MOODY'S INVESTORS SERVICE

CREDIT OPINION
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Update

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Federal Home Loan Banks

Update to credit analysis

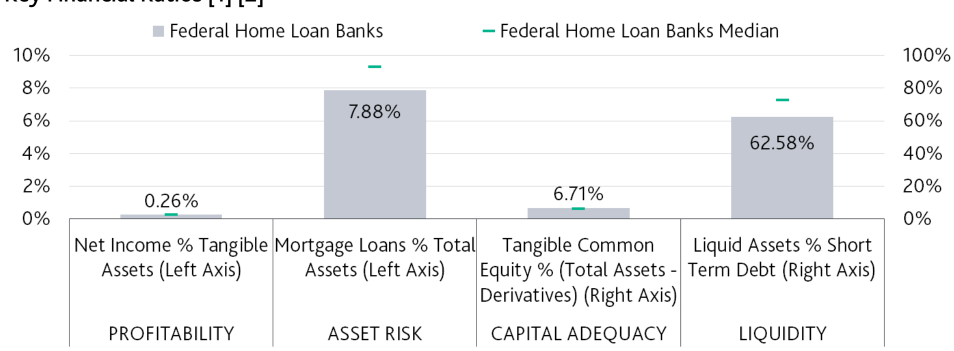
Summary

The Federal Home Loan Bank System's (FHLBank System) Aaa long-term senior unsecured debt rating and Prime-1 short-term issuer rating reflect the combination of the FHLBank System's a1 baseline credit assessment (BCA), our assumption of a very high likelihood of support from the US Government (Aaa stable), and high dependence between the FHLBanks and the US Government. The assigned ratings also incorporate the benefits to creditors from the FHLBanks' status as government-sponsored enterprises (GSEs). The rating outlook is stable.

The FHLBank System's a1 BCA reflects its excellent asset quality, stable profitability metrics and strong capitalization. In arriving at the FHLBank System's BCA, we consider the eleven FHLBanks' individual BCAs, ten of which are a1 (FHLBank New York's BCA is aa3), and the credit profile of the FHLBank System as if it were a combined entity. The FHLBank System's BCA also incorporates the benefits to its debt holders from the joint and several liability of all eleven banks for the System's consolidated bonds and consolidated discount notes.

The Aaa debt and deposit ratings capture the FHLBanks' special role as reliable providers of liquidity to the US banking system. This is particularly demonstrated during periods of market turmoil, most recently in Q1 2020 when systemwide advances increased significantly as the coronavirus pandemic negatively impacted funding markets. However, advances have since declined significantly and are currently at multi-year lows. This reflects not only increased market liquidity, but also materially higher deposit levels at the FHLBanks' members, especially commercial banks, whose need for non-deposit funding has dropped significantly.

Exhibit 1
Key Financial Ratios [1] [2]



[1] All ratios are as of 30 September 2021 [2] All figures and ratios are adjusted using Moody's standard adjustments
Source: Moody's Investors Service

Credit strengths

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

» Although narrowly focused, the FHLBanks are central liquidity providers to US banks and other members, underscoring their importance to the US financial system

» Excellent credit quality of FHLBanks' advance portfolio, investment portfolio (excluding a small legacy private label RMBS book), and mortgage portfolio minimizes asset risk

Credit challenges

» Substantial liquidity in the US banking system resulting from fiscal and monetary stimulus has reduced demand for advances from depositories, though some FHLBanks have offset this with higher volumes of insurance company advances

» Some single borrower concentrations at the individual FHLBank level

» Reliance on confidence-sensitive market funding, but market access is strong due to GSE status

Outlook

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

Factors that could lead to an upgrade

At Aaa, an upgrade of the FHLBank System's long-term debt is not possible. A higher BCA could occur if the FHLBanks' advances represented more than 70% of assets while they also maintained: 1) strong profitability, 2) a stable member risk profile, 3) continued strong asset risk, including modest asset-liability and operational risk, and 4) robust capital and liquidity.

Factors that could lead to a downgrade

Any negative rating action on the US Government would likely result in 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, a decline in our government support assumptions for the FHLBank System, or a material downgrade of the FHLBank System's a1 BCA, we do not expect changes to the FHLBank System's 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 FHLBanks' mortgage holdings and/or private-label MBS portfolios, multiple quarterly net losses or significant asset-liability mismatches. In addition, an expansion of the FHLBanks' risk profile, for example due to a change in their government mandate or self-initiated, could result in lower standalone BCAs. The BCA for the FHLBank System could then be downgraded based on downgraded BCAs at individual FHLBanks.

