Introduction

Sections 11(g), 11(h), and 16(a) of the FHLBank Act, Section 956 of the Finance Board regulations, and the Finance Board Financial Management Policy (FMP) establish the FHLBanks' investment authority. The entire FMP applies only to FHLBanks that have not yet converted to their new capital plans. Each FHLBank that has converted to its new capital plan has established its own Finance Board-approved risk management policy (RMP). Only the provisions of the FMP contained in Sections II.C.2., 3., 4., and 5., and Section V.C.5. apply to such FHLBanks. The FMP provides a framework within which the FHLBanks are allowed to implement financial management strategies that assist them in accomplishing their mission, and in generating income sufficient to meet their financial obligations in a safe, sound, and profitable manner.

Regulatory Environment

1) ***Rules and Regulations of the Federal Housing Finance Board, which include the following parts and sections relevant to investment portfolio management:***

   Part 917 of the Finance Board regulations addresses powers and responsibilities of FHLBank boards of directors and senior management. In particular, Section 917.3, Risk Management and Section 917.6, Internal Control System, are pertinent.

   Section 932.9 of the Finance Board regulations addresses unsecured extensions of credit and limits to various counterparties. It also details measurement and reporting requirements for both on- and off-balance sheet exposures.

   Section 940.3 of the Finance Board regulations discusses allowable mission-related investments.

   Part 956 of the Finance Board regulations discusses allowable and prohibited investments.

2) ***Advisory Bulletins of the Federal Housing Finance Board*** that provide supervisory guidance relating to the topic of investment portfolio management are:

   Advisory Bulletin 98-10, dated December 8, 1998, which formalizes guidance to the FHLBanks on the minimum unsecured credit monitoring standards the FHLBanks are expected to apply.

   Advisory Bulletin 01-08, dated October 4, 2001, which establishes policy and procedures standards for identifying, comparing, reporting, and quantifying problem assets.

Advisory Bulletin 01-09, dated October 24, 2001, which reinforces the need for the FHLBanks to monitor unsecured credit positions, especially with respect to concentrations.

Advisory Bulletin 02-07, dated August 27, 2002, which establishes reporting standards for unsecured credit exposures.

Advisory Bulletin 05-08, dated August 25, 2005, which establishes regulatory expectations related to anti-predatory lending policies. This bulletin is pertinent to some private label mortgage-backed securities (MBS) investments.

Advisory Bulletin 07-01, dated April 12, 2007, which establishes regulatory expectations for the FHLBanks to adopt and implement policies and risk management practices that establish appropriate risk limits for, and appropriate mitigation of, credit exposure on nontraditional and subprime mortgage loans.

3) Financial Management Plan

Sections II.C.2., 3., 4. and 5. of the FMP establish the following limitations on authorized investments:

1) An FHLBank may enter into agreements to purchase MBS, collateralized mortgage obligations (CMOs), real estate mortgage investment conduits (REMICs), and eligible asset-backed securities so long as such purchases will not cause the aggregate book value of such securities held by the FHLBank to exceed 300 percent of the FHLBank's capital. An FHLBank may not increase its holdings of such securities in any one calendar quarter by more than 50 percent of its total capital at the beginning of that quarter.

2) The purchase of Interest Only or Principal Only stripped MBS, CMOs, REMICs, and eligible asset-backed securities are prohibited.

3) The purchase of residual interest or interest accrual classes of CMOs, REMICs, and eligible asset-backed securities is prohibited.

4) The purchase of fixed-rate MBS, CMOs, REMICs, and eligible asset-backed securities, or floating-rate MBS, CMOs, REMICs, and eligible asset-backed securities that on the trade date are at rates equal to their contractual cap, with average lives that vary more than six years under an assumed instantaneous interest rate change of 300 basis points, is prohibited.

FHLBank Environment

Given the regulatory environment within which the FHLBanks operate, their investment portfolios tend to be of higher credit quality and driven by mission-related activities. The

investment portfolios are normally divided between the money market portfolio and the term portfolio. The money market portfolio contains primarily short-term, highly-rated unsecured investments. These investments include the following: Federal funds sold, certificates of deposit, commercial paper, repurchase agreements, and short-term U.S. Treasury (Treasury or Treasuries) and Agency obligations. This portfolio is very liquid and comparatively low-yielding. The portfolio is used primarily to meet regulatory liquidity requirements and funds management needs. Management of the money market portfolio is normally a separate function under the FHLBanks' treasury function. These portfolios are transaction-intensive and require continual monitoring for credit events but have negligible interest rate risk.

The term portfolio is composed of GSE MBS, private label MBS and commercial MBS, state housing authority debentures, and longer-term Treasuries. These investments are also highly-rated, although the drivers for the high ratings can be different than those for the money market portfolio. In particular, the amount of collateral rather than quality of collateral for private label MBS and CMBS drives the ratings. This portfolio is liquid and comparatively higher-yielding. The portfolio is used primarily to generate earnings, but can also be used for other purposes, normally within a broad balance sheet management content. Management of the term portfolio is normally a separate function under the FHLBanks' treasury function. These portfolios require regular monitoring for performance and do contain interest rate risk.

Risks Associated with Investment Securities

An FHLBank's primary risks associated with investment securities and money market assets are set forth below.

1) Lack of Sound Corporate Governance (Board of Directors and Senior Management Oversight)

a) Key risks and controls are not adequately identified, measured, monitored, and controlled.
b) A sound risk management framework composed of policies and procedures, risk measurement and reporting systems, and independent oversight and control processes has not been developed and implemented.
c) Senior management has not adequately analyzed new products or activities, taking into account pricing, processing, accounting, legal, risk measurement, audit, and technology considerations.
d) Risk management, monitoring, and control functions are not sufficiently independent of the position-taking functions.
e) Duties, responsibilities, and staff expertise, including segregation of operational and control functions, are not adequately defined.
f) Independent audit coverage and testing is limited; auditors are inexperienced or lack the technical expertise to test the control environment.

2) Market Risk

The discussion of market risk will begin with those factors that impact the price sensitivity of a security and then proceed to outline measures of rate sensitivity, both for option-free securities and securities with options. Finally, this section will address portfolio sensitivity measures, risk control of portfolio sensitivity, and asset/liability management issues.

Factors in Interest Rate Sensitivity

The investment portfolio, which often contains longer-term, fixed-rate assets, is usually a significant source of interest rate risk for an FHLBank. From an interest rate risk standpoint, "sensitivity" refers to how much the price of a security changes when interest rates change. Regardless of the type of security, it is the variability of the value of the security's cash flow, caused by fluctuating interest rates and spreads relative to a benchmark such as Treasuries, that determines a security's price sensitivity. A security's interest rate, or price sensitivity, is primarily a function of:

1) Maturity;
2) Option features;
3) Coupon rate; and
4) Yield levels.

Maturity. For most securities, maturity is the most important determinant of price sensitivity. If a change in interest rates is the same across all maturities, a "parallel" interest rate shift, the price of a long-term security will change more than the price of a short-term one. For example, if interest rates rise 100 basis points, a 30-year, 5 percent coupon Treasury bond would lose nearly 14 percent of its value, while a two-year, 5 percent coupon Treasury note would lose less than 2 percent. Because money market assets mature within one year, they generally have the least price sensitivity.

Option features. Options can either increase or decrease a security's potential for price changes, depending upon the type of option and who owns it. A call option allows the issuer of the security to redeem the full amount of the obligation before its maturity date. Investors have sold, or are "short," the option on a callable bond. In return for allowing the issuer to call a bond prior to maturity, investors receive a higher yield.

It is helpful to consider securities with call options in two groups: amortizing and non-amortizing or "bullet" securities. An amortizing security is one that pays principal throughout its life, such as a mortgage security. A non-amortizing security is one that has only one principal payment. That payment may occur before maturity, and may exceed par value due to a call premium (for example, callable at a dollar price of 102 percent of par), but it does not pay principal throughout its life. Amortizing securities typically experience "partial calls" because, for example, some but not all borrowers may prepay their mortgages.

For a non-amortizing security, the call option limits price when rates fall. Investors are not willing to pay large premiums if the issuer can redeem the bonds prior to maturity. Many callable securities remain callable past the initial call date. For example, the issuer of a five-year bond callable in two years, often referred to as "five, non-call two", may typically call the bond at the end of two years, or on any coupon payment date thereafter, if the option is Bermudan. Investors need to understand all possible dates that issuers can call their bonds since the call dates will have a direct bearing on the price sensitivity of the security. These call options typically require the issuer to call the entire security.

If interest rates rise, however, the price sensitivity of non-amortizing callable bonds will ultimately approach the sensitivity of non-callable securities with the same final maturity. For example, the five, non-call two bond above initially will have the price sensitivity of a bond with a two-year final maturity. However, if interest rates continue to rise, the bond will eventually begin to depreciate like other securities with the same final maturity. Therefore, callable securities can lose value at an increasing rate as the security's effective maturity becomes longer.

Amortizing securities, such as mortgage securities, have similar performance characteristics. A mortgage borrower has the right to pay off, or "call," the debt before maturity. The mortgage lender therefore has sold a call option to the borrower. Since mortgage securities pass through cash flow from the underlying mortgage loans to investors, investors in mortgage securities have effectively sold call options to borrowers. The homeowners have the economic incentive to exercise these options and prepay when interest rates have fallen, allowing them to refinance and get new mortgages at lower interest rates. The prepayment option limits price appreciation for mortgage securities when interest rates fall.

When interest rates rise, amortizing securities may also lose value at an increasing rate, as their average lives extend. For example, a mortgage security may, at current interest rates, have an estimated average life of five years. Average life refers to the average length of time a dollar of principal remains outstanding. However, as rates rise and fewer homeowners prepay, the security may then have an average life of seven years. Its price sensitivity will consequently become similar to a seven-year security, rather than a five-year security.

