MOODY'S
INVESTORS SERVICE

CREDIT OPINION
17 December 2019

Update

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RATINGS

Muenchener Hypothekenbank eG

Domicile	Germany
Long Term CRR	Aa3
Type	LT Counterparty Risk Rating - Fgn Curr
Outlook	Not Assigned
Long Term Debt	Aa3
Type	Senior Unsecured - Fgn Curr
Outlook	Negative
Long Term Deposit	Aa3
Type	LT Bank Deposits - Fgn Curr
Outlook	Negative

Please see the ratings section at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

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Muenchener Hypothekenbank eG

Update following outlook change to negative

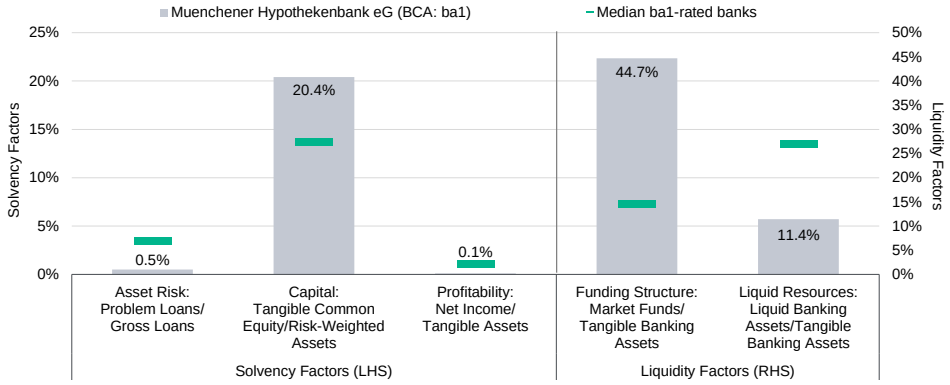
Summary

On 23rd October 2019, we changed the outlook for Muenchener Hypothekenbank eG's (Muenchener Hyp) Aa3 deposit, senior unsecured and issuer ratings to negative from stable. We further affirmed its A2 junior senior ratings, Counterparty Risk Ratings (CRRs) of Aa3/P-1, a ba1 Baseline Credit Assessment (BCA) and a baa1 Adjusted BCA to the bank.

Muenchener Hyp's ratings incorporate (1) the bank's ba1 BCA; (2) three notches of uplift to its ba1 BCA from 'very high' affiliate support based on Bundesverband der Deutschen Volksbanken und Raiffeisenbanken's (BVR) regulated and supervised institutional protection scheme; (3) the results of our Advanced Loss Given Failure (LGF) analysis, leading to three notches of uplift for its deposit and senior unsecured debt ratings and two notches of uplift for the bank's junior senior unsecured debt ratings; and (4) the one notch uplift on the bank's senior unsecured debt and deposit ratings from our assumption of moderate government support.

Muenchener Hyp's ba1 BCA is constrained by the bank's monoline business model as a real estate lending specialist, exposing the bank to considerable concentration risks. It further reflects the bank's very strong asset quality and satisfactory funding profile, benefiting from access to ample surplus liquidity in the German cooperative banking sector, but also its high balance-sheet leverage and weak profitability. The ba1 BCA is positioned at the higher-end of the range, reflecting downward pressure on the bank's credit metrics, driven by the weaker operating environment as reflected in the lower Strong+ Macro profile for Germany and the negative outlook assigned to Muenchener Hyp's deposit, senior unsecured and issuer ratings.

Exhibit 1
Rating Scorecard - Key financial ratios



Source: Source: Moody's Investors Service

Credit strengths

» The bank's strong asset quality is reflected by its very low problem loan ratio and further supported by the high granularity of its large residential mortgage portfolios in Germany and Switzerland.

» The bank's risk-weighted capital metrics are strong.

» Creditors benefit from the bank's membership in the institutional protection scheme of the German cooperative banking sector, whose support to its members is highly likely.

Credit challenges

» Muenchener Hyp's solvency is vulnerable to potential cyclical pressures in international commercial real estate (CRE) and residential real estate markets.

» The institution is one of the most highly leveraged banks in Germany, which implies vulnerability to an extended downturn or market stress.

» Because of its weak profitability, the bank has limited ability to generate capital internally.

» The bank has a significant dependence on market funding, along with a limited liquidity buffer.

Outlook

The outlook on Muenchener Hyp's ratings is negative, reflecting our expectation that sustained and increasingly adverse operating conditions for banks in Germany will elevate the risk on profitability and credit quality for Muenchener Hyp and Germany's cooperative banking sector and weaken their overall financial resilience, and could therefore negatively affect Muenchener Hyp's ratings.

Factors that could lead to an upgrade

» While upward pressure on Muenchener Hyp's ratings is unlikely, it could be prompted by an upgrade of the bank's BCA. There is also potential for a higher LGF result for the bank's junior senior unsecured debt instruments, if the higher subordination were to translate into a lower loss severity for this debt class.

» Muenchener Hyp's BCA could be upgraded as a result of a combination of (1) a further significant improvement of the leverage ratio on a sustained basis; (2) a substantial increase in profitability, without compromising underwriting standards or risk appetite; and (3) a greater diversification of funding tools beyond the current focus on market funding.

