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CREDIT OPINION
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Update

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Federal Home Loan Banks

Update to credit analysis

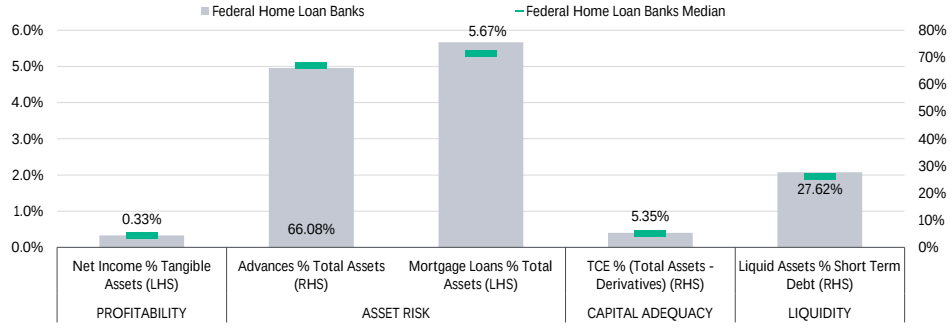
Summary Rating Rationale

The Federal Home Loan Bank System's (FHLBank System or FHLBank) Aaa long-term senior unsecured debt rating and Prime-1 short-term issuer rating reflect the combination of the following elements: 1) an a1 baseline credit assessment (BCA), 2) very high support from the Aaa-rated US Government, which also has a stable outlook, and 3) high dependence between the FHLBanks and the US Government.

The FHLBank System's a1 BCA reflects its intrinsic financial strength, good earnings stability, excellent asset quality and special role as a provider of liquidity to US financial institutions. In arriving at the FHLBank System's BCA, we consider the individual BCAs of each of the eleven FHLBanks as well as the profile of the FHLBank System as if it were a single combined entity. The FHLBank System's BCA incorporates the fact that the consolidated obligations of the System are joint and several obligations of all FHLBanks.

The stable rating outlook on the FHLBanks reflects our stable outlook on the rating of the US government. Any rating actions on the US Government would likely result in all individual FHLBanks' long-term deposit ratings and the FHLBank System's long-term bond rating moving in lock step with any US sovereign rating action.

Exhibit 1
Rating Scorecard - Key Financial Ratios [1]



[1] As of 12/31/18
Source: Moody's Financial Metrics

Credit Strengths

» Joint and several liability reduces default risk of the FHLBank System's consolidated obligations

» Government-sponsored enterprise (GSE) status results in low funding costs and strong market access

» Excellent asset quality of: 1) the advance portfolio, 2) the investment portfolio, excluding the private label RMBS book, and 3) the mortgage loan portfolio

Credit Challenges

» Narrow charter and banking industry consolidation constrain growth and profitability

» Substantial single borrower concentrations at the individual FHLBank level

» Material, but declining, private-label securities portfolio, which has more inherent credit risk than overcollaterized advances and government-guaranteed mortgages

Rating Outlook

Our stable outlook for the FHLBank System's long-term bond rating reflects the stable outlook of the US government's Aaa debt rating.

Factors that Could Lead to an Upgrade

An upgrade of the FHLBank System's BCA is unlikely. However, an upgrade of the BCA could occur if the FHLBanks re-focused their businesses such that advances represent more than 70% of assets while maintaining: 1) strong profitability as reflected by an ROAA consistently in excess of 0.35%, 2) a stable member profile and 3) continued strong asset quality.

Factors that Could Lead to a Downgrade

Any rating actions on the US Government would most likely result in all individual FHLBanks' long-term deposit ratings and the FHLBank System's long-term senior unsecured debt rating moving in lock step with any US sovereign rating action.

Barring a downgrade of the US sovereign rating or a material downgrade of the FHLBank System's BCA, we do not expect changes to the FHLBank System's long- and short-term debt and issuer ratings. This is due to the fact that the ratings incorporate an expectation of a very high degree of US Government support.

Factors that could lead to a downgrade of the FHLBank System's BCA of a1 include materially higher loss expectations on the private-label RMBS portfolio, materially lower profitability (multiple quarterly net losses) or significant asset-liability mismatches.

Key indicators

Exhibit 2

Federal Home Loan Banks [1] [2]	2018 [2]	2017 [2]	2016 [2]	2015 [2]	2014 [2]	2013 [2]
Total Assets (USD million)	1,102,850	1,103,451	1,056,712	969,239	913,343	834,178
Tangible common equity (USD million)	58,956	56,915	54,219	49,334	49,487	50,504
Total shareholders' equity (USD million)	59,406	57,752	54,163	48,787	49,634	50,046
Return on average assets (FHLB)	0.32%	0.31%	0.34%	0.31%	0.26%	0.32%
Return on average equity (FHLB)	6.18%	6.25%	6.90%	6.12%	4.93%	5.85%
Advances % Total assets	66.08%	66.30%	66.74%	65.41%	62.49%	59.77%
Mortgage Loans % Total assets	5.67%	4.88%	4.59%	4.60%	4.78%	5.34%
Retained earnings and related reserves % Total assets	1.77%	1.64%	1.55%	1.48%	1.45%	1.46%
Private Label MBS % Total Assets	0.62%	0.82%	1.06%	1.43%	2.01%	2.55%
YTD net interest margin (FHLB)	0.48%	0.42%	0.38%	0.39%	0.41%	0.44%
Total regulatory capital ratio	5.36%	5.17%	5.14%	5.10%	5.43%	6.06%
Liquid Assets (GSE) / Short Term Debt	27.62%	27.84%	27.22%	28.11%	32.75%	33.88%

[1] All figures and ratios are adjusted using Moody's standard adjustments [2] US GAAP
Source: Moody's Financial Metrics

Detailed Rating Considerations

The FHLBanks are government-sponsored enterprises (GSEs) whose primary business is lending to member institutions in the form of advances, which are generally short-term and over-collateralized, minimizing the credit risk on these loans. We believe the continued success of the FHLBank System rests on its ability to maintain a consistent advance program with its traditional bank and insurance company membership.

The FHLBanks also purchase mortgage loans, principally 15 - 30 year conventional and government guaranteed or insured fixed-rate loans, through either the Mortgage Partnership Finance (MPF) Program or the Mortgage Purchase Program (MPP). The FHLBanks also invest in securities, principally MBS, subject to an investment limit of three times regulatory capital without approval by the Federal Housing Finance Agency (FHFA). Below are the detailed rating factors that influence the FHLBank System's ratings and stable outlook.

Profitability

FHLBank System's low but consistent profitability (as measured by ROAA) reflects the primarily low risk profile of its asset base. In fiscal year 2018, the FHLBank System's ROAA was 0.32%, up slightly from the same period in the prior year, compared to a median of 1.29% for A-rated US Banks in 2018.

Capital Adequacy

Each FHLBank is required by legislation to maintain minimum regulatory capital of 4% of its total assets. As of year end 2018, the capital ratio of the FHLBank System was 5.36%, up slightly from 5.17% at year end 2017. In our view, capital levels reflect the low risk profile of the FHLBank System's asset base, which is primarily comprised of advances to members.

Asset Quality and Credit Risk Management

Excluding the private label MBS portfolio, we believe that the asset quality of the FHLBank System is exceptional. Advances, which represent about 66% of total assets, are over-collateralized and the FHLBanks have never incurred a loss on an advance in their history, which dates to the 1930s.

The FHLBanks' collateral requirements on advances, and their priority lien status (for member banks), support credit quality in the event a member defaults on its advances. Each FHLBank has sole credit approval power and establishes its own underwriting standards and eligible collateral within FHFA guidelines. Eligible collateral includes current first-lien residential mortgages (overwhelmingly single-family) or securities backed by such mortgages, Federal Agency securities, FHLBank deposits and other real estate-related assets approved by the relevant FHLBank's board of directors.

Holdings of non-MBS instruments consist of high-quality liquid investments such as federal funds, resale agreements, US Government guaranteed debt and US Treasury securities. Although no FHLBank has purchased private-label mortgage-backed securities since 2008 and that portfolio is much reduced in size, in our view, the remaining exposures present some credit risk to the respective FHLBanks.

The FHLBanks' conforming mortgage portfolio programs, MPF and MPP, provide members with an alternative to Fannie Mae and Freddie Mac execution. The FHLBank System's mortgage portfolio represented 5.7% of total assets as of December 31, 2018 versus 4.9% as of December 31, 2017. The FHLBanks' mortgage assets are more susceptible to credit losses, and in particular, carry heightened operational complexity relative to the FHLBanks' core lending business. However, credit risk performances of MPF and MPP programs have been very good to date, exceeding that of similar programs of Fannie Mae and Freddie Mac. This excellent track record reflects the high quality of mortgage assets purchased and credit enhancements of the FHLBanks' MPF and MPP programs.

Liquidity and Funding

The FHLBanks' GSE status provides it with consistent and stable access to the debt markets. The FHLBanks' internal sources of liquidity are modest.

FHFA, the regulator of the FHLBanks, issued updated liquidity guidance in the summer of 2018 that will take full effect on 31 December 2019. Under the updated guidance, the FHFA established requirements for the FHLBanks' base case liquidity and implemented new funding gap metrics for three-month and one-year maturity horizons. In addition, the guidance addressed liquidity stress testing and contingency funding plans. We expect that all FHLBanks will be in compliance with the updated liquidity requirements.

Other credit considerations

A significant underpinning of the BCA is the joint and several nature of the FHLBanks' consolidated obligations. The financial strength of individual FHLBanks is sound, and the joint and several liability contributes to the overall strength of the FHLBank System by narrowing the ratings differences among the individual FHLBanks that could exist were ratings to exclude the joint and several feature. As a result, the ratings of the weakest FHLBanks are increased, and the ratings of the strongest are lowered.

Ratings

Exhibit 3

Category	Moody's Rating
FEDERAL HOME LOAN BANKS	
Outlook	Stable
Senior Unsecured	Aaa
ST Issuer Rating	P-1

Source: Moody's Investors Service

Recent Developments

In April 2019, a Presidential Memorandum on Federal Housing Finance Reform was released regarding new leadership at FHFA. This may be both credit positive and credit negative for the FHLBank System.

A reduced role in the housing market for Fannie Mae and Freddie Mac could drive substantial changes in the competitive dynamics of housing finance that enhance the market position of the FHLBanks, a credit positive for its creditors. In particular, if US banks begin to originate a larger share of residential mortgages, they will likely take greater advantage of FHLBank advances for cost-effective funding. In addition, a smaller role for the GSEs could reduce the volume of their debt, increasing demand for FHLBanks' debt and lowering their cost of funding.

One potential credit negative for FHLBanks of a reduced GSE footprint stems from the current high market share of non-bank residential mortgage lenders, which could cause the FHFA to revisit its 2016 membership rule excluding captive insurance companies from FHLBank membership. Captive insurance companies and their affiliates are financially weaker than traditional FHLBank bank and insurance members. In addition, there is a more limited track record of effective resolutions of captive insurance companies than of banks or traditional insurance companies.

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