It is helpful to consider amortizing securities into two separate groups: pass-through and pay-through or "structured" securities. In a pass-through security, investors get their pro rata share of principal and interest payments. If an investor owns 1% of the security's par value, it will receive 1% of the cash flow. The cash flow from the underlying mortgages "passes through" to investors.

In a pay-through, or "structured" security, a set of payment "rules" determines how and when investors receive principal cash flows from the underlying mortgages. For structured securities like CMOs, the "maturity effect", where the security loses value at an increasing rate, can be very significant. A lower-risk CMO tranche will have limited cash flow variability as rates change. A higher-risk CMO tranche will have significant cash flow variability as rates change.

The following table illustrates how the average life of two different CMO structures might change as rates change by 200 basis points.

Structure	Average Life: Unchanged Rates	Average Life: Rates Up 200 bps	Average Life: Rates Down 200 bps
Lower Risk	2.0 yrs	3.2 yrs	1.7 yrs
Higher Risk	2.0 yrs	19.7 yrs	0.2 yrs

A higher-risk CMO tranche could, for example, have an average life that changes from 2 years to 20 years with even a modest increase in interest rates. Higher risk refers here to the cash flow variability of the tranche, not its credit quality, although underwriters can create structured securities that combine higher average life sensitivity with lower credit quality.

The highest yields go to those tranches that, by design, exhibit the most volatile average lives. Such tranches receive excess principal cash when prepayments rise, and pay off early. When prepayments are slower, these tranches may not receive any principal cash flow at all. Such tranches protect or "support" other tranches in the CMO structure. These other, well-supported, tranches may have lower risk than the pass-through security from which they are created. Although there are partial calls in the underlying mortgages that make up the CMO, the payment rules of some CMO tranches can result in a complete call of the tranche as rates fall, making it similar to a non-amortizing security.

The risk-return profile of callable (non-amortizing) and prepayable (amortizing) securities is therefore not symmetrical. Investors in these securities have limited upside price potential. Investors are not willing to pay large premium prices for assets that can be called. Investors use the term "price compression" to refer to the inability of such securities to trade at prices significantly above par. However, these securities can have significant downside price potential. To compensate investors for this asymmetric and unfavorable risk profile, callable and prepayable securities must offer higher yields. The following table summarizes callable and prepayable securities:

Type	Cash Flow Priority	Sensitivity
Callable	Not applicable.	Limited price upside; can depreciate at an increasing rate when interest rates rise as effective maturity lengthens.
Amortizing: pass-through	Pro-rata. Examples: GNMA, FNMA & FHLMC mortgage pools.	Limited price upside; can depreciate at an increasing rate as effective maturity lengthens.
Amortizing: structured	Determined by payment rules. Examples: CMO tranches.	Depends upon security structure. Some tranches can have very high price

		and cash flow risk and others very low price and cash flow risk.

A put option allows the investor to return the bond, at a price of par, to the issuer prior to its stated maturity. Here, the investor owns the option. Investors will exercise this right when interest rates have risen, since they can reinvest the proceeds at higher available market yields. The put option thus limits price declines when rates rise, because the investor can redeem the bond at par on a specified date. When interest rates fall, however, the price of the security will rise like a bond without option features. Put bonds thus have very favorable risk-return profiles, and investors must accept lower yields for this favorable asymmetry.

Coupon rate: The coupon rate of a security also affects its price sensitivity. There is an inverse relationship between coupon and price sensitivity. Higher coupon securities have lower price sensitivity; lower coupon securities have higher price sensitivity. A security whose coupon rate exceeds the required market yield for a particular maturity is a "premium" security because its price exceeds par value. For example, a security with a coupon rate of 5.75 percent will have a price over par value if the security's yield in the market is 5.50 percent. A security whose coupon rate is below the required market yield is a "discount" security because its price is less than par value. The security with the 5.75 percent coupon trades at a discount when the required market yield is 6.25 percent. Discount securities have more price sensitivity than premium securities. The most discounted of all securities is a zero coupon bond. A zero coupon bond is a security that investors purchase at a discount and redeem for par value at maturity. It has no coupon cash flows. Its only cash flow is the return of par value at maturity. For any given maturity, a zero coupon bond will have the most price sensitivity.

The inverse relationship between coupon rate and price sensitivity results from the distribution of cash flows. Compared to a lower coupon bond, more of the total cash flow of a high coupon security will come from interest payments. Interest payments are received throughout the life of the bond, which means that, relative to a lower coupon bond, a higher coupon bond will have a higher proportion of its cash flow returned sooner. The earlier the cash flow occurs, the less price sensitive its cash flow is.

As discussed above, longer maturity cash flows pose more risk than shorter maturity ones. Since a zero coupon bond has only one cash flow, a par value redemption at maturity, it will have the most price sensitivity of bonds with the same maturity.

Yield Levels: Non-callable bonds have more price sensitivity when market yields are low than when market yields are high, because of the curved or "convex" nature of the relationship between price and yield. This relationship means that non-callable bonds rise in value at an increasing rate when interest rates fall; they decline in value at a decreasing rate when interest rates rise.

The following table summarizes the factors other than credit that affect the price sensitivity of investment assets:

Factor	Higher Sensitivity	Lower Sensitivity
Maturity	Long maturities	Short maturities
Options	Sale of call options: limited upside price gains; full downside price exposure	Purchased puts: limited downside price losses; full upside price potential
Coupon	Lower coupons	Higher coupons
Yield Levels	Low yields	High yields

Floating-Rate Securities

Investors often mistakenly assume that floating-rate securities have little price sensitivity risk. Features that can cause floating-rate securities to have higher price sensitivity include option features, long maturities, and credit risk.

Consider a security that has a coupon rate that floats off of the London Interbank Offered Rate (LIBOR). Such a security might pay a coupon rate of Libor plus 50 basis points. However, if there is a cap that limits the coupon to 7 percent, then when LIBOR reaches 6.50 percent, any further increases in LIBOR will not result in any increases in the coupon rate on the security. Floating-rate investments with interest rate caps include CMO floaters and adjustable-rate mortgage (ARM) securities. The longer cash flows remain outstanding on such securities, the greater their potential price decline, since the investor faces a longer period of having the coupon capped at a below-market rate. If a CMO floater's average life increases from 3 years to 15 years due to a rise in rates and anticipated slowdown in prepayments, the investment is likely to fall in value quite sharply. This explains why CMO floaters with high variability in their average lives offer greater spreads over LIBOR than floaters with lower average life variability. ARM securities have both periodic and lifetime caps.

Floating-rate assets do not need caps to have high price sensitivity. Consider an investment with a coupon rate of LIBOR plus 50 basis points, issued at a time when investors demanded a spread of 50 basis points over LIBOR. Such a security will be issued at par. However, if at some future date, investors demand a 150 basis point spread higher spread over LIBOR, then the security is 100 basis points "below the market" and will have to trade at a discount. The longer its maturity, the more depreciation it will have. The decline in market value is the same for the following 2 scenarios:

1) An investor buys a fixed-rate security yielding 5 percent and market yields increase to 6 percent; and
2) An investor buys a floating-rate asset with a spread over LIBOR required by the market changes from 50 basis points to 150 basis points.

The investor has lost 100 basis points in each case. The required market yield for each is now 100 basis points higher.

Inverse floating-rate securities are a special kind of floater. Their coupon rates increase when general market rates decrease. For example, the coupon may be 8 percent minus the three-month LIBOR. These securities often appeal to investors when the yield curve is very steep, as the coupon formula will give a coupon rate often well above short term financing costs. However, an increase in LIBOR can cause the interest rate on this type of security to drop very low and possibly to zero. If the security has a long maturity, it can lose significant value. As a result, FHLBanks should exercise great caution with such securities.

Some floating-rate securities have traded with prices 30 percent and more below par value, even without credit problems, because of structural risks such as interest rate caps and highly variable cash flows. FHLBanks should therefore fully understand the price sensitivity imposed by the security structure, maturity, option features and credit risk of these floating rate securities or "floaters."

Portfolio Sensitivity Measures

As a matter of sound investment practice, FHLBanks should be able to measure the price sensitivity for individual securities and for the entire portfolio. In general, techniques used to measure the risk of individual securities are also appropriate for the entire portfolio.

To estimate portfolio sensitivity, FHLBanks generally use, at a minimum, duration. Because of the presence of options in most portfolios, duration may not be an effective risk measure. Because of negative convexity, due to the existence of options in the portfolio, a portfolio may gain 2 percent when rates fall 100 basis points and lose 3 percent when rates rise 100 basis points. Given the growing importance of economic value measurements for interest rate risk, it is important to recognize these asymmetries. FHLBanks should therefore evaluate portfolios in both rising and falling rate scenarios.

A security stress test involves evaluating the price sensitivity of a security, or a portfolio, over a number of different interest rate changes. To identify and measure portfolio risk, maintain duration of equity limits, and adhere to sound investment practices, FHLBanks are required to estimate the value of their investment portfolios for different parallel interest rate changes. However, since parallel shifts rarely occur, FHLBanks should, in general, also measure portfolio value changes for non-parallel shifts, such as yield curve steepening and flattening scenarios. A steepening yield curve occurs when the yield spread between short maturity yields and long maturity yields increases. For example, if the difference in yields, or "yield spread," between 2-year and 10-year Treasury securities changes from 100 basis points to 150 basis points, the yield curve has steepened. A yield curve flattening occurs when the yield spread between short maturity yields and long maturity yields decreases.

A more sophisticated technique to measure portfolio risk is value-at-risk (VaR). Whereas a portfolio sensitivity analysis measures portfolio value changes for a specific interest rate change for all securities, VaR measures the maximum potential loss on a portfolio for a specified confidence level and a specified time period. For example, consider a portfolio manager who measures VaR at a 95 percent confidence level and for a 90-day time horizon. If the portfolio's VaR is $8 million, there is only a 5 percent chance that at the end of 90 days the portfolio will have decreased in value by more than $8 million. A VaR system, like any measurement system, contains many assumptions that a user must understand before reaching definitive conclusions for risk assessment purposes. Nevertheless, VaR can be an effective means of measuring and controlling portfolio risk. Many vendor models now calculate VaR, and all FHLBanks use at least one model that measures VaR for investment portfolio assets, as required under Part 932 of the Finance Board regulations.

Risk Control: Portfolio Sensitivity Limits

The investment portfolio typically has a significant impact on an FHLBank's total interest rate risk profile. While FHLBanks may manage the interest rate risk of its mortgage assets by combining AMA and MBS, and manage the economic value risk of the entire FHLBank through VaR metrics, it is nonetheless a sound practice to separately measure and control price sensitivity in the investment portfolio with limits for price changes given rate changes.

For example, the FHLBank may limit the portfolio's sensitivity to 10 percent when interest rates change 300 basis points. If a FHLBank has a portfolio with a current value of $20 billion, the FHLBank will manage the risks so that the portfolio will not lose more than $2 billion in value when rates change 300 basis points ($20 billion x 10% = $2 billion). FHLBanks may also establish portfolio sensitivity limits as some specified percentage of capital.

To supervise investment portfolio risks effectively, management may wish to periodically estimate, and report to the board of directors, the value of the portfolio in different interest rate environments. The value in each interest rate scenario, compared with the current portfolio value, illustrates the amount of portfolio price sensitivity. Sensitivity reporting is a convenient means of assuring that management has complied with the board of directors' limits on the portfolio's volatility.

The presence of a few securities with high risk may, or may not, be a supervisory concern. Whether a security is an appropriate investment depends upon such factors as the FHLBank's capital level, the security's impact on the aggregate risk of the portfolio, and management's ability to understand and measure the security's inherent interest rate risk and potential effects upon liquidity. Examiners, as well as FHLBank management, should assess the process and environment that led to the acquisition of such higher risk securities. For example, was the transaction a policy exception? Did some internal control process break down? Has management reported the securities properly on activity reports to the board of directors? Has the FHLBank's risk appetite changed? Answers to these questions, which may suggest a

problem in the FHLBank's risk management process, could result in greater concern than the existence of a few higher-risk securities.

From a risk management perspective, the sensitivity of the entire portfolio is more important than the sensitivity of individual securities. A portfolio "sensitivity analysis" is a very effective way for management to gain an understanding of portfolio risks. The analysis can facilitate asset/liability management decisions and the establishment of policies or guidelines to control aggregate portfolio interest rate risk.

Asset/Liability Management Issues

The emergence of the derivatives market has led to the creation of investment securities with complex cash flow profiles. Investment professionals, using derivatives, can customize a security's structure to the investor's risk/reward profile of choice. As a result, investors now have more investment choices. The increasing complexity of many of the securities, however, has complicated asset/liability risk measurement and management decisions.

A decline in interest rates can cause significant amounts of prepayments and early redemptions for FHLBanks holding a large percentage of their portfolio in securities with options. The yields of such FHLBanks' portfolios could fall significantly as high-yielding assets pay off and are reinvested in lower market yields. These FHLBanks could be forced to reinvest substantial amounts of funds at a low point in the yield cycle. In an attempt to replace the high yields lost, management may be tempted to reinvest in additional securities with even more options. This strategy carries significant risks, since a subsequent rise in interest rates could extend maturities and accelerate depreciation. Management should consider guidelines on the volume of investments it can acquire within a short time period, in order to reduce the possibility of locking in a disproportionately large segment of the portfolio at the low point in the yield cycle.

If an FHLBank focuses exclusively on purchasing securities with the highest yields, the cash flow volatility of many of these securities will depress economic value when interest rates change. The examiner's assessment of the investment portfolio's risk should be part of an overall assessment of asset/liability management activities and interest rate risk.

3) Credit Risk

FHLBanks face credit risk in their investment activities from a variety of sources. These include:

1) Issuer credit risk - the risk that the issuer or guarantor of a security or money market obligation will fail to pay as agreed;
2) Dealer credit risk - the risk that the dealer from whom the FHLBank has purchased, or to whom it has sold, securities will default prior to settlement date; and
3) Custodian credit risk - the risk that the FHLBank's securities custodian fails and the FHLBank cannot recover all of its assets the custodian held for safekeeping.

Issuer Credit Risk

FHLBank investment portfolios traditionally have little credit exposure. FHLBanks generally have large holdings of Treasury and Agency securities, which are high credit quality assets. FHLBank management and examiners can assess portfolio quality by reviewing the percentage of the portfolio in each rating category. The three major rating services are Moody's Investors Service (Moody's), Standard & Poor's (S&P), and Fitch Ratings (Fitch). These services use the following standard bond rating symbols for investment grade obligations:

Summary of Investment Grade Rating Systems

Moody's	S&P	Fitch	Description
Aaa	AAA	AAA	"Gilt-edged;" extremely strong. Highest quality.
Aa	AA	AA	Very strong; high quality by all standards.
A	A	A	Upper medium grade; strong capacity to meet commitments; high credit quality.
Baa Lowest FHLBank-eligible grade is Baa3	BBB Lowest FHLBank-eligible grade is BBB-	BBB Lowest FHLBank-eligible grade is BBB-	Medium grade; adequate capacity to meet commitments; good credit quality.
Uses 1, 2, and 3 to show in-grade relative ranking	Uses +/- to show in-grade relative ranking	Uses +/- to show in-grade relative ranking	

Summary of Non-Investment Grade Rating Systems

Moody's	S&P	Fitch	Description
Ba	BB	BB	Speculative elements; faces major uncertainties, but deemed likely to meet payments when due.
B	B	B	Generally lack characteristics of a desirable investment. Highly speculative; currently has ability to meet commitments, but faces major uncertainties which could lead to inadequate capacity to meet its commitments.
Caa	CCC	CCC	Poor standing; may be in default

Ca C	CC C	CC C	(Moody's); currently vulnerable to non-payment; high default risk.
	D	DDD DD D	In default; Fitch ratings reflect recovery prospects.

Although FHLBanks can use published securities ratings to help make investment decisions, they should also consider other sources of financial information. Exclusive reliance on ratings can be an unsafe and unsound banking practice because credit ratings may lag actual changes in credit quality. There have been a number of instances where companies maintained investment grade ratings until just before they defaulted.

To manage investment risks prudently, FHLBanks should supplement external ratings with internal credit analysis. The depth of the FHLBank's internal analysis should be a function of the security's rating, the complexity of the structure, and the size of the investment. The more complex a security's structure is, the more credit-related due diligence an FHLBank should do, even when the credit ratings are very high.

For example, there is a fundamental difference between a bond with a strong credit rating because of a third party credit enhancement and a bond with a strong rating because of structural subordination. A third-party credit enhancer, such as a guarantor or surety provider, may refuse to honor its obligation if the issuer defaults. FHLBanks should therefore carefully evaluate the third-party credit provider, and assess the entity's ability to honor its guarantee/surety bond obligation.

Subordination, on the other hand, builds the credit enhancement into the security structure. Other investors provide the credit enhancement by having a lower claim on the security's cash flows. For example, a $100 security may have an $85 senior tranche, a $12 mezzanine (second loss) tranche and a $3 "equity" (first loss) tranche. The senior tranche may carry an "Aaa/AAA" rating because of the enhancement provided by the two other tranches. In this type of structure, the senior tranche would suffer a loss only after the other two tranches have suffered complete losses. The mezzanine tranche would suffer losses only after the equity tranche has suffered a complete loss.

Investors do not universally prefer third-party credit enhancement or structural subordination over the other. Structural subordination, however, has become more common over time, due to the declining number of firms rated Aaa/AAA as well as investors' desire to avoid undue concentrations in any single third-party credit enhancer.

The proliferation of asset-backed securities in recent years has given investors a wide range of choices among collateral types and security structures. Investors should understand why they are receiving a higher yield for the same credit rating.

FHLBank management should become familiar with the evaluation criteria used by the rating agencies for the type of security under consideration. Moreover, FHLBanks should ensure that they understand the scope of a credit rating. For most securities, the assigned credit rating applies to both principal and interest. However, underwriters can structure securities with a highly rated principal component, but with no rating for the interest component. Such securities may offer very high yields because of the uncertainty of collecting interest payments. The inconsistency of the high yields with the principal's rating should serve as a "red flag" for investors.

Because ratings are a convenient means of assessing portfolio credit quality, management should ensure that the ratings are current by periodically reviewing individual security ratings and updating them when necessary.

Money Market Asset Counterparties

FHLBanks routinely lend funds to counterparties in money market asset transactions, such as selling Federal funds, investing in certificates of deposit, time deposits, bankers' acceptances, and commercial paper. Money market assets enhance an FHLBank's overall liquidity posture, because their short maturities provide regular cash flow. This cash flow, which is a cushion against adverse funding conditions, can also fund advances or additional securities purchases.

To control the credit risk posed by money market assets, FHLBanks should establish credit lines. The credit relationships should always involve internal financial analysis, with the depth and frequency of the analysis dictated by the size of the exposures. The use of external ratings can be a meaningful part of the analysis; however the FHLBanks should not rely exclusively on these ratings. Credit managers will often lower the line amount as the tenor of the exposure increases, because the longer the FHLBank agrees to be exposed, the greater the credit uncertainty. For example, an FHLBank may have a $5 million overnight facility to a counterparty, but its 6-month line to that counterparty may only be $3 million. The credit facility should cover aggregate credit exposures to a given counterparty, and thus include exposure from investments and from derivative contracts.

The following table highlights the short-term ratings scale used by the rating agencies:

Moody's	S&P	Fitch	Interpretation
A-1	P-1	F-1	Superior ability to repay
A-2	P-2	F-2	Strong ability to repay
A-3	P-3	F-3	Acceptable ability to repay
Not prime	B	B	Speculative
	C	C	High default risk
	D	D	Default

The rating agencies do not assign short-term ratings using the same methodology as for long-term ratings. Each short-term rating category covers a range of longer-term ratings. For

example, a P-1 rating could "map," or be equivalent to a long-term rating as high as AAA or as low as A-.

Because commercial banks and securities dealers with whom an FHLBank may conduct business occasionally fail, credit risk from transactions with these entities is an important consideration. FHLBanks should establish and enforce credit limits on exposures with the counterparties. While personnel in the FHLBank's treasury unit may execute transactions within these limits, qualified, independent credit personnel should establish and authorize them.

Credit Risk From Securities Dealers

FHLBanks assume credit risk when buying securities from, and selling securities to, a securities dealer.

When purchasing securities from a dealer, FHLBanks face the risk that their dealer counterparty will be unable to complete the trade by delivering the securities to the FHLBank. Most securities transactions do not "settle" on the trade date. Therefore, FHLBanks face the risk that the dealer defaults on the transaction, prior to settlement, when the securities have increased in value. In that case, the FHLBank may lose the appreciation on the security. Credit risk is a function of the length of the settlement period between trade date and settlement date and the price sensitivity of the security. Credit risk increases as both the settlement period and price sensitivity of the securities increase. MBS, particularly newly issued CMOs, can take as long as 60 days to settle.

When an FHLBank sells securities, it faces the risk that the purchasing dealer will default before settlement date and that the securities' value will have declined between trade date and the date of default. The FHLBank has an opportunity loss equal to the difference between the agreed-upon sale price and the lower value of the securities at default.

When settling securities trades, FHLBanks should use a "delivery vs. payment" (DVP) process whenever possible. In a DVP process, an FHLBank pays for securities only when they are delivered. For example, on a transaction involving Treasury securities, the selling dealer delivers the securities according to the FHLBank's delivery instructions, such as to the FHLBank's Federal Reserve Bank account. When the dealer delivers the securities, the Federal Reserve Bank pays the dealer and charges the FHLBank's account. Similarly, when an FHLBank sells securities, it should deliver them against payment so that payment and delivery occur simultaneously. The FHLBank delivers the security to the purchaser and receives immediate credit in its own Federal Reserve account.

To control the risk of unsettled securities trades, FHLBanks should consider limits, by dealer, on the volume of unsettled trades it will allow. An approved dealer list provides a useful mechanism to control credit risks. Periodic review of dealer financial information allows the FHLBank to assess the dealer's continuing ability to perform on securities transactions. This type of credit control is particularly important for FHLBanks that conduct securities transactions with thinly-capitalized securities dealers.

4) Operational Risk

The most effective way to control transaction risk is to establish a sound system of internal controls. An effective control system is the cornerstone of a well-managed FHLBank, and is particularly important for investment securities, given the large dollar size of transactions. An FHLBank can purchase large volumes of investment assets with a single telephone call that lasts just several seconds. The basic control mechanisms every investment unit should have include:

1) Separation of duties;
2) Authorizing specific personnel to conduct portfolio trades;
3) Timely reconcilements;
4) Effective reporting procedures;
5) Data integrity checks; and
6) Competent personnel.

Separation of Duties

The board of directors and management should establish a control culture that stresses the importance of strong operating controls and an independent audit process. Most importantly, the persons who purchase or sell portfolio securities should not have any authority or responsibility to maintain official accounting records for those assets.

FHLBanks should ensure that confirmations from securities dealers for investment portfolio transactions are transmitted to operations (mid- or back-office) personnel rather than portfolio (front-office) personnel. The FHLBank's control structure should require portfolio personnel to report immediately all transactions to the operations area, which can compare the details of the transaction to information provided by the securities dealer. Early comparison of transaction details can avoid costly last minute settlement disputes and permit verification that all activity reported by portfolio personnel, and the dealer, has in fact occurred. For example, FHLBank operations personnel should not find confirmations from a dealer without a matching trade ticket or other originating documents previously reported by portfolio personnel. Similarly, FHLBank operations personnel should not find internal trade tickets that do not match an incoming confirmation from a dealer.

Authorization of Investment Personnel

The board of directors and management should designate personnel authorized to purchase and sell investment securities for the FHLBank. The FHLBank should provide a list of such personnel to securities dealers transacting business with the FHLBank, and keep the list current. FHLBanks should inform securities dealers that only personnel on the list may initiate securities trades. Securities transactions can commit a large percentage of the FHLBank's capital quickly; therefore, FHLBanks should strictly limit such authority to specifically designated personnel.

Timely Reconcilements

Management should implement procedures to ensure timely reconcilements of investment account records and securities holdings. For example, in addition to reconciling investment account records to the general ledger, operations personnel should also reconcile portfolio holdings to safekeeping records provided by the custodian for the FHLBank's securities. This procedure ensures that an independent party confirms the existence of the assets on the FHLBank's books. Custodians for FHLBank investment securities usually include a correspondent bank, a Federal Reserve Bank, or a broker/dealer.

Effective Reporting Processes

When FHLBank portfolio personnel purchase or sell securities, they should immediately report the transaction to operations personnel, which can arrange for settlement. A security settles when the buyer receives delivery from the seller and makes payment. In a DVP settlement, delivery and payment occur simultaneously. The buyer provides its settlement instructions to the seller, who then delivers the securities according to those instructions. Failure to communicate transactions in a timely manner can result in expensive security "fails" A fail occurs when a security settlement does not occur on the scheduled date. Either the seller fails to deliver to the buyer or the buyer fails to receive from the seller.

"Fails-to-deliver" are expensive because the FHLBank stops accruing interest income on the settlement date. If it delivers the securities a day late, the FHLBank carries the investment as a nonearning asset for that day. Fails are particularly expensive when they occur on a Friday, because the nonearning asset will cost the FHLBank three days of interest income.

A "fail-to-receive" can occur when the FHLBank purchases a security and the portfolio manager does not instruct operations personnel ro receive a security. The dealer will attempt to deliver the security but, lacking any instructions to receive them, operations personnel may refuse delivery. In the instance of a fail-to-receive, the securities dealer will likely claim compensation, or interest due from the FHLBank for the dealer's loss of interest income on the transaction. The dealer, expecting to receive payment for the delivery, will have less cash than expected and may have to borrow funds in the market. The cost of a fail and other securities operations problems underscores the importance of having well-trained personnel in securities operations. FHLBanks can minimize its expense in determining the cause of fails if management establishes and enforces prudent operating and control procedures.

When an FHLBank purchases or sells securities, portfolio personnel should report these transactions to the manager of the FHLBank's funding position. If the funding desk does not know about a large securities sale, it could find that it has a large amount of excess cash in the FHLBank's Federal Reserve Bank account. If an FHLBank purchases securities and funding personnel are not aware of it, the FHLBank could face a shortage in its Federal Reserve Bank account. The FHLBank could be forced to purchase funds in the overnight Federal funds market, perhaps at disadvantageous rates, or borrow at the Federal Reserve Bank's discount

window. Timely reporting of securities transactions permits an FHLBank to manage its reserve position more effectively.

Data Integrity Checks

Management makes business decisions based upon an assessment of risks and rewards. Risk assessment usually starts with an evaluation of financial data. If the financial data lacks integrity, management may not be able to make informed decisions. Because of the importance of data integrity, independent risk management personnel and/or internal auditors should routinely verify the accuracy of management information reports supplied to senior management and the board.

For example, management should ensure that periodic summaries of investment activity accurately report yields of purchased securities. Most importantly, management should confirm that the FHLBank reports portfolio values properly. Such values are reported or disclosed in regulatory and financial reports. Mistakes, which can necessitate amending such reports, can damage the FHLBank's reputation as well as result in a violation of Part 915 of the Finance Board regulations. As a result, to preserve integrity in the pricing and management information reporting process, FHLBanks should generally not allow portfolio managers to value the investment portfolio; rather, this task should be performed by an independent risk management unit.

Competent Personnel

Because of the increasing complexity of securities, investment personnel should have strong technical skills in order to understand both the risks and rewards of the securities as well as to evaluate whether the bid/offer prices are reasonable. A mispriced security, for which the FHLBank pays too much to purchase or sells too cheaply, can be very expensive. A seemingly insignificant mispricing of one-half of 1 percent on a $5 million security transaction will cost $25,000. The cost of pricing abuses highlights the importance of using reputable securities dealers for investment portfolio activities and adopting a practice of competitive bidding among dealers with which the FHLBank deals. When selling bonds, FHLBanks can protect themselves against potential pricing abuses by soliciting bids from more than one dealer. A competitive bidding process tends to assure a fair price.

Competitive shopping may not always be possible when buying securities, because not all dealers will have the same security to offer. In such cases, portfolio personnel should attempt to determine fair values by comparing the yield offered with yields on similar securities. Because credit ratings can lag actual changes in credit quality, FHLBank portfolio personnel should be wary of comparing yields based on credit ratings. When evaluating bonds of a specific issuer, the appropriate comparison is to other securities of the same issuer. Because investment firms use different methodologies to calculate an option-adjusted spread (OAS), FHLBanks should be similarly wary of making purchase decisions based on the security with the highest reported OAS.

Measuring Relative Value

For investors purchasing securities with call options, yield should not be the sole measure of a security's value. Suppose a callable security yields 4.61 percent, and a Treasury security yields 3.82 percent. Although the nominal yield (YTM) of the callable security is 79 basis points higher, the investor has to consider how the options affect its yield before determining whether it is a better value.

Any call option an investor sells imposes a cost, since options limit the bond's price appreciation when rates decline. The value of a security with call options is equal to the value of the security without the call option features, minus the value of the call options. As interest rate volatility increases, option values increase, because the likelihood of having rates fall enough to make it economic to call the bonds increases. Increases in volatility reduce the value of securities with options, because the investor has sold the options. The call feature limits price appreciation when rates fall.

Many investors, including those who hold securities to maturity, analyze the value of securities with embedded call options by assessing the yield on the securities after deducting the value of the options. The resulting value measure is called an option-adjusted yield. A security's option-adjusted spread (OAS) is its yield net of the cost of options, compared with a portfolio of Treasuries having the same expected cash flows. If a security has an OAS of 25 basis points, for example, its yield net of the cost of options is 25 basis points higher than a portfolio of Treasury securities that have the same expected cash flows.