Key indicators

Exhibit 2
Federal Home Loan Banks (Consolidated Financials) [1]

	09-21[2]	12-20[2]	12-19[2]	12-18[2]	12-17[2]	CAGR/Avg.[3]
Total Assets (USD Billion)	712.1	820.7	1,099.1	1,102.9	1,103.5	(11.0)[4]
Net Income / Tangible Assets (%)	0.3	0.4	0.3	0.3	0.3	0.3[5]
Liquid Assets (GSE) / Short Term Debt (%)	62.6	46.1	36.8	27.6	27.8	40.2[5]
Tangible Common Equity / (Total Assets - Derivatives) (%)	6.7	6.1	5.1	5.4	5.2	5.7[5]
Mortgage Loans / Total Assets (%)	7.9	7.7	6.6	5.7	4.9	6.5[5]

[1] All figures and ratios are adjusted using Moody's standard adjustments. [2] Basel I; US GAAP. [3] May include rounding differences because of the scale of reported amounts. [4] Compound annual growth rate (%) based on the periods for the latest accounting regime. [5] Simple average of periods for the latest accounting regime.
Sources: Moody's Investors Service and company filings

Profile

Chartered by Congress in 1932 through the Federal Home Loan Bank Act, the 11 FHLBanks are federally chartered, privately capitalized GSEs whose primary mission is to provide their roughly 6,700 member financial institutions with a reliable source of liquidity to support housing finance, community lending and asset-liability management. Each FHLBank is a separately chartered cooperative owned by its respective members, with its own board of directors, management and employees. Members primarily include banks, savings institutions, insurance companies and credit unions.

The 11 FHLBanks together with the Office of Finance, which is the fiscal agent responsible for issuing and servicing the FHLBanks' debt, make up the FHLBank system. The FHLBanks and the Office of Finance operate under the supervisory and regulatory framework of the Federal Housing Finance Agency (FHFA), which was created by Congress in the Housing and Economic Recovery Act of 2008. The FHLBanks are also registered with the Securities and Exchange Commission, which requires them to file public financial statements.

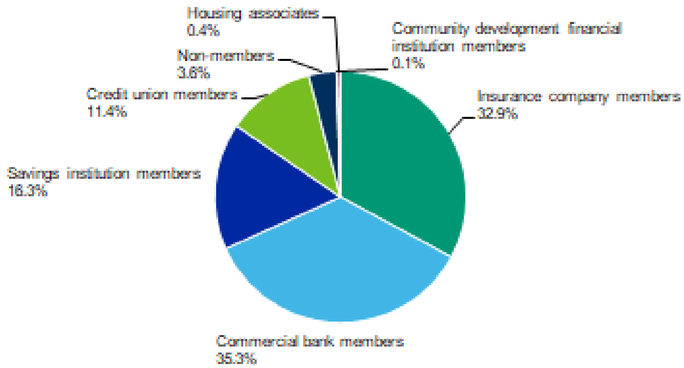
Each FHLBank serves as a financial intermediary between its members and the capital markets by issuing debt, known as consolidated obligations (bonds and discount notes), and lending those proceeds to its members, primarily in the form of secured loans, known as advances. Advances are generally short-term and over-collateralized, minimizing the credit risk on these loans. In addition, the FHLBanks benefit from their statutory lien priority with respect to certain pledged member assets. The FHLBanks also purchase mortgage loans, principally 15-30 year conventional and government-guaranteed or insured fixed-rate loans. The FHLBanks also invest in securities, principally agency MBS, subject to an investment limit of three times regulatory capital without approval by the FHFA. Some FHLBanks offer correspondent services to their member institutions, including wire transfer, security safekeeping, and settlement services.

Although each FHLBank is primarily liable for its portion of consolidated obligations, each FHLBank is also jointly and severally liable with the other FHLBanks for the payment of principal and interest on all consolidated obligations. Despite our expectation of a high likelihood of government support in a default scenario, these obligations are not obligations of the US government and are not guaranteed by either the US or any government agency.

As of 30 September 2021, the Federal Home Loan Banks' combined balance sheet showed $712 billion in total assets.