Factors that could lead to a downgrade

» Negative pressure on the bank's ratings could arise from (1) a sustained deterioration in the bank's financial fundamentals supporting its BCA; (2) deteriorating credit strength of the overall cooperative sector or indications of a weakening in support from the cooperative sector, in turn leading to downward pressure on the bank's adjusted BCA; (4) an increase in the expected loss severity because of changes in the bank's liability structure, which could result in fewer notches of rating uplift from our Advanced LGF analysis; or (5) a lower likelihood of government support for the cooperative sector.

» Muenchener Hyp's BCA could be downgraded if (1) the bank's weak profitability does not stabilize sustainably; (2) its asset quality deteriorates; its risk-weighted capital buffers decline; (3) its dependence on market funding increases further; or its liquidity buffer declines.

» In addition, Muenchener Hyp's debt and deposit ratings could be downgraded if the volume of junior senior instruments decreases significantly compared with the bank's tangible banking assets. This situation could result in fewer notches of uplift from our LGF analysis. For the AT1 securities rating, Moody's would also reconsider the rating in the event of an increased probability of a coupon suspension.

Key indicators

Exhibit 2
Muenchener Hypothekenbank eG (Consolidated Financials) [1]

	06-19[2]	12-18[2]	12-17[2]	12-16[2]	12-15[2]	CAGR/Avg.[3]
Total Assets (EUR Billion)	42.0	39.2	38.1	37.9	37.5	3.3[4]
Total Assets (USD Billion)	47.8	44.8	45.8	40.0	40.8	4.7[4]
Tangible Common Equity (EUR Billion)	1.4	1.5	1.4	1.3	1.0	9.6[4]
Tangible Common Equity (USD Billion)	1.6	1.7	1.7	1.4	1.1	11.1[4]
Problem Loans / Gross Loans (%)	--	0.3	0.4	0.6	1.0	0.6[5]
Tangible Common Equity / Risk Weighted Assets (%)	20.9	23.0	25.6	24.2	18.5	22.4[6]
Problem Loans / (Tangible Common Equity + Loan Loss Reserve) (%)	--	7.3	9.6	14.0	27.1	14.5[5]
Net Interest Margin (%)	0.7	0.7	0.7	0.6	0.6	0.7[5]
PPI / Average RWA (%)	0.9	1.5	1.4	1.1	0.8	1.1[6]
Net Income / Tangible Assets (%)	0.1	0.2	0.2	0.1	0.1	0.1[5]
Cost / Income Ratio (%)	67.4	58.8	58.1	61.4	62.2	61.6[5]
Market Funds / Tangible Banking Assets (%)	45.1	44.7	46.3	46.5	39.6	44.4[5]
Liquid Banking Assets / Tangible Banking Assets (%)	12.2	11.4	13.7	16.1	19.6	14.6[5]
Gross Loans / Due to Customers (%)	--	265.9	270.3	259.8	206.7	250.7[5]

[1]All figures and ratios are adjusted using Moody's standard adjustments. [2]Basel III - fully-loaded or transitional phase-in; LOCAL GAAP. [3]May include rounding differences due to scale of reported amounts. [4]Compound Annual Growth Rate (%) based on time period presented for the latest accounting regime. [5]Simple average of periods presented for the latest accounting regime. [6]Simple average of Basel III periods presented.
Source: Moody's Investors Service; Company Filings

Profile

With an asset base of €42 billion as of June 2019, Muenchener Hypothekenbank eG (Muenchener Hyp) is a medium-sized mortgage lender in Germany, operating mostly in its German home market, where it has a well-established market position in real estate finance. The bank provides residential, commercial lending, as well as syndicated loans and mortgage-related capital market services. Muenchener Hyp is headquartered in Munich and has regional offices in Augsburg, Berlin, Cologne, Dresden, Frankfurt, Hamburg, Hannover, Münster, Nuremberg, Stuttgart, along with cooperation partners in Vienna, Paris and Madrid. The bank employed 550 employees as of December 2018.

The bank is a member of the German cooperative banking sector (BVR) and is collectively owned by the primary banks in the German cooperative sector and individual members.

Macro Profile of Very Strong-

Muenchener Hyp is focused on the German market, and the bank's assigned Strong+ Weighted Macro Profile is at the same level as the Strong+ Macro Profile of Germany.

Detailed credit considerations

Adequate capitalisation buffers, incorporating regulatory changes

We assign a baa3 Capitalisation factor score to Muenchener Hyp's Capitalisation, which includes a substantial negative adjustment from the aa1 initial score. Our assessment balances the bank's relatively strong regulatory capital ratios with the risk to capital stemming from its relatively weak absolute capital levels and, therefore, its high leverage. This is mitigated by the bank's proven access to capital from its owners within the BVR group.

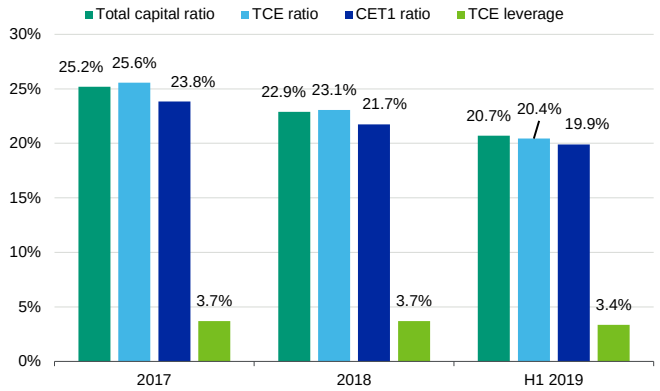
In addition, the baa3 score takes into account the prospect of a material reduction in regulatory capital ratios for the bank, given the planned harmonisation of risk weights under Basel III for banks using the internal ratings-based approach for the calculation of risk-

weighted assets (RWAs). This factor will strongly affect Muenchener Hyp, considering the ultralight risk weights assigned to large portions of its lending book. However, the bank continues to benefit from access to capital from its owners, and there will be time for the bank to adjust, considering the five-year phase-in period for this regulatory reform starting from 2022.

The bank's tangible common equity (TCE) ratio decreased to 23.1% as of year-end December 2018 from 25.6% in 2017, and it declined further to 20.4% as of June 2019. The decrease was driven by higher RWAs, which grew 10% to €6.3 billion in H1 2019 much above the growth in Muenchener Hyp's capital base (Common Equity Tier 1 [CET1] capital grew by €25 million to €1.4 billion as of June 2019). Consequently, the bank reported a CET1 ratio of 19.9% as of June 2019, down from 21.7% as of year-end 2018. Its regulatory leverage ratio was reported at a low 3.2% as of June 2019.

Exhibit 3

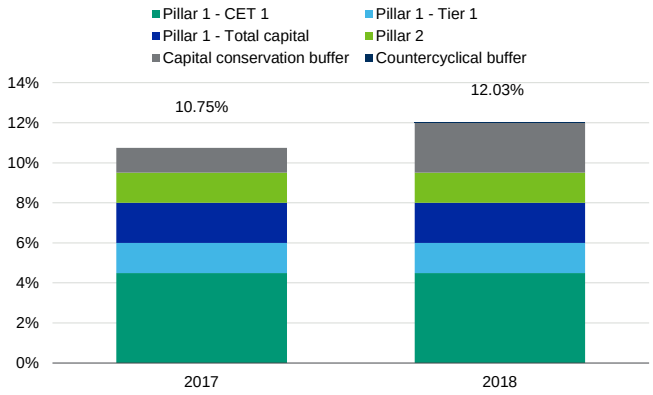
Muenchener Hyp substantially exceeds its capital requirements



TCE = Tangible Common Equity (Moody's calculation), CET1 = Common Equity Tier 1.
Sources: Company reports, Moody's Investors Service

Exhibit 4

Total capital requirements in detail



These are transitional SREP requirements.
Source: Company reports

However, the bank's capitalisation levels still provide it with good leeway to absorb any currently unexpected weakness in asset performance and a substantial buffer compared with the regulatory minima. From 2019, the European Central Bank (ECB) requires Muenchener Hyp to maintain a minimum CET1 ratio of 8.5% (consisting of 4.5% minimum CET1 capital, a 2.5% capital conservation buffer and a 1.0% required add-on), based on the results of the Supervisory Review and Evaluation Process. To these minimum requirements, the ECB adds a management guidance buffer that typically ranges between 1% and 2%, the magnitude of which, in the case of Muenchener Hyp, is not disclosed. However, given the bank's total capital ratio of 20.7% as of June 2019, it has due leeway to adjust to the more demanding regulatory regime.

Muenchener Hyp's very low average risk weight compared with total assets is attributable to the bank's extended use of internal models to determine the RWAs of its mortgage portfolio. In June 2019, the risk weight of its €27.1 billion retail mortgage loan portfolio was a low 7%. We believe that the proposed regulatory amendments to the calculation of RWAs, which (inter alia) are designed to limit the benefits of internal model application on RWAs, will result in materially lower regulatory capital ratios. Notwithstanding the regulatory change ahead, we expect the bank's ratios to remain at satisfactory levels, because the bank has already taken steps to counter the impact.

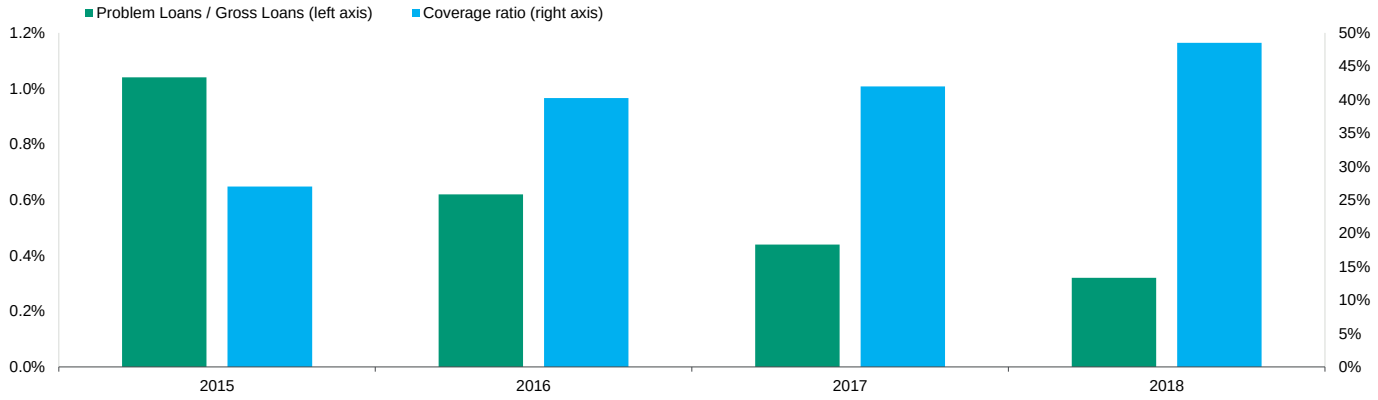
Asset base remains supported by high portfolio granularity, although CRE finance poses concentration risks

Muenchener Hyp's overall good asset quality is one of the bank's main credit strengths, reflected by our assigned baa1 Asset Risk score, six notches below the aa1 initial score. Our negative adjustment primarily reflects the bank's high concentration in the real estate sector, specifically its €6.4 billion exposure to the higher-risk CRE exposures as of June 2019, which is a large multiple of its CET1 capital. In addition, we take into account that beside the risk concentrations, the bank's profitability buffers were sufficient to absorb the bank's historically limited loan losses in the past.

Exhibit 5

Muenchener Hyp's very low amount of problem loans is declining further

Coverage ratio increased to solid levels



Problem loan ratio in accordance with Moody's definition.
Sources: Company reports, Moody's Investors Service

Asset-quality strain on Muenchener Hyp's international CRE portfolio, as well as its select financial institution and sovereign exposures, have diminished following its proactive portfolio management and improving market conditions. Nevertheless, the size of these exposures compared with the bank's loss-absorbing capital and its limited pre-provision income generation, in comparison with the size of potential loan-loss provision requirements on its CRE finance book in an economic downturn, remains a key vulnerability.

However, Muenchener Hyp's conservative underwriting has translated into a continued improvement in its problem loans to €111 million as of 31 December 2018 (down from €142 million in 2017). The bank has successfully reduced exposures related to international CRE, as well as higher-risk financial institutions and sovereigns in the euro area, and it has benefitted from good workout results in its US CRE portfolio. The residual US CRE exposure stood at €490 million as of year-end 2018. Non-domestic loans represented 20% of the bank's mortgage loan book as of 31 December 2018.

In 2018, Muenchener Hyp's CRE finance loans grew 17% to €9.5 billion, €2.4 billion of which was related to CRE loans outside Germany. The total CRE finance book is equivalent to a high 6.5x of the bank's €1.5 billion TCE. International CRE exposures are broadly diversified by country, with loans and commitments in the UK (Aa2 stable), the Netherlands (Aaa stable) and France (Aa2 positive) representing the biggest single-country exposures, taking into consideration the €400 million-€500 million allocated to each country as of December 2018. Muenchener Hyp's Swiss residential mortgage portfolio increased 7% to €4.4 billion because of higher volume of extended loan agreements.

Weak profitability leads to limited ability to generate capital internally

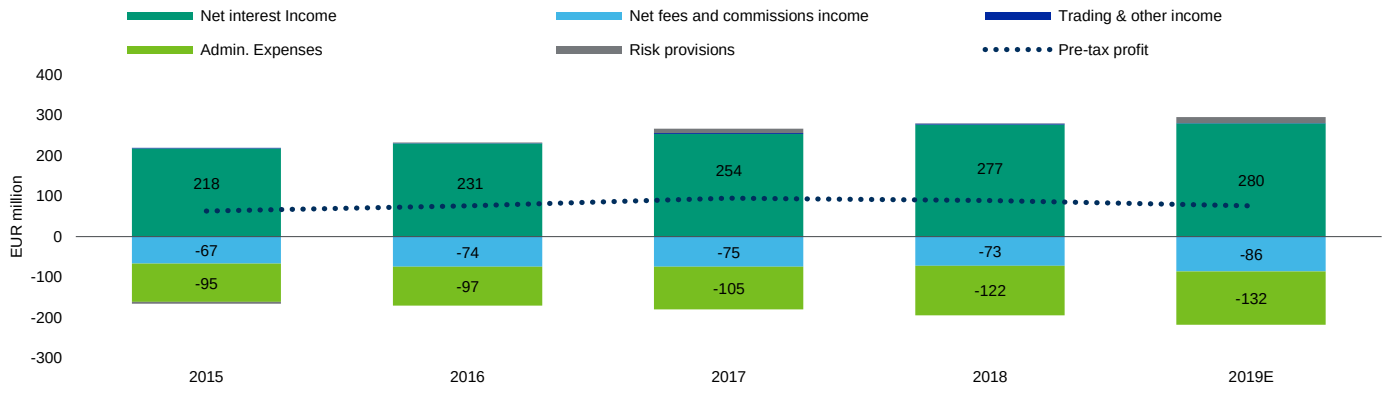
We assign a b3 Profitability factor score, which is at the same level as the initial score, reflects its low reported profitability and weak internal capital generation. The bank's profitability has historically been low, principally reflecting its focus on low-yielding residential mortgages and public-sector lending activities and its specific business model and is facing further challenges by the sustained and increasingly adverse operating conditions for banks in Germany (as reflected in a lower Macro Profile of Strong+).

In contrast to many of its German banking peers, Muenchener Hyp's revenue was on a rising trend in 2017 and 2018 as a result of lending growth, though the lack of its own distribution franchise for residential mortgages forces the bank to pay also higher upfront fees and commissions to compensate third parties for their distribution services.

However, in H1 2019, the bank reported a lower net income of €18 million, down from €23 million reported a year earlier. Net interest income rose slightly by 2% to €140 million, while the negative net commission income increased by 21%, driven by a sharp rise in disbursements to cooperative banks. Administrative costs rose 19% to €60 million because of higher personnel and other administrative costs, including IT investments. The release of €6.8 million loan-loss provisions marginally mitigated the decreased pre-provision income of €32 million (2017: 43 million).

Exhibit 6

Muenchener Hyp's new business development increased its interest income



Sources: Company reports, Moody's Financial Metrics, Moody's Investors Service estimates

In 2018, Muenchener Hyp earned €62 million in net income, in line with the 2017 result. Its net interest income rose 9% to €277 million, mainly driven by new business volume growth. The increase in net interest income was also reflected by an improvement in the net interest margin, which went up to 0.72% in 2018 from 0.67%, reflecting the steps taken to replace low-yielding securities with the higher-return lending business. Because of rising administrative costs, the bank marginally increased its cost-to-income ratio to 58.8% from 58.1% in 2017. The allocated loan-loss provisions of €12.6 million reflect the low level of Muenchener Hyp's credit risk.

Funding structure benefits from a well-matched maturity profile and access to sector funds

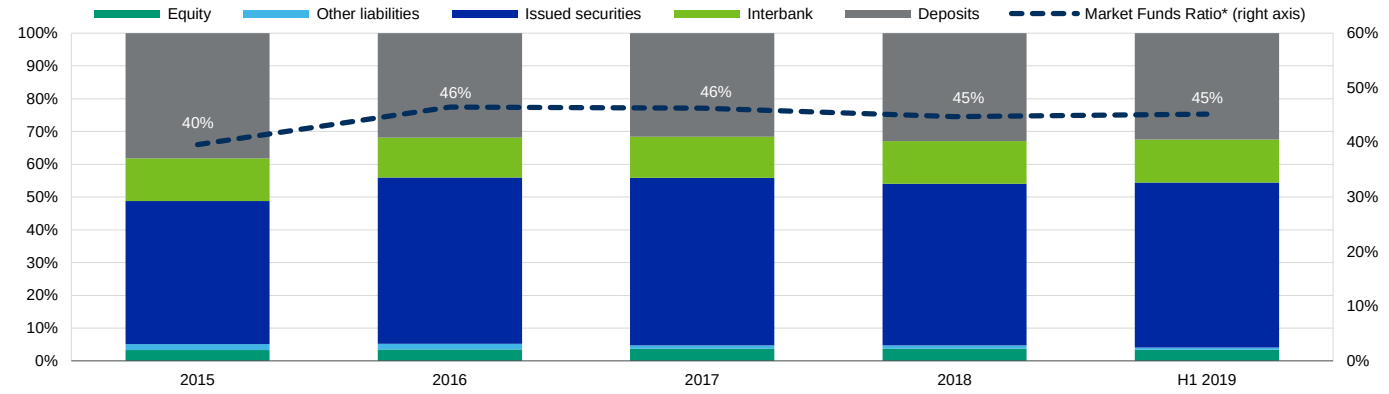
We assign a Funding Structure score of ba1, three notches above the b1 initial score. The positive adjustment reflects the fact that Muenchener Hyp's asset-maturity profile is well matched by the maturity profile of its covered bond program.

In the absence of a fully developed deposit franchise, the bank largely depends on the availability of market funding, including promissory notes. However, in light of its firm embeddedness in the German cooperative sector, the continuous availability of funds from sector members secures a higher degree of stability to the bank's funding profile. The net stable funding ratio (NSFR) was satisfactory at 105% as of June 2019.

Exhibit 7

Muenchener Hyp holds a stable amount of market funds

Composition of market funding sources



*Market funding ratio = Market funds/tangible banking assets

Deposits comprise primarily promissory notes, a confidence-sensitive market funding instrument according to our definition.

Sources: Company reports, Moody's Investors Service

Most of Muenchener Hyp's funding is raised through covered bonds (€27.6 billion as of December 2018), resulting in high cover pool requirements and a high overall asset encumbrance. The bank's regulatory asset encumbrance level remained in the tight range of 78.2%-82.1% in 2018, higher than that in 2017, because the bank further accomplished its funding profile, with liabilities of €4.8 billion

as of June 2019 as well as €6.0 billion in junior senior unsecured liabilities. Muenchner Hyp started building a retail deposit franchise in March 2018 to diversify its funding sources, though the share of deposits within its funding profile remains very limited for now, below €1 billion.

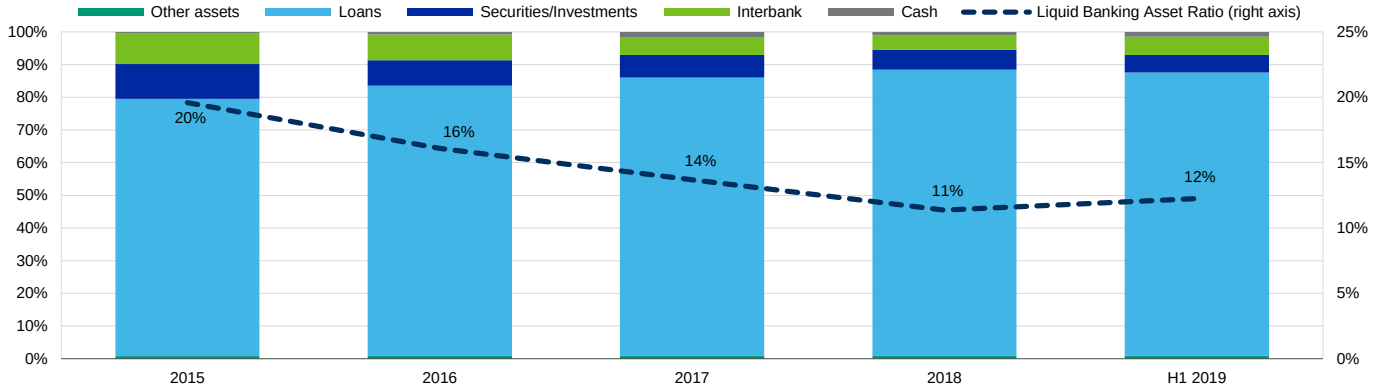
Notwithstanding modest liquid reserves, the bank's liquidity is satisfactory

Our Liquid Resources score is ba1, one notch below the baa3 initial score. The adjustment reflects the significant portion of encumbered assets in the bank's liquidity reserve.

Exhibit 8

Muenchener Hyp's limited liquid resources are declining

Composition of liquid assets



*Liquid banking assets ratio = Liquid assets/tangible banking assets

Sources: Company reports, Moody's Investors Service

Muenchener Hyp maintains modest liquidity resources overall, as a result of its business profile as a mortgage lender. However, we deem it satisfactory in the context of low annual asset maturities and the matched funding profile. The satisfactory liquidity is reflected by the liquidity coverage ratio (LCR) of 190% as of June 2019. The bank's liquid resources consisted of a €600 million cash reserve, €2.4 billion in due from banks and €2 billion liquid securities portfolio as of June 2019.

Moreover, additional liquidity could be generated through the issuance of covered bonds. As of 30 June 2019, and based on an outstanding issuance of €27.0 billion, the over-collateralisation in Muenchener Hyp's mortgage cover pool stood at 7.3% on an unstressed present-value basis. Muenchener Hyp has therefore some leeway using its existing cover pool to generate fresh liquidity through the issuance of covered bonds.

Business-model-related risks constrain Muenchener Hyp's BCA

We adjust the ba1 Financial Profile score downward by one notch, because Muenchener Hyp exhibits low revenue and income diversification outside the residential and commercial mortgage-lending businesses.

Business diversification is an important gauge of a bank's sensitivity to stress in a single business line. It is related to earnings stability in the sense that earnings diversification across distinct and relatively uncorrelated lines of business increases the reliability of a bank's earnings streams and its potential to absorb shocks affecting a business line.

Being a mortgage-lending specialist, Muenchener Hyp is exposed to a rather volatile banking business through the cycle. Specifically, we consider its CRE exposures highly cyclical and, therefore, consider it higher-risk sector exposure. Being a specialist mortgage lender benefits the bank's sector-specific risk management know-how; at the same time, it naturally limits the potential for (earnings) diversification within the bank to balance potential losses from the higher risk exposures. As a result, we classify Muenchener Hyp as a monoline bank according to our approach for business diversification.

Environmental, social and governance considerations

In line with our general view on the banking sector, Muenchener Hyp has a low exposure to environmental risks (see our environmental risk heatmap[1] for further information).

For social risks, we also place Muenchener Hyp in line with our general view for the banking sector, which indicates a moderate exposure (see our social risk heatmap[2]).

Governance is highly relevant for Muenchener Hyp, as it is to all players in the banking industry. Governance risks are largely internal rather than externally driven, and for Muenchener Hyp we do not have any particular governance concern[3]. Nonetheless, corporate governance remains a key credit consideration and requires ongoing monitoring.

Support and structural considerations

Affiliate support

Based on Muenchener Hyp's key service function for the sector and its majority ownership by the sector's member banks, the bank is highly likely to receive support in case of need. This support materially reduces the probability of default because the cooperative group's cross-sector support mechanism aims to stabilise its members by avoiding any form of loss participation by creditors, or bail-ins. Cross-sector support currently provides three notches of rating uplift to the bank's debt and deposit ratings.

Government support considerations

Because of its size, on a consolidated basis, we consider the group of German cooperative banks to be systemically relevant, and attribute a moderate probability of German government support for all members of the sector. This level of government support is in line with support assumptions for other systemically relevant banking groups in Europe and results in one notch of uplift for the senior debt and deposit ratings of the co-operative banks incorporated in Germany, including Muenchener Hyp.

