FEDERAL HOUSING FINANCE AGENCY

ADVISORY BULLETIN

AB 2023-03: FHLBank Changes to Internal Market Risk Models

This Advisory Bulletin (AB-2023-03) applies only to the Federal Home Loan Banks.

Purpose

This Advisory Bulletin updates previous guidance on how a Federal Home Loan Bank (FHLBank) should obtain approval to implement significant changes to a previously approved internal market risk model after proper notification to the Federal Housing Finance Agency (FHFA).[1] This Advisory Bulletin describes the procedures and documentation for the notification process.

This Advisory Bulletin rescinds AB 2016-02, *FHLBank Changes to Internal Market Risk Models*.[2]

Background

Each FHLBank received approval of an internal market risk model used to calculate the market risk component of risk-based capital prior to implementing its capital plan pursuant to the predecessor provision to current 12 CFR 1277.5.[3] Further, 12 CFR 1277.5(d) states:

> Each Bank shall obtain FHFA approval of an internal market risk model …, including subsequent material adjustments to the model made by the Bank, prior to use of any model. Each Bank shall make such adjustments to its model as may be directed by FHFA.

This provision does not establish a specific process to follow for obtaining approval of"subsequent

[1] An FHLBank that follows the guidance described in this Advisory Bulletin will satisfy the regulatory requirement of prior FHFA approval of material adjustments to a market risk model set forth in 12 CFR 1277.5(d).
[2] AB 2016-02 rescinded an earlier Advisory Bulletin, 2005-AB-06 *Changes to Internal Market Risk Models*; that recission remains effective.
[3] Prior to 2019, the regulations governing FHLBank capital requirements, including those governing internal market risk models, were located at 12 CFR part 932 (part of the regulations of the former Federal Housing Finance Board). Those regulations were moved, with some revisions, to subpart B of 12 CFR part 1277 in 2019. *See* 84 Fed. Reg. 5326 (Feb. 20, 2019).

material adjustments." In the absence of specific procedures in a regulation for obtaining a required approval, 12 CFR 1211.3 establishes a general approval process for the FHLBanks and FHFA to follow. Section 1211.3 authorizes the Deputy Director for Federal Home Loan Bank Regulation (DBR) or his/her designee to grant approvals for any matters requiring approval under FHFA regulations, and specifically authorizes the Deputy Director, or his/her designee, to "prescribe additional or alternative procedures for any application for approval of any transaction, activity, or item." Section 1211.3, including the authority to prescribe additional or alternative procedures for seeking approval, is substantially similar to a Federal Housing Finance Board (Finance Board) rule which FHFA adopted as its own subject to certain conforming modifications in 2014.[4]

In 2004, the Finance Board issued Regulatory Interpretation 2004-RI-01, which addressed the predecessor provision to the current FHFA rule. Because the prior rule had allowed the Finance Board to prescribe alternate processes for a required approval, the Regulatory Interpretation permitted an FHLBank to implement reported changes to its internal market risk model immediately after filing a notice with the Finance Board, absent a Finance Board objection. In particular, the Regulatory Interpretation noted that the process did not affect the Finance Board's authority under the predecessor provision to 12 CFR 1277.5(d) to direct an FHLBank to reverse any change made to the model or to make other changes to the model. As a result, the Regulatory Interpretation stated that using a notification process to fulfill the prior approval requirements set forth in that regulatory provision represented "a change in process rather than a change in the substance of . . . supervisory oversight." Given that Regulatory Interpretation 2004-RI-01 addressed a provision that FHFA substantively carried over from the Finance Board rules into section 1211.3, these conclusions also apply to FHFA's authority under current rules.

The specific procedures described in Regulatory Interpretation 2004-RI-01 as later modified by Advisory Bulletin AB 2016-02 govern the process under which FHLBanks fulfill the regulatory requirement that they obtain approval of significant changes to a previously approved internal market risk model. This Advisory Bulletin retains the substance of AB 2016-02, but includes updated regulatory references and some minor clarifications.[5] It does not represent a change in FHFA's supervisory oversight. FHFA staff will continue to review an FHLBank's internal risk model during regularly scheduled examinations and may undertake a special review if circumstances warrant. FHFA also retains the authority to require model changes under 12 CFR 1277.5(d) if it deems such changes necessary.

Guidance

An FHLBank may implement a significant model change to a previously approved internal market

[4] *See*, Final Rule, Procedures and General Definitions, 79 Fed. Reg. 64661 (Oct. 31, 2014). *See also*, 12 CFR 907.3 (2008) (the predecessor provision replaced by the 2014 final rule).