Investors should exercise caution when evaluating securities with very high nominal yield spreads to Treasury securities, particularly when there is little credit risk. Such wide spreads may indicate the investor is selling options whose value is difficult to determine. Since an OAS analysis considers the value of options, a positive OAS compensates investors for credit risk, specifically model risk (the uncertainty associated with model estimates, such as a prepayment rates), and risk to the adequacy of liquidity. Investors should therefore expect relatively limited spreads after deducting the cost of the options on high-quality securities. OAS analysis addresses the deficiencies of the simple yield measures (YTM and YTC). However, the assumptions used to generate the OAS dictate the outcome of the measure. Because the investor has sold an option, interest rate volatility is the critical pricing parameter, along with prepayment modeling assumptions for assets such as mortgage securities. Purchasing securities with embedded options when volatility is high is beneficial, because the issuer will have to pay the investor higher yields to motivate the investor to sell the option.

Just as a securities dealer can make a CMO tranche appear attractive by using a prepayment speed different from the market consensus, an estimate of volatility that is below market consensus will result in a higher OAS. If the investor does not carefully evaluate volatility, it may purchase a security with a negative OAS, even though the nominal spread might appear quite attractive. This possibility underscores the need for the investor to evaluate more than just the simple yield measure. Investors in securities with options should evaluate volatility the same

way they do prepayment speeds for mortgage securities, such as by checking market consensus among several securities dealers.

An investment strategy that focuses exclusively on maximizing yield can result in a portfolio that fails to accomplish other desired objectives of investment activities, such as controlling interest rate risk and producing adequate liquidity. Strategies that emphasize accounting yields can, if not managed properly, result in portfolios with excessive levels of interest rate risk (due, for example, to concentrations in options or long maturities) or credit risk. Investment assets that provide the highest yields frequently have greater cash flow uncertainty and wider bid/offer spreads, reducing their potential liquidity. Management should set the investment portfolio's goals and then undertake securities transactions accordingly.

5) Financial Condition and Performance

Many FHLBanks use their investment and money market asset portfolios as a source of liquidity. Money market assets represent an excellent liquidity source because of their short maturities and limited price sensitivity. FHLBanks may use the liquidity of money market assets as a cushion against unanticipated funding demands. Many FHLBanks structure their portfolios so that maturities occur evenly over time, creating a "laddered" distribution. A laddered maturity distribution provides the FHLBank with a regular source of asset liquidity as well as allowing the FHLBank to "dollar cost average" its investment purchases. By investing a similar volume of funds at regular time intervals, FHLBanks reduce the risk of investing a disproportionate amount of funds at any one time. A "concentration" of security purchases, investing too much all at once, could result in future earnings problems if the security purchases occurred at the low point of a yield cycle. The more a securities portfolio has a concentration in options, the higher the risk that the FHLBank will find itself in this situation.

Cash flow uncertainty for a security is typically a function of options, which cause the timing and amount of cash flow to vary with changes in interest and prepayment rates. The more securities with options in the portfolio, the more cash flow uncertainty exists. The type of option-sensitive securities an FHLBank has in its portfolio has an important impact on the portfolio's cash flow uncertainty. Cash flow volatility will be highest for portfolios with concentrations in callable bonds, followed by portfolios with concentrations in CMO's, MBS pass-through securities, and asset-backed securities. Portfolios with limited holdings of securities with options will have the most cash flow certainty.

An FHLBank should expect that the issuer of a callable security will exercise its option, and call the entire security, whenever it is economically efficient to do so. If it does not, a credit problem may exist. On the other hand, when it is not economically efficient to call the securities, the issuer will likely leave the bonds outstanding. With an MBS, on the other hand, the investor will experience partial calls. The size of these partial calls depends upon such factors as the difference between current mortgage rates and mortgage rates of the loans that back the security, and the seasoning of the loans. Mortgage prepayments also increase when the slope of the yield curve is steep. When short-term rates are well below long-term rates, homeowners may

refinance their existing fixed rate mortgages into adjustable rate mortgages. Homeowners have historically not exercised their option to prepay as efficiently as do issuers of callable securities. A pass-through MBS rarely pays off with a large single payment regardless of how low mortgage rates fall. When rates rise, the securities will still experience some prepayments, as some homeowners will pay off their mortgage for reasons unrelated to overall interest rates.

A CMO is a structured security that uses mortgage pass-through securities as collateral. The predictability of a CMO's cash flow is a function of the CMO tranche's structure. Some CMO types, such as planned amortization classes (PACs), can offer fairly predictable cash flow profiles. Others, such as support tranches, absorb the cash flow uncertainty of the underlying collateral and "support" the more stable PAC tranches by having more volatile cash flow patterns. To properly assess risk, investors must assess the cash flow schedule and evaluate how much a change in interest and prepayment rates will alter the estimated cash flow. Asset-backed securities will tend to have more cash flow certainty because the loan assets tend to have a lower propensity to refinance as rates change.

A portfolio of non-callable securities will have no cash flow volatility, because the cash flow schedules do not change as interest rates change. FHLBanks that use their investment portfolios as a source of liquidity should recognize how the different kinds of option-sensitive securities affect cash flow predictability and consider these issues when structuring their portfolios.

Bond dealers tend to widen the bid/offer spread on complex securities (ones with highly uncertain cash flows), because these securities are more difficult to analyze and value, and consequently more difficult to sell. When a dealer buys securities for its own account, it assumes all the attendant price risk. The more difficult it is to sell a security, the more price risk a dealer takes. The dealer protects itself against the price risk of such securities by widening the spread. A wide bid/offer spread reduces the security's liquidity, because the price an investor receives to sell the security can be significantly less than the price paid to purchase the security. Liquidity, a consideration for all securities, is especially important to consider for securities in the held-for-fair-value and available-for-sale accounts, since FHLBanks mark-to-market both categories.

FHLBanks should be cautious about accumulating a material position in illiquid securities, because they can reduce the practical liquidity of the investment portfolio. Examples of illiquid securities include HFA Bonds where the issuers rely on debt placement to the FHLBanks, MBS investments where the FHLBanks own the majority of the issue, and MBS investments with new or unique collateral attributes. The fact that the issuer has a strong credit rating simply means the bonds have little credit risk; it does not imply that the bonds carry low interest rate risk or are liquid.

ACCOUNTING ISSUES

The investment portfolio is governed by two primary accounting rules. These are Statement of Financial Accounting Standards (SFAS) 115 and SFAS 91, and are discussed below.

SFAS 115 Security Classifications

When FHLBanks purchase investment securities, Statement of Financial Accounting Standards 115, "Accounting for Certain Investments in Debt and Equity Securities" (SFAS 115), requires them to classify the securities as held-to-maturity (HTM), available-for-sale (AFS), or trading.

The HTM account is appropriate only if the FHLBank has the positive intent and ability to hold a security to maturity. If an FHLBank classifies a bond as HTM, it has indicated, for accounting purposes, that it will hold the bonds to maturity. Absent a "safe harbor" exception, sales of HTM securities may call into question the appropriateness of the FHLBank's classification of other HTM securities. Accountants may require the FHLBank to reclassify as AFS some or all of the remaining HTM securities. FHLBanks carry AFS securities at market value and report changes in the market value in Accumulated Other Comprehensive Income (OCI), which is a separate component of equity.

SFAS 115 requires an analysis when a security's current market price is below its amortized cost. The assessment is made to determine if the impairment is "other than temporary." If management determines the impairment is other than temporary, the FHLBank must write off the amount below cost against current earnings. If the impairment is not "other than temporary," there will be no income statement impact.

FHLBanks occasionally sell securities from their AFS account to take gains (or losses), either for budget reasons or to reposition the risk profile of the portfolio. The AFS account provides the flexibility to buy and sell securities, and to manage investment risks. It is important, however, to differentiate between an AFS and a trading portfolio. Trading investments for speculative purposes or market-making activities is inconsistent with the FHLBank's mission. The FHLBanks use the trading designation primarily for the ability to mark the trading assets to fair value to offset the change in fair value of an associated derivative instrument that does not meet hedge criteria directed by SFAS 133. Selecting a security's accounting classification is another strategic decision an FHLBank faces when managing a securities portfolio.

Since SFAS 115 requires management to classify most securities as either available-for-sale (AFS), held-to-maturity (HTM), or trading, the initial classification is an important decision. The primary reasons are the rules for reclassifying investments between categories. For example, once a security is placed in the HTM category, management cannot usually sell it without adverse consequences. The inability to sell long-maturity, price-sensitive securities can significantly weaken management's control over the FHLBank's interest rate risk and earnings.

With an AFS portfolio, management can sell securities and restructure the portfolio to make its risk profile more consistent with the FHLBank's interest rate views and asset/liability management objectives. However, the marking to market of AFS securities in OCI and marking of the trading portfolio to income requires appropriate levels of retained earnings, given the par value nature of FHLBank stock.

SFAS 91 Requirements

When an FHLBank purchases MBS at non-par prices, the investments will need to meet the requirements of SFAS 91. SFAS 91, "Accounting for Nonrefundable Fees and Costs Associated with Originating or Acquiring Loans and Initial Direct Costs of Leases," requires that most costs and fees on loans and any discount or premium on loans at their time of purchase be amortized over the life of the loan. Amortization is calculated based on the interest method, using a level yield (constant effective yield method).

Regarding MBS, SFAS 91 permits an enterprise that "holds a large number of similar loans for which prepayments are probable and the timing and amount of prepayments may be reasonably estimated" to consider "estimates of future principal prepayments in its calculation of constant effective yield." Premiums and discounts are amortized based upon the expected prepayments of the underlying mortgages. At least monthly, amortizations should be adjusted to reflect actual prepayment experience and revised outlook. These adjustments may cause a substantial change in the accounting yield on MBS, as recognition of discounts and premiums accelerates or slows. FHLBanks may also use the contractual method for calculating SFAS 91 amortization. This method bases the amortization of premiums and discounts upon the actual terms of instruments and does not use estimates to predict prepayments.