Exhibit 3

Banks and savings institutions, insurance companies and credit unions are the FHLBanks' primary members
Principal amount of FHLBank advances by type of borrower, 30 September 2021



Non-members include captive insurance companies that had their memberships terminated no later than 19 February 2021.
Source: Company filings, Moody's Investors Service

Detailed rating considerations

Asset quality and credit risk management are robust

The FHLBank System's asset quality has been exceptional. In particular, advances, which are over-collateralized, have not resulted in any losses since the System was formed in the 1930s. However, at present, advances account for a little less than half of the System's total assets given members' reduced need for non-deposit funding. Nonetheless, the FHLBanks' liquidity portfolios (mostly US treasuries, fed funds sold and cash) as well as their term investment portfolios (largely agency MBS and other GSE debt) are high-quality. On a combined basis, the System has a small legacy non-agency MBS portfolio, but it has shrunk significantly in recent years.

The System's pristine record is attributable to the over-collateralization and generally short-term nature of all advances, conservative underwriting standards and strong credit monitoring policies in which members' credit strength is actively monitored. Furthermore, the FHLBanks have strong requirements for membership, which is fundamental to their no-loss track record because it incentivizes members to maintain sufficient financial strength.

The FHLBanks also benefit from their statutory super lien priority, which gives the FHLBanks the equivalent of a first priority claim to the collateral that will be senior to all but a very narrow category of competing creditors. The super lien priority also provides value against a receiver, such as the FDIC, because it provides a statutory priority over most, if not all, of the claims that the FDIC could assert to the collateral. For FDIC-insured institutions, a member's failure has historically resulted in the FDIC paying off FHLBank advances in order for it to obtain collateral free of any liens held by the FHLBank, as this has been the most expeditious resolution of the failed bank or thrift.

We assign a aa2 score for Asset Risk in our scorecard, as shown at the back of this report.

The exhibit below reveals that the eleven FHLBanks do have somewhat different asset mixes. Changes since the coronavirus pandemic increased some of these disparities. For example, in percentage terms, some of the banks experienced a more severe decline in advances than did their peers from year-end 2019 to 30 September 2021. Meanwhile, none of the banks grew advances during this period. As such, advances as a percentage of total assets ranged from a high of 69% at FHLBank New York to a low of 35% at FHLBank Pittsburgh at 30 September 2021.

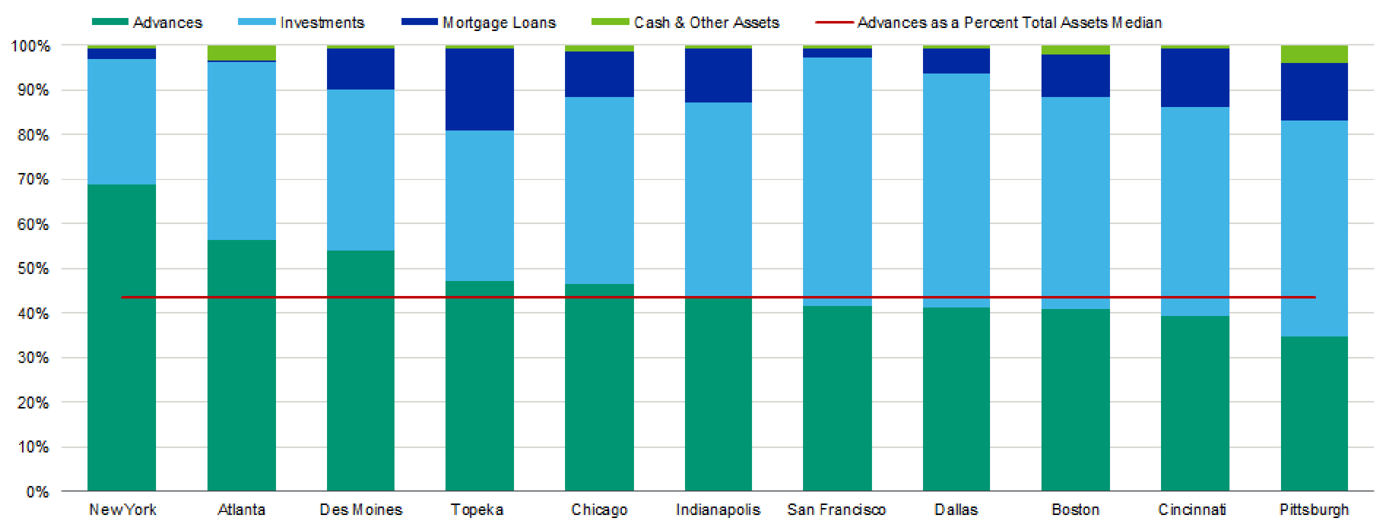
With respect to collateral, each FHLBank has sole credit approval power and establishes its own underwriting standards and eligible collateral within FHFA guidelines. Eligible collateral includes current first-lien residential mortgages (overwhelmingly single-family) or securities backed by such mortgages, Federal Agency securities, FHLBank deposits and other real estate-related assets approved by the relevant FHLBank's board of directors, such as commercial real estate loans.