[5] Therefore, FHLBanks should rely on the process described in this Advisory Bulletin for fulfilling the approval requirements of 12 CFR 1277.5(d).

risk model after proper notification to FHFA.[6] All model change notifications should be signed by an FHLBank officer and sent to the Manager, Market Risk Modeling Branch, FHFA Division of Bank Regulation, copying the Examiner-in-Charge (EIC). An FHLBank may choose one of two options described below when notifying FHFA of a significant model change.

Under the first option, an FHLBank may implement a significant model change that does not involve replacing its existing market risk model, absent a specific objection from FHFA, immediately upon notification to FHFA, provided that the FHLBank meets each of the following conditions:

1. The FHLBank's most recent Report of Examination (ROE) composite and Sensitivity to Market Risk ratings were a 1 or 2;
2. The FHLBank's most recent examination resulted in no Matters Requiring Attention (MRA) or violations pertaining to the FHLBank's market risk modeling;
3. The proposed model change does not decrease the FHLBank's estimated market risk capital requirement[7] by more than 10 percent relative to the existing approved model; and
4. The FHLBank provides appropriate documentation described below:
   a. Assumption Template (see Modeling Assumptions Template attachment);
   b. Written description of the model change indicating why the model change is an improvement over the current production model, and its effect on the FHLBank's market risk metrics, including but not limited to market value sensitivity to parallel and nonparallel interest rate shocks, duration of equity, convexity, key rate duration, constant prepayment rate (CPR), and market risk capital requirement for at least two time periods no less frequently than monthly; and
   c. Certification that the proposed model change meets the FHLBank's Information Technology signoff requirements (e.g., change control procedures) and copies of other required signoff approvals.

FHFA will acknowledge receipt of an FHLBank's proposed model change notification. If FHFA objects to a specific model change or does not believe the FHLBank meets the conditions described above, it will inform the FHLBank of the reasons for its objection or for believing the FHLBank does not qualify to implement the model change immediately upon notification.

[6] What constitutes a significant model change depends on qualitative and quantitative factors determined by the FHLBank. The following modifications would constitute a significant model change regardless of any change in model output metrics: replacing, adding, or eliminating model input sources; replacing, adding, or eliminating model parameters and assumptions; changing a software product's processing components or computer code; or changing an application of the model.

[7] Section 1277.5(a)(1) states: "Each Bank's market risk capital requirement shall equal the market value of the Bank's portfolio at risk from movements in interest rates, foreign exchange rates, commodity prices, and equity prices that could occur during periods of market stress, where the market value of the Bank's portfolio at risk is determined using an internal market-risk model …." Under AB 2016-02, use of the first option required that the proposed model change not decrease the Bank's estimated Value-at-Risk by more than 10 percent. Value-at-Risk is a statistic that quantifies the extent of possible losses within a portfolio over a specific time frame. Section 1277.5(a)(2) states: "a Bank may substitute an internal cash flow model to derive a market risk capital requirement…." This AB clarifies that this condition applies to the FHLBank's market risk-based capital requirement, as opposed to Value-at-Risk—a statistic that meets the requirements of 12 CFR 1277.5(a)(1), but can also be computed for other risk management purposes.

Under the second option, an FHLBank seeking to replace its existing market risk model, or an FHLBank not meeting the conditions to implement a model change immediately upon notification, must obtain FHFA approval prior to implementing any material change to its market risk model. Under the second option, an FHLBank should provide the following documentation as part of its submission to FHFA:

1. Assumptions Template (see Modeling Assumptions Template attachment);
2. Written description of the model change indicating why the model change is an improvement over the current production model, and its effect on the FHLBank's market risk metrics, including, but not limited to, market value sensitivity to parallel and nonparallel interest rate shocks, duration of equity, convexity, key rate duration, CPR, and market risk capital requirement;
3. Detailed instrument and sub-portfolio level results of parallel model runs and any other relevant testing the FHLBank performed. The FHLBank should submit parallel testing for at least two time periods no less frequently than monthly along with any internal analysis;
4. Any spreadsheets used to prepare input data for the model if these are affected by the proposed model change; and
5. Certification that the proposed model change meets the FHLBank's Information Technology signoff requirements (e.g., change control procedures) and copies of other required signoff approvals.

Upon receipt of the notification, FHFA will determine whether an FHLBank's submitted documentation is complete within 30 calendar days and will advise the FHLBank in writing whether additional documentation is needed. Once documentation is complete, FHFA will provide an approval or objection to the model change within 30 calendar days.[8]

FHFA has statutory responsibility to ensure the safe and sound operations of the regulated entities and the Office of Finance. Advisory bulletins describe FHFA supervisory expectations for safe and sound operations in particular areas and are used in FHFA examinations of the regulated entities and the Office of Finance. Questions about this advisory bulletin should be directed to: SupervisionPolicy@fhfa.gov.

[8] Thus, if an FHLBank submits appropriate documentation with the model change notification, the FHLBank could expect to receive an approval to the model change from FHFA within 30 calendar days.