For junior senior unsecured debt, the legal changes to Germany's bank insolvency rank order has lowered the likelihood of government support being available for these instruments, because legally they rank pari passu with most of the outstanding (statutorily subordinated) senior unsecured instruments issued up until 20 July 2018. This pari passu ranking of new junior senior unsecured debt with legacy (statutorily subordinated) senior unsecured instruments makes it less likely that German authorities would selectively support the legacy instruments (which we reclassified into junior senior unsecured debt), following clarification that the German authorities expect these liabilities to bear losses in a resolution. As a result, we have reduced our government support assumption for these instruments to low from moderate.

High-trigger AT1 securities

The Ba1(hyb) rating assigned to the high-trigger undated, deeply subordinated AT1 notes issued by Muenchener Hyp reflects our approach to rate high-trigger securities, under which we rate the lower of a model-based outcome and a non-viability security rating. This captures the credit risk associated with the distance to trigger breach and the credit risk of these securities' non-viability component. For Muenchener Hyp, the outcome of a model-implied rating is Baa3(hyb), reflecting the low likelihood that the instrument's trigger level is breached whilst the non-viability security rating is Ba1(hyb). Accordingly, the Ba1(hyb) rating of the higher-trigger AT1 securities is capped at the level of the non-viability security rating.

Loss Given Failure (LGF) analysis

Muenchener Hyp is subject to the EU Bank Recovery and Resolution Directive, which we consider an operational resolution regime. Therefore, we apply our Advanced LGF analysis, taking into account the risks faced by the different debt and deposit classes across the liability structure should the bank enter resolution.

Our Advanced LGF analysis follows the revised insolvency legislation in Germany that became effective on 21 July 2018. Following the change in law, the legal hierarchy of bank claims in Germany is now consistent with most other European Union (EU) countries, where statutes do not provide full preference to deposits over senior unsecured debt. However, in our Advanced LGF analysis, we now consider not only the results of the formal legal position (pari passu or de jure scenario), to which we assign a 75% probability, but also an alternative liability ranking, reflecting resolution authority discretion to prefer deposits over senior unsecured debt (full depositor preference or de facto scenario), to which we assign a 25% probability.

In line with our standard assumptions, we further assume residual TCE of 3%, post-failure losses of 8% of tangible banking assets, a 25% runoff in junior wholesale deposits and a 5% runoff in preferred deposits.

» For deposits and senior unsecured debt, our LGF analysis indicates an extremely low loss given failure, leading us to position their Preliminary Rating Assessments three notches above the bank's baa1 Adjusted BCA.

» For junior senior unsecured debt, our LGF analysis indicates a very low loss given failure, leading to two notches of rating uplift from the bank's baa1 Adjusted BCA.

Counterparty Risk Ratings (CRRs)

CRRs are opinions of the ability of entities to honour the uncollateralised portion of non-debt counterparty financial liabilities (CRR liabilities) and also reflect the expected financial losses in the event such liabilities are not honoured. CRRs are distinct from ratings assigned to senior unsecured debt instruments and from issuer ratings because they reflect that, in a resolution, CRR liabilities might benefit from preferential treatment compared with senior unsecured debt. Examples of CRR liabilities include the uncollateralised portion of payables arising from derivatives transactions and the uncollateralised portion of liabilities under sale and repurchase agreements.

Muenchener Hyp's CRRs are positioned at Aa3/P-1

The CRRs, before government support, are positioned three notches above the Adjusted BCA of baa1, reflecting the extremely low loss given failure from the high volume of instruments that are subordinated to CRR liabilities. Muenchener Hyp's CRRs benefit from one notch of rating uplift based on government support, in line with our support assumptions on deposits and senior unsecured debt.

Counterparty Risk (CR) Assessment

CR Assessments are opinions of how counterparty obligations are likely to be treated if a bank fails and are distinct from debt and deposit ratings in that they (1) consider only the risk of default rather than both the likelihood of default and the expected financial loss suffered in the event of default, and (2) apply to counterparty obligations and contractual commitments rather than debt or deposit instruments. The CR Assessment is an opinion of the counterparty risk related to a bank's covered bonds, contractual performance obligations (servicing), derivatives (for example, swaps), letters of credit, guarantees and liquidity facilities.

Muenchener Hyp's CR Assessment is positioned at Aa3(cr)/P-1(cr)

The CR Assessment, before government support, is positioned three notches above the Adjusted BCA of baa1, based on the buffer against default provided to the senior obligations represented by the CR Assessment by more subordinated instruments, including junior deposits and senior unsecured debt, which amount to about 19% of tangible banking assets. Muenchener Hyp's CR Assessment benefits from one notch of rating uplift based on government support, in line with our support assumptions on deposits and senior unsecured debt.

Methodology and scorecard

The principal methodology we used in rating Muenchener Hyp was Banks, published in November 2019.

About Moody's Bank Scorecard

Our scorecard is designed to capture, express and explain in summary form our Rating Committee's judgement. When read in conjunction with our research, a fulsome presentation of our judgement is expressed. As a result, the output of our 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 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.