Investments, as noted, are primarily high quality US government and agency guaranteed securities, and they comprise much of the remainder of the banks' balance sheets. Although no FHLBank has purchased private-label mortgage-backed securities (PLMBS) since 2008 and that portfolio is significantly reduced in size, the remaining PLMBS exposures continue to present some credit risk to the respective FHLBanks.

The FHLBanks' conforming mortgage portfolio programs provide members with an alternative to Fannie Mae and Freddie Mac execution. The System's mortgage portfolio represented about 8% of total assets as of 30 September 2021 versus roughly 7% in 2019. The FHLBanks' mortgage assets are more susceptible to credit losses, and in particular, carry heightened operational complexity relative to the FHLBanks' core advance business. However, credit risk performance of the mortgage portfolio programs have been very good to date, exceeding that of similar programs of Fannie Mae and Freddie Mac, reflecting the quality of mortgage assets purchased and credit enhancements of the programs.

Exhibit 4

Advances now represent just under half of the System's total assets, and on a median basis, the banks have fallen noticeably below 50%



As of 30 September 2021

Source: Company Filings

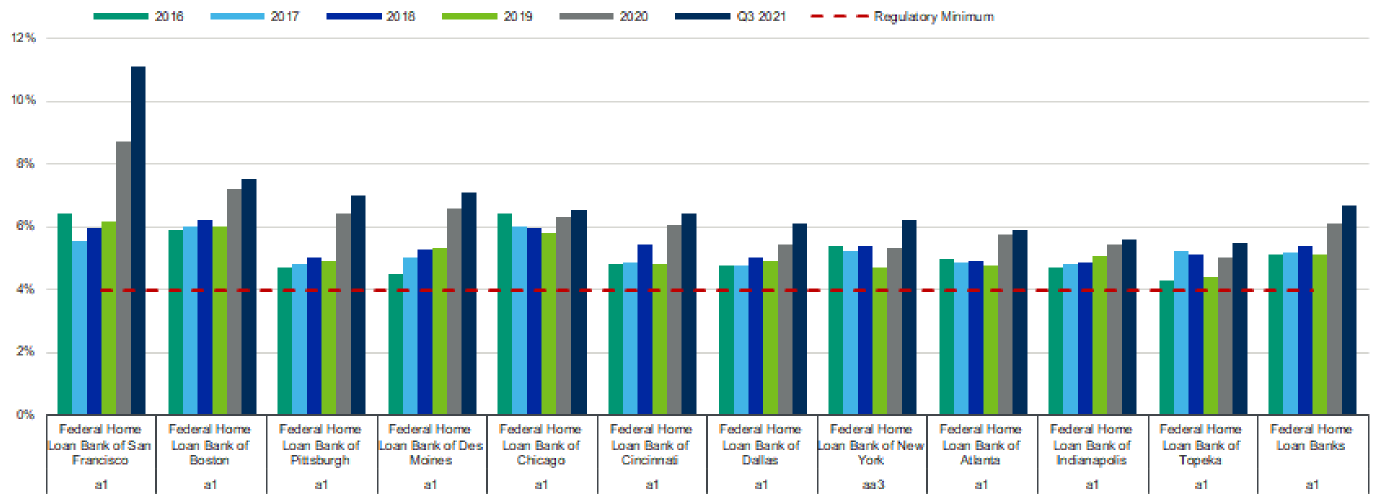
Capital adequacy

Each FHLBank is required by legislation to maintain minimum regulatory capital of 4% of its total assets. As of 30 September 2021, the capital ratio of the FHLBank System was 6.7%, up materially from 5.8% at the same period a year earlier as retained earnings grew while the System's combined balance sheet shrank. In our view, the increase in the System's capital ratio is a credit positive, but this could reverse in a scenario where advances once again begin to grow. The aa1 assigned score for Capital in our scorecard incorporates our estimate of the FHLBank System's TCE ratio on a risk-weighted basis, which is very strong.

Exhibit 5

Capital ratios have improved since early 2020 because of balance sheet contraction and retained earnings

FHLBanks' total regulatory capital ratio, Q4 2016 - Q3 2021



Source:Moody's Investors Service; Company Filings

Profitability

The FHLBank System's low but consistent profitability (as measured by ROAA) reflects the primarily low risk profile of its asset base. For the first nine months of 2021, the FHLBank System's net income to tangible assets was roughly 0.3%, similar to its level over the past several years. This compares to a median closer to 1.1% for US banks with a BCA of a1 for the first nine months of 2021. We assign a baa1 score for Profitability, which balances the System's low absolute level of earnings with its low earnings volatility.

Liquidity and Funding

The FHLBank System's GSE status provides it with consistent and stable access to the debt markets and informs the baa1 assigned score for Funding Structure in our scorecard. The FHLBanks' internal sources of liquidity are modest, but have strengthened as a result of regulation.

Specifically, FHFA, the regulator of the FHLBanks, issued updated liquidity guidance that took full effect on 31 December 2019. In particular, 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 remain in compliance with the updated liquidity requirements.

In times of severe credit market disruption, the System can be impacted, notwithstanding its GSE status. For example, in the March 2020 market disruption that resulted from the spread of the pandemic, longer-dated bond issuance was challenging as investors preferred short-term instruments. Still, the FHLBank System enjoyed market access throughout, which validated our view of its funding resilience.

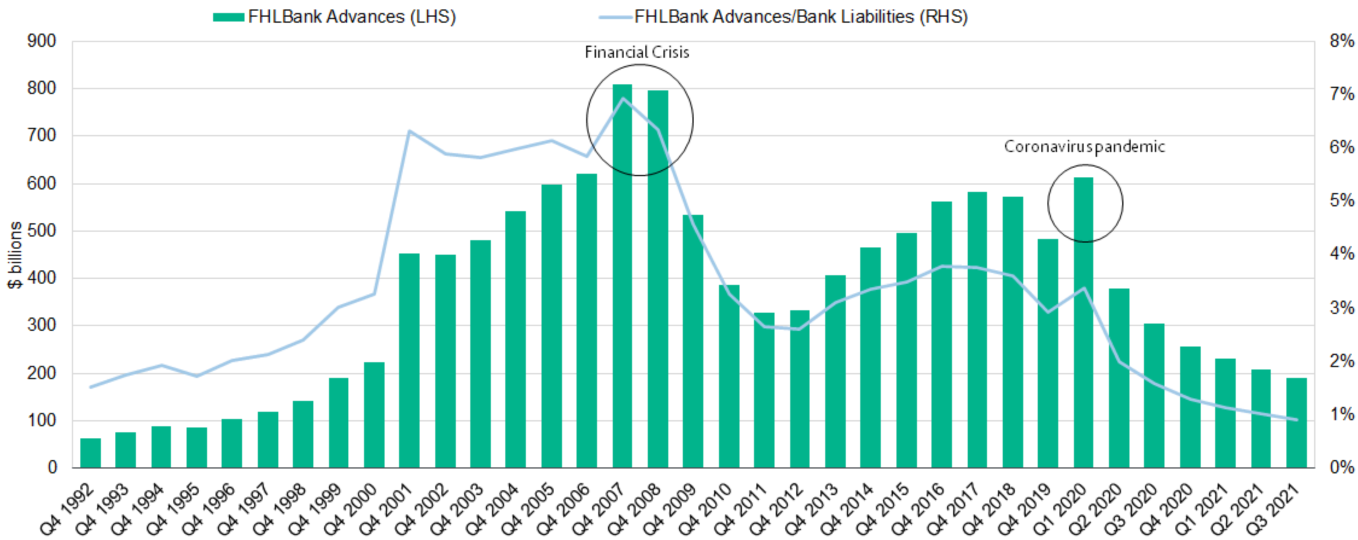
Special role as a provider of liquidity to US financial institutions

As GSEs, the FHLBanks' ability to access funding throughout the cycle underpins their importance to the financial system. This is particularly true during times of extreme market disruption when they become a primary source of contingent liquidity for their members. As shown below, at the height of the last financial crisis, advances to members climbed a few hundred billion dollars for the system as a whole before receding as the financial markets and overall economy recovered. Although 2020 also began with a spike in liquidity demands due to the coronavirus pandemic, bank liquidity needs quickly receded, influenced by significant fiscal and monetary stimulus.

Exhibit 6

FHLB advances have been proven to be a reliable source of bank funding, especially during times of crisis

Systemwide advances to regulated depository members Q4 1992 - Q3 2021



Source: FDIC

GSE reform

On 5 September 2019, under the previous administration, the U.S. Department of the Treasury published recommended housing reforms. Although the focus of the recommendations were centered on Fannie Mae and Freddie Mac, if implemented, the proposals, which included their release from conservatorship, would have likely resulted in reduced market share for those entities. As a consequence, traditional banks' market share of US mortgages would have increased, which would enhance the FHLBanks' market position.

On 23 June 2021, the US Supreme Court ruled that the structure of the Federal Housing Finance Agency (FHFA) is unconstitutional, giving President Joseph Biden the authority to remove the agency's director, Mark Calabria, who was appointed by former President Donald Trump. In response, the White House installed Sandra Thompson as acting director. The new director is unlikely in the near-term to pursue efforts to release Fannie Mae and Freddie Mac from conservatorship and the GSEs' market share is likely to increase because the current administration will likely look to utilize the GSEs to further its goals of increasing access to credit and availability of affordable housing.

Environmental, social and governance (ESG) considerations

The FHLBank System's exposure to environmental and social risks is low and moderate, respectively, consistent with our general assessment for the global banking sector. See our Environmental risk and Social risk heatmaps for further information.

Governance is highly relevant for the FHLBank System, as it is to all players in the banking industry. Corporate governance weaknesses can lead to deterioration in a bank's credit quality, while governance strengths can benefit a bank's credit profile. Governance risks are largely internal rather than externally driven, and for the FHLBank System we do not have any particular governance concerns. Nonetheless, corporate governance remains a key credit consideration and requires ongoing monitoring.

Methodology and scorecard

Our BCA scorecard is designed to capture, express and explain in summary form our Rating Committee's judgment. When read in conjunction with our research, a fulsome presentation of our judgment is expressed. As a result, the output of our BCA scorecard may materially differ from that suggested by raw data alone (though it has been calibrated to avoid the frequent need for strong divergence). The BCA scorecard output and the individual scores are discussed in rating committees and may be adjusted up or down to reflect conditions specific to each rated entity. We also assess the level of support and, consequently, the ratings uplift from the US Government (Aaa stable) using our Government-Related Issuers methodology.

Exhibit 7

Federal Home Loan Banks

MACRO FACTORS							
WEIGHTED MACRO PROFILE	VERY STRONG -	100%					

FACTOR	HISTORIC RATIO	INITIAL SCORE	EXPECTED TREND	ASSIGNED SCORE	KEY DRIVER #1	KEY DRIVER #2
Solvency						
Asset Risk						
Problem Loans / Gross Loans	0.2%	aa1	↔	aa2	Long-run loss performance	
Capital						
Tangible Common Equity / Risk Weighted Assets (Basel I)				aa1		
Profitability						
Net Income / Tangible Assets	0.3%	ba2	↔	baa1	Earnings quality	
Combined Solvency Score				aa3		
Liquidity						
Funding Structure						
Market Funds / Tangible Banking Assets	93.2%	caa3	↔	baa1	Market funding quality	
Liquid Resources						
Liquid Banking Assets / Tangible Banking Assets	32.7%	a1	↔	baa2	Expected trend	
Combined Liquidity Score		ba3		baa1		
Financial Profile				a1		
Qualitative Adjustments				Adjustment		
Business Diversification				0		
Opacity and Complexity				0		
Corporate Behavior				0		
Total Qualitative Adjustments				0		
Sovereign or Affiliate constraint				Aaa		
BCA Scorecard-indicated Outcome - Range				aa3 - a2		
Assigned BCA				a1		

Source: Moody's Investors Service

Ratings

Exhibit 8

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

Source: Moody's Investors Service

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