Specific Risk Controls Related to the Investment Function

Risk Management Framework

The diversity and complexity of securities in FHLBank portfolios, and the investment portfolio's impact on market and credit risks, as well the FHLBank's financial condition and performance, underscores the importance of a mechanism to control risk. An effective risk management framework includes

1) Board of directors and senior management oversight;
2) Processes to identify, measure, monitor, and control risks; and
3) A sound system of internal controls.

1) Board of Directors and Senior Management Oversight

The oversight of investment portfolio activities is an important part of managing the FHLBank's overall interest rate, liquidity, operation, and credit risk profiles.

The board of directors' role in the oversight process is to:

1) Establish the FHLBank's strategic direction and its risk limits;
2) Review portfolio activity, risk profile, and performance;
3) Monitor compliance with authorized risk limits;
4) Approve investment policies; and

5) Hire capable management

Management's role in the oversight process is to translate the board of directors' tolerance for risk into a set of operating policies and procedures that govern the FHLBank's investment activities. Management develops portfolio objectives and strategies, establishes standards for investment acquisition and new product review, oversees portfolio activity, and reports the results of investing activities to the board. Additionally, management is responsible for establishing an environment in which employees adhere to a sound system of internal controls and employees are held accountable for developing and enforcing such a framework.

2) Processes to Identify, Measure, Monitor, and Control Risks

FHLBanks that cannot accurately measure risks will have a difficult time managing them effectively. Analyzing a security's price sensitivity is fundamental to investment portfolio management. In addition to assessing credit and liquidity risks, investment officers should assess the potential changes in security values over a number of interest rate scenarios. For example, the FHLBank might analyze the security's performance profile or value changes as yields increase and decrease by 100, 200, and 300 basis points, and for selected non-parallel yield curve shifts. This "pre-purchase analysis" will identify any asymmetries, such as limited upside price potential for securities with options. FHLBanks following this sound risk management practice are better able to quantify the security's interest rate risk.

A pre-purchase analysis often will alert FHLBanks to a security's characteristics that do not fit the FHLBank's objectives. FHLBanks that do not perform a pre-purchase analysis of risks are not managing the investment portfolio in a safe and sound manner. Management should establish standards for documenting the pre-purchase analysis. Although it may not be necessary to document the performance profile of all securities, such as short-term Treasuries, management may find that documenting the analyses imposes a healthy discipline over the investment process.

Some of the more complex securities can change in character as market yields change. For example, certain mortgage securities can have the amount and timing of their expected cash flows change significantly because of their option features and structure. A security's structure refers to how cash flows from the loans underlying an asset-backed security, such as a CMO, are distributed to security owners. While reviewing the price sensitivity of all securities, management should give particular attention to securities with option features, not only prior to purchase but also periodically thereafter.

FHLBanks control investment risks by establishing and enforcing investment policies. The investment policy lends structure and organization to the FHLBank's investing activities. Regardless of whether the FHLBank has a separate investment policy, or has the policy included with the risk management policy, it should address:

1) Investment objectives;

2) Minimum credit quality;
3) Permissible investment types;
4) Price sensitivity limits for both individual securities and the portfolio;
5) Maturity limits;
6) Risk concentrations;
7) Risk reporting;
8) Approved securities dealers; and
9) Policy exceptions.

Objectives: Most FHLBanks' investment objectives include achieving a desired asset/liability management profile, generating earnings, and providing liquidity.

Credit Quality: See the "Credit Risk" section above for a detailed discussion of the credit risk of portfolio assets. Minimum quality standards are a key component of any investment policy and outline the FHLBank's tolerance for credit risk in the investment portfolio.

Permissible Investments: See Part 956 for a list of permissible investments.

Price Sensitivity Limits: Price sensitivity limits for both individual securities and the aggregate portfolio are a key control over portfolio risk. FHLBanks that control interest rate risks by placing a limit on the permissible change in the market value-of-equity (MVE) do not necessarily need individual security and portfolio sensitivity limits, because they control risks at the macro level (on- and off- the balance sheet). However, they may find that micro limits for individual securities and the investment portfolio are helpful in achieving overall MVE objectives. Further, the FMP places restrictions on the price sensitivity of MBS.

Maturity Limits: While limits on price sensitivity are the most effective way to control interest rate risk, FHLBanks may find that a limit on the maturity of investment assets adds discipline to the risk control process.

Concentrations: Concentrations, which represent a lack of risk diversification, may result in:

1) Lack of geographic diversification. This problem, which often occurs with MBS, underscores the importance of identifying a portfolio's full risk profile. An FHLBank may find, for example, that it has an undesired concentration of mortgage pools in a particular state. If the FHLBank has paid a premium for the MBS and the state has faster-than-average prepayments, the FHLBank's MBS portfolio may perform poorly relative to management's expectations. If it has purchased its MBS portfolio at a discount, a concentration of pools in areas of slow prepayments will also cause the portfolio to underperform. Geographic diversification is also an especially important credit risk issue for mortgage securities without government agency backing and large municipal bond portfolios.
2) Holdings of a single issuer. Management should consider placing limits on how exposed the FHLBank can be to a single securities issuer.

3) Holdings of asset-backed securities having the same collateral characteristics, originator, packager, or servicer. Here, the FHLBank should consider how a decline in the credit quality of the originator may affect its underwriting standards, which in turn could lower the credit quality of the underlying securities.
4) Holdings of bonds having the same trustee. Failure of the trustee could delay the receipt of security cash flows (interest and principal).
5) Lack of coupon diversification for MBS. Mortgage securities contain embedded prepayment options. A concentration in a particular coupon makes the overall option concentration potentially even more risky. FHLBanks having large MBS portfolios concentrated in a single coupon could face substantial prepayments if mortgage rates fall to a level that spurs the refinancing of mortgages carrying that particular coupon. For adjustable rate mortgage securities, FHLBanks should be aware of concentrations in a specific rate reset period. For CMOs, FHLBanks should be aware of concentrations in underlying collateral. The Interest Rate Risk section of this manual provides a further assessment of the risks of CMOs.

When developing the investment policy, management should understand the ramifications of the aforementioned concentration sources and consider whether the board of directors' risk tolerance calls for specific limits.

Risk Reporting: The review of investment activity is one of the most important aspects of management oversight. FHLBanks typically report securities transactions to the board of directors every month and summarize activity in the investment portfolio at the end of the quarter. Too often, however, the reports provide data but do not adequately explain risk. Therefore, activity reports often do not contribute properly to effective oversight. For example, consider a monthly report of investment activity that lists the par value of each security purchased or sold, the issuer, the yield, the purchase/sale price, and any gain/loss. While these details are important, they do not address risk. A more effective presentation would also report the sensitivity of each purchased security if rates rise/fall 100 and 200 basis points, and any applicable policy limit. For MBS, risk reporting could identify a range of possible yields if the FHLBank purchased the security at a price significantly different from par. For CMOs, the FHLBank might also report the security's structure and the payment "window."

The summary of the aggregate portfolio is an especially important risk control report. Trend information is particularly helpful. For example, the FHLBank might report a summary, over the past 12 months, of the portfolio's balances and yields, its sensitivity to yield changes, and unrealized gains/losses. For the current position, risk-focused information might include a breakdown by security type, showing market value, unrealized gain/loss, price sensitivity for selected yield changes, and yield.

Equally important, periodic portfolio summaries should compare key policy constraints to portfolio performance, identifying any policy exceptions, explaining why they occurred and who approved them.

Reports to management summarizing investment performance and activity should provide more detail than reports to the board of directors. Periodically, management should assess whether the current reporting framework meets their needs. For example, a policy change to purchase more complex securities may require a change in the substance of management reports to more accurately detail the portfolio's risks.

Securities Dealers: The FHLBanks should not be over-reliant on the advice of securities sales representatives for recommendations of proposed investments, investment strategies, and the timing and relative value of securities transactions. FHLBank investment managers should communicate its investment policy effectively and instruct and expect dealers to find or structure securities that meet the FHLBank's objectives.

A disciplined process requires that the FHLBank deal only with approved investment firms. FHLBank management should know the reputation of securities firms and the personnel with whom they deal. An investment portfolio manager should not engage in securities transactions with any securities dealer that is unwilling to provide complete and timely disclosure of its financial condition. Credit personnel should review the dealer's financial statements and make an informed judgment about the ability of the dealer to honor its commitments.

The board of directors or an appropriate board committee should review and approve a list of securities firms with whom the FHLBank is authorized to do business. In selecting a dealer, the FHLBank should:

1) Consider the ability of the securities dealer and its subsidiaries or affiliates to fulfill commitments as evidenced by capital strength and operating results disclosed in current financial data, annual reports, credit reports, or other reports.
2) Inquire into the dealer's general reputation for financial stability and fair and honest dealings with customers, including past or current financial institutions.
3) Contact appropriate state or federal securities regulators and securities industry self-regulatory organizations, such as the National Association of Securities Dealers, concerning any formal enforcement actions against the dealer or its affiliates or associated personnel.
4) Inquire, as appropriate, into the background of the sales representative to determine his or her experience and expertise.

In managing an FHLBank's relationships with securities dealers, the board of directors may also want to consider prohibiting employees from engaging in personal securities transactions with the securities firm that the FHLBank uses for its transactions. Such a policy helps to control conflicts of interest. The board of directors may decide to prohibit such transactions unless the board specifically approves and periodically reviews them. Such prohibition could be included in the FHLBank's code of ethics or conduct. The board also may want to adopt a policy applicable to directors, officers, or employees concerning receipt of gifts, gratuities, or travel expenses from approved dealer firms and their personnel. In order to monitor the FHLBank's activities with dealers, management and the board should consider requiring reports of

investment activity to list the firm that executed each transaction. A concentration of transactions with one firm may indicate a failure to shop competitively to obtain the best price.

Policy Exceptions: Policy documents should be designed to impose discipline on risk-taking. Occasionally, management may determine that an exception to the investment policy is in the FHLBank's best interests. Policies should address whether exceptions require prior approval, and the appropriate approving level. Additionally, policies should provide for an orderly reporting process for exceptions. The risk reporting process serves to review compliance with policies on an ongoing basis. If exceptions become too frequent, the board of directors should evaluate whether it is time to revise the policy or insist on more rigorous compliance.

3) Internal Controls

A control culture, which senior management and the board of directors must support in policy and practice, is a key component of effective corporate governance and provides the corporate integrity necessary to properly manage risk-taking activities.

An FHLBank's management and board of directors are responsible for establishing an appropriate internal control structure. The internal control system is integral to the risk management framework. An effective internal control system includes policies and procedures, clear lines of authority, separation and rotation of duties, ethical standards, and an independent audit (including testing) of the systems for executing transactions and reporting risks.

Independent reviews are essential to the integrity, accuracy, and reasonableness of the entire risk management framework. Personnel independent of the FHLBank's investment securities function should periodically assess the effectiveness of the internal control system, risk reports, policies and procedures. Moreover, such independent personnel should assess compliance with applicable policies and procedures. Independent reviewers should immediately bring deficiencies in the control processes, and the risk management framework generally, to the attention of senior management and the board of directors. Examiners should assess the timeliness and appropriateness of corrective action.

Examination Guidance

A work program for Investment Portfolio Management accompanies this narrative. What follows below are illustrative examples of attributes that should be considered by the examiner in completing the analyses required in that work program. In determining the extent of review and testing to be conducted each analysis, the examiner should take into account his or her assessment of the quality and effectiveness of corporate governance, risk management, internal controls and audit coverage relating to the institution's investment portfolio management.

1) Organizational Structure

Assess the organizational structure, staff capabilities, and line management of the investment function. Do the board of directors, management, and pertinent personnel display a fundamental understanding of the risks of investment securities and money market assets?

Given the size and complexity of the FHLBank's portfolio, determine whether management and investment personnel display adequate knowledge and technical skills to prudently manage the portfolio.

a) Assess whether management is capable of prudently managing the investment portfolio. Consider:

   (1) Management's understanding of financial concepts and investment portfolio management strategies;
   (2) Treasury personnel's education levels and commitment to enhance the knowledge through continuing education;
   (3) Risk appetite of the board of directors;
   (4) Size and complexity of the portfolio;
   (5) Treasury personnel's awareness of interest rate trends;
   (6) Number of dealers the FHLBank uses;
   (7) Commitment to understanding investment risks of both the portfolio and individual securities (pre-purchase analysis);
   (8) Adequacy of credit risk analysis; and
   (9) Compliance with FHLBank policies.

b) Assess whether operational (mid- or back-office) personnel have adequate knowledge and experience to ensure control over transaction risks given the size and complexity of the FHLBank's portfolio.

c) Evaluate the quality of management. Do portfolio and supervisory personnel have the required knowledge, experience, and risk management systems to identify, measure, monitor and control the risk of the FHLBank's securities activities?

d) Determine whether the audit and risk management functions are independent of investment portfolio staff and management.

2) Establishment of risk tolerances and development of key policies and oversight by the board of directors. Adequacy of senior management oversight and the risk management function.

Has the board of directors established appropriate policy guidelines for investment securities and an independent risk management function? Specific attributes to consider include, but are not limited to the following:

a) Has the FHLBank adopted an investment policy (may be contained in the RMP)?

b) Has the FHLBank established an asset classification policy that includes investments?

c) Determine management's policies for actions to be taken in the event a security's rating drops below investment grade.

d) Determine which of the FHLBank's accounting policies are pertinent to the investment activities. These will include SFAS 115 and 91 and may include SFAS 133 and 155, depending on the FHLBank's strategies. Coordinate efforts with the examiner reviewing Financial Reporting Operations.

e) Does the FHLBank have an independent unit to assess investment risks and review compliance with Bank policies?

f) Are investment decisions made by an individual or is a committee involved?

g) Assess the effectiveness (frequency and scope) of board of directors' policy reviews.

3) Key FHLBank policies and procedures

a) Assess pertinent policies, evaluate procedures, judge performance, and determine the thoroughness of board and management reporting to control credit, market and operational risks by considering:

(1) FMP (applicable by Section 956.2) portfolio MBS limits;
(2) FMP average live extension limits for individual MBS investments;
(3) Limits on the price risk of individual securities;
(4) Limits on the price sensitivity of the aggregate portfolio;
(5) Limits on authority of officers;
(6) Types of permitted securities;
(7) Credit quality of security issuers;

(8) Loan level attributes (FICO scores, LTV, IO, and documentation type) for MBS investments;
(9) Targeted subordination levels for MBS;
(10) Tranche or class thickness for MBS investments and maximum percentages of MBS investments;
(11) Selection of servicers/trustees for ABS transactions;
(12) Selection of securities dealers;
(13) Credit quality of securities dealer counterparties;
(14) Settlement limits for securities dealers;
(15) Predatory lending issues;
(16) Standards for transaction execution, such as requiring multiple bids/offers to ensure fair prices;
(17) Personnel authorized to conduct securities transactions;
(18) Limits on the volume of securities purchases/sales in a pre-defined period;
(19) Off-premises trading;
(20) Possession and control of securities;
(21) Portfolio diversification; documentation of pre-purchase analyses;
(22) Conflicts of interests;
(23) Securities lending and repurchase agreement activity;
(24) Internal control requirements;
(25) Reporting of investment transactions; and
(26) Policy exceptions.

b) Review compliance with FHLBank policies. A large number of exceptions, especially if the FHLBank has not identified them before they occur, may indicate a potential weakness. Does the board of directors or another supervisory committee approve previously identified exceptions to policies?

c) Review changes to the FHLBank's policies since the previous examination. Do the changes allow for increased credit and market risk, or affect the adequacy of the FHLBank's liquidity reserves relative to its risk exposures and regulatory requirements?

d) How granular are the FHLBank's policies. Do the policies have broad investment authority such as AAA-rated, or are investment types approved individually?

e) Are all investing standards memorialized or are "rules of thumb" approaches used?

f) Determine the FHLBank's investment strategies. Does management emphasize:

(1) Maximizing yield-to-maturity?
(2) Using the portfolio to implement a desired asset/liability management position?
(3) Taking conscious interest rate bets?
(4) Relative value of securities?
(5) Maximizing the portfolio's total return?

(6) Using the portfolio as a temporary asset until it can make advances?

g) Assess the MIS reports used by management and the board of directors to monitor investment activities. Consider whether the reports:

(1) Are appropriate for the level of risk;
(2) Document the monitoring of compliance with limits;
(3) Are accurate and explain how risks have changed rather than simply provide data that does not assess risks;
(4) Are appropriate for the intended audience;
(5) Provide both summary information and transaction detail, as appropriate;
(6) Are presented to management and the board in a timely manner;
(7) Appropriately stratified for sub-classes of investments, such as Alt-A, or for key providers, such as mortgage insurers or mortgage servicers; and
(8) Allow for roll-up exposures across business units, including off-balance sheet activities.

h) Evaluate portfolio performance:

(1) Compare yields with those of the FHLBank System averages.
(2) Does the FHLBank benchmark its portfolio performance against a customized system peer group or have internal benchmarks? If so, review the results of such comparisons and determine the cause of any significant differences in results.
(3) Evaluate portfolio yield relative to the credit risk and interest rate risk taken, and the adequacy of the FHLBank's liquidity reserves relative to its risk exposures and regulatory requirements.
(4) Determine whether depreciation in the investment portfolio represents a significant percentage of the FHLBank's capital.
(5) Assess whether securities gains reflect market decisions and progress toward asset/liability management objectives, or whether they are taken simply to achieve management's budgeted income targets.
(6) Assess whether the portfolio's interest rate risk is consistent with the board's risk tolerance and management's stated strategies.

4) Risk assessment under Part 917 and internal control evaluation under SARBOX

Evaluate the effectiveness of the annual risk assessment under Part 917, the model validation for investment market values, and the internal control assessment under SARBOX applicable to investment portfolio management, as well as procedures implemented to periodically attest to the adequacy of the control environment. Consider the following:

a) Do the risk assessments capture emerging risks and incorporate market conditions into the process?

b) What are the FHLBank's processes for addressing open items associated with risk assessments, model validation recommendations, or control gaps? Are any resolution steps consistent with the magnitude of the risk?

5) Testing performed by external and internal auditors and outside consultants

Evaluate testing performed by the FHLBank's external auditors, internal auditors or consultants of controls over its investment portfolio activities. Consider the following:

a) Is full audit testing conducted over an annual audit or is a multi-year cycle used for the audit program?

b) Review the breadth and depth of audit testing. Determine if the testing process is consistent with the investment portfolio's risks. Specific attributes to be included in the audit's scope include, but are not limited to the following:

(1) Principal and accrued interest reconciliations with the general ledger;
(2) Balancing of safekeeping reports with portfolio holdings;
(3) Testing of accrued interest calculations and premium amortization and discount accretion;
(4) Tracing confirmation terms and conditions for both sales and purchases to the FHLBank's system of record;
(5) Investment authorization and compliance limits;
(6) Comparison and reconciliation of portfolio yields with those of the FHLBank System averages;
(7) Benchmarking portfolio performance against a customized system peer group or have internal benchmarks. If this is done, review the results of such comparisons and determine the cause of any significant differences in results.
(8) Evaluating portfolio yield relative to the credit risk and interest rate risk taken, and the adequacy of the FHLBank's liquidity reserves relative to its risk exposures and regulatory requirements.

c) Are some audit control tests performed in other audits? For example, are tests for interest rate calculations performed in information technology audits rather than the investment audit?

Consider expanding control testing if the audit scope is considered deficient.