Rating methodology and scorecard factors

Exhibit 9

Muenchener Hypothekenbank eG

Macro Factors						
Weighted Macro Profile	**Strong +**	**100%**				
Factor	**Historic Ratio**	**Initial Score**	**Expected Trend**	**Assigned Score**	**Key driver #1**	**Key driver #2**
Solvency						
Asset Risk						
Problem Loans / Gross Loans	0.5%	aa1	←→	baa1	Sector concentration	Long-run loss performance
Capital						
Tangible Common Equity / Risk Weighted Assets (Basel III - fully loaded)	20.9%	aa1	←→	baa3	Nominal leverage	Access to capital
Profitability						
Net Income / Tangible Assets	0.1%	b3	←→	b3	Return on assets	Expected trend
Combined Solvency Score		a1		ba1		
Liquidity						
Funding Structure						
Market Funds / Tangible Banking Assets	44.7%	b1	←→	ba1	Market funding quality	Term structure
Liquid Resources						
Liquid Banking Assets / Tangible Banking Assets	11.4%	ba1	←→	ba1	Asset encumbrance	Additional liquidity resources
Combined Liquidity Score		ba3		ba1		
Financial Profile				ba1		
Qualitative Adjustments				Adjustment		
Business Diversification				-1		
Opacity and Complexity				0		
Corporate Behavior				0		
Total Qualitative Adjustments				-1		
Sovereign or Affiliate constraint				Aaa		
BCA Scorecard-indicated Outcome - Range				ba1 - ba3		
Assigned BCA				ba1		
Affiliate Support notching				3		
Adjusted BCA				baa1		

Balance Sheet is not applicable.

Debt Class	De Jure waterfall		De Facto waterfall		Notching		LGF Notching Guidance vs. Adjusted BCA	Assigned LGF notching	Additional Notching	Preliminary Rating Assessment
	Instrument volume + subordination	Sub-ordination	Instrument volume + subordination	Sub-ordination	De Jure	De Facto				
Counterparty Risk Rating	-	-	-	-	-	-	-	3	0	a1
Counterparty Risk Assessment	-	-	-	-	-	-	-	3	0	a1 (cr)
Deposits	-	-	-	-	-	-	-	3	0	a1
Senior unsecured bank debt	-	-	-	-	-	-	-	3	0	a1
Junior senior unsecured bank debt	-	-	-	-	-	-	-	2	0	a2
Non-cumulative bank preference shares	-	-	-	-	-	-	-	-1	-2	ba1

Instrument Class	Loss Given Failure notching	Additional notching	Preliminary Rating Assessment	Government Support notching	Local Currency Rating	Foreign Currency Rating
Counterparty Risk Rating	3	0	a1	1	Aa3	Aa3
Counterparty Risk Assessment	3	0	a1 (cr)	1	Aa3(cr)	
Deposits	3	0	a1	1	Aa3	Aa3
Senior unsecured bank debt	3	0	a1	1	Aa3	Aa3
Junior senior unsecured bank debt	2	0	a2	0	A2	A2
Non-cumulative bank preference shares	-1	-2	ba1	0		Ba1 (hyb)

[1]Where dashes are shown for a particular factor (or sub-factor), the score is based on non-public information.
Source: Moody's Investors Service

Ratings

Exhibit 10

Category	Moody's Rating
MUENCHENER HYPOTHEKENBANK EG	
Outlook	Negative
Counterparty Risk Rating	Aa3/P-1
Bank Deposits	Aa3/P-1
Baseline Credit Assessment	ba1
Adjusted Baseline Credit Assessment	baa1
Counterparty Risk Assessment	Aa3(cr)/P-1(cr)
Issuer Rating	Aa3
Senior Unsecured	Aa3
Junior Senior Unsecured	A2
Junior Senior Unsecured MTN	(P)A2
Pref. Stock Non-cumulative	Ba1 (hyb)
Commercial Paper -Dom Curr	P-1
Other Short Term -Dom Curr	(P)P-1

Source: Moody's Investors Service

Endnotes

1 Environmental risks can be defined as environmental hazards encompassing the impacts of air pollution, soil/water pollution, water shortages and natural and man-made hazards (physical risks). Additionally, regulatory or policy risks, like the impact of carbon regulation or other regulatory restrictions, including the related transition risks like policy, legal, technology and market shifts, that could impair the evaluation of assets are an important factor. Certain banks could face a higher risk from concentrated lending to individual sectors or operations exposed to the aforementioned risks.

2 Social risk considerations represent a broad spectrum, including customer relations, human capital, demographic and societal trends, health and safety and responsible production. The most relevant social risks for banks arise from the way they interact with their customers. Social risks are particularly high in the area of data security and customer privacy, which is partly mitigated by sizeable technology investments and banks' long track record of handling sensitive client data. Fines and reputational damage because of product mis-selling or other types of misconduct is a further social risk. Societal trends are also relevant in a number of areas, such as shifting customer preferences toward digital banking services increasing information technology costs, ageing population concerns in several countries affecting demand for financial services or socially driven policy agendas that may translate into regulations that affect banks' revenue bases.

3 Corporate governance is a well-established key driver for banks and related risks are typically included in our evaluation of the banks' financial profile. Corporate governance weaknesses can lead to a deterioration in a company's credit quality, while governance strengths can benefit its credit profile. Further factors like specific corporate behaviour, key person risk, insider and related-party risk, strategy and management risk factors and dividend policy may be captured in individual adjustments to the BCA.

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