principal balance of each mortgage in the pool times its months to maturity divided by the total principal balance of the mortgages in the pool. Subsequent to issu-

ance, estimates are made to determine the estimated remaining term that is the expected average remaining term assuming no prepayments.

whole life insurance: A form of life insurance policy that offers protection in case the insured dies and builds up cash value. The policyholder usually pays a set annual premium for whole life, which does not rise as the person grows older (as in the case with term insurance). The earnings on the cash value in the policy accumulate tax-deferred and can be borrowed against in the form of a policy loan. The death benefit is reduced by the amount of the loan, if the loan is not repaid. Because whole life insurance traditionally offered a low return on the policyholder's investment, many policyholders beginning in the 1970s switched to new, higher-earning forms of whole life, such as universal life insurance and variable life insurance.