6) Information technology and controls

Identify and assess the automated and manual systems and applicable controls utilized by the investment management function for processing, verifying, and settling transactions. Activities to review include the following: trade, trader, counterparty, regulatory, and bank-wide concentration limits, robustness of data environment, especially related to end-user computer application, authorized users, vendor technical support, and business continuity and recovery.

a) Using the risk assessments and SARBOX documentation, identify the FHLBank's system of records.

b) Evaluate how trades are entered into the system of records. Determine if multiple trade transaction entries are needed to populate other systems or if trade transaction data is only entered once (straight-through processing).

c) Review access controls to the trading systems.

d) Determine what systems are used by the FHLBank's traders to ensure that any prospective transactions will not exceed regulatory or policy limits. Determine if these systems are real-time and roll-up all exposures with the FHLBank's counterparties.

e) Determine who independently verifies compliance with limits.

f) Identify any end-user computer applications used in the investment process. Review controls over the applications.

g) Review the disaster recovery plan and the latest test results.

7) Identification and evaluation of controls and significant changes to the activity or function.

Evaluate the workflow, analyses, and processes as well as controls, including the level, types, sources, and direction of market, credit and operational risk, and the quality of risk management. Determine if these risks are measured thoroughly and include: individual positions, positions with common counterparty, products with common risk attributes such as collateral or documentation type, and concentrations. Assess whether these risks are measured both on a transaction basis and at the portfolio level. If applicable, conduct an assessment of any significant or anticipated changes to FHLBank investment portfolio management strategies since the last examination that may affect the FHLBank's risk profile.

a) Determine the level of credit risk in the portfolio:

(1) Segregate the portfolio by credit ratings to determine the percentage of the portfolio in each rating category, including non-rated securities.
(2) For term investments, determine extent of reliance on financial guarantors.
(3) Assess the trend in credit quality between examinations to determine whether the FHLBank has changed its credit risk appetite in its portfolios and, if it has, why.
(4) Evaluate the FHLBank's credit risk tolerance by reviewing changes to policies and security purchases between examinations.
(5) Determine whether any securities are rated below investment grade or have defaulted. If so, consider whether such securities have "other than temporary" impairment (SFAS 115). Determine management's policies for actions to be taken in the event a security's rating drops below investment grade.
(6) Assess any additional credit due diligence to U.S. branches of foreign commercial banks.
(7) Evaluate the FHLBank's credit monitoring practices. Will the monitoring practices capture obligor deterioration? Consider whether the FHLBank:

(a) Relies exclusively on external ratings.
(b) Establishes thorough internal credit reviews.
(c) Uses third-party providers for monitoring credit performance.
(d) Utilizes automated surveillance tools.
(e) Monitors collateral performance, servicer rating, and credit enhancement levels for private label MBS.
(f) Has used default scenario analysis for securities, particularly unsecured investments.

b) Determine the level of market risk in the securities portfolio and the direction of risk (increasing, stable, or decreasing).

(1) Review the portfolio's maturity distribution.
(2) Review duration reports to determine the price sensitivity information for the investment portfolio. Review interest rate shock reports to determine the extent of negative convexity. Determine overall sensitivity, and assess the level of risk to earnings and capital.
(3) Gain an estimate of the portfolios effective duration by comparing the change in portfolio value over time to changes to the general change in interest rates over the same period.
(4) Calculate the amount of appreciation/depreciation in the portfolio. Analyze the sources of any material depreciation of appreciation.
(5) If the FHLBank has portfolio price sensitivity limits, evaluate the appropriateness of the limit in light of capital strength, profitability, management talent, aggregate risk profile, and sophistication of measurement systems. Consider how funding reallocations could impact the portfolio limits.
(6) Stratify the portfolio by fixed- and floating-rate securities. Determine extent of any cap risk with the floating rate portfolio and how that risk is managed.

c) In coordination with the examiner or FHLBank analyst reviewing Financial Condition and Performance, evaluate the effect of the FHLBank's investment portfolio upon the adequacy of the institution's liquidity reserves relative to its risk exposures and regulatory requirements.

(1) Determine the FHLBank's reliance on the investment portfolio as a liquidity source. How much reliance is on term investments for liquidity?
(2) Determine the number and quality of pledged securities.
(3) Review the sources of any investment depreciation.
(4) Review the number of investments not covered by pricing services.
(5) Calculate holdings of investments with limited marketability. Investments with limited marketability can include "tail" pieces of MBS, structurally complex securities, and certain housing finance and Small Business Administration obligations.
(6) How do the investment SFAS 115 classifications between held-to-maturity, available-for-sale, and trading impact liquidity? Does the current mix allow for financial flexibility?
(7) Assess the monthly cash flow from the securities portfolio including maturities, anticipated calls and prepayments, and coupon interest. Distinguish between known cash flows, such as maturities and interest payments, and anticipated cash flows, such as prepayments and calls.

d) Determine whether the operational area adequately supports the FHLBank's investment activities:

(1) Obtain a general understanding of the work flow and job responsibilities of the FHLBank's operational area through discussions with management and reviewing FHLBank-prepared data.
(2) Determine whether operational procedures and systems are adequate to the scope and complexity of securities activities.
(3) Determine whether the operational area is independent of FHLBank personnel making investment decisions.
(4) Assess whether documentation is adequate for a proper audit trail.
(5) Evaluate how unique trade numbers are determined and controlled.
(6) Review operational losses such as reconciling errors and compensation claims, and determine whether the losses are reasonable.
(7) Assess whether the operational area can handle present and projected volumes.
(8) Determine if trade tickets contain key transaction information, such as trade date, purchase/sale, par value, price, and officer signatures.
(9) Test the confirmation process to ensure its accuracy and independence.
(10) Assess how changes in business processes map to procedure changes.
(11) Review reconcilements to determine whether there are significant unexplained differences. Significant differences should be discussed with management. Such reconcilement reports would include:

(a) Trial balance to general ledger, such as book value of securities and accrued interest;
(b) Portfolio holdings to safekeeping records;
(c) Pledged securities to pledged activity reports; and
(d) Pledged securities to secure repurchase agreements and public funds.

e) In conjunction with other examination staff, determine whether the FHLBank has effective accounting and valuation controls for investment securities.

(1) Review the FHLBank's accounting policy for investment securities to ensure that it conforms to GAAP, including SFAS 115. Coordinate this review of SFAS 115 with the examiner examining Financial Reporting Operations.
(2) Review recent purchase activity and determine the timeliness and appropriateness of allocations to the held-to-maturity, available-for-sale, and trading accounts.
(3) If applicable, determine whether sales from the held-to-maturity account meet SFAS 115 "safe harbors". If not, determine whether securities remaining in the held-to-maturity account should be moved to the available-for-sale account.
(4) Determine whether any securities are rated below investment grade or have defaulted. If so, whether such securities have "other than temporary" impairment under SFAS 115. Coordinate with the examiner reviewing Financial Reporting Operations to determine management's policies for actions to be taken in the event a security's rating drops below investment grade.
(5) Determine the appropriateness of any movement of securities between the AFS and HTM portfolios.
(6) Determine if the SFAS 115 portfolio distribution is consistent with the FHLBank's broader strategies-particularly funding?

f) In conjunction with other examination staff, review the FHLBank's investment market pricing process. As part of the review, consider:

(1) Independence of the pricing function;
(2) Frequency of market pricing;
(3) Volume of illiquid or non-marketable investments;
(4) Assumptions used in determining any modeled prices; and
(5) Securities and Exchange Commission qualitative disclosures of pricing process.

8) Testing

Conduct transaction testing. The testing should generally include both long-term investment purchases and short-term trades that have been executed since the previous examination. The choice of investments sampled should be risk-focused with the sample size dictated by the preliminary review of the changes to the size and composition of the investment portfolio, governance, risk management, internal controls and audit coverage.

a) Select a sample of purchased investments since the previous examination. The sample should generally include investments in all major categories. Unrated investment securities should be explicitly included in the sample. In determining both the specific investments to sample and the size of the sample, the following should be taken into consideration:

(1) Size of position;
(2) Price paid relative to par;
(3) Initial and current credit rating;
(4) Collateral type, and FHLBank's experience with investment type;
(5) Collateral quality and size/type of credit enhancements-if applicable;
(6) Collateral with potential predatory lending characteristics;
(7) Experience with counterparty;
(8) Concentrations with issuers, servicers, collateral type, or enhancers;
(9) Changes in FHLBank investment philosophy; and
(10) Changes in the investment staffing department.

b) Review the FHLBank's underwriting practices for the sampled transactions. Verify that the credit files contain:

(1) Trade ticket, primary and secondary approvals;
(2) Compliance with applicable FMP limits or internal limits;
(3) Trade confirmation;
(4) Alternative ask prices, as applicable;
(5) For non-rated securities, the credit analysis demonstrating that the security is the "credit-equivalent of investment grade."
(6) Offering circulars, prospectus, or reference to an electronic copy;
(7) Price paid relative to par;
(8) Initial and current credit rating;
(9) Size of position;
(10) Collateral type, and the FHLBank's experience with investment type;
(11) Collateral quality and size/type of credit enhancements-if applicable; and
(12) Experience with counter-party.

(c) Select a sample of approved counterparties and assess whether files are current and contain sufficient information to document an informed credit decision. These may include:

(1) Financial statements;
(2) Assessment of the counterparty's ability to meet its financial obligations; and
(3) Assessment of the counterparty's general reputation.

9) Assessment of Risks

Summarize the results of the activity or function examined in a separate memorandum. The memorandum must articulate the risks and the management of those risks. It should also clearly and specifically describe the basis and analysis for the assessment. The memorandum should discuss the type(s) of risk (market, credit, operational); the level of risk (low, moderate, high); the direction of risk (stable, decreasing, increasing); and the quality of risk management (strong, adequate, weak). A memorandum must be prepared irrespective of whether the examiner's assessment is positive or negative.

10) Items requiring follow-up at the next on-site visitation

Identify key issues that have been communicated to management (written or oral) that require follow-up during the next on-site visitation.