

CREDIT OPINION

2 August 2023

Update

Send Your Feedback

RATINGS

BNG Bank N.V.

Domicile	The Hague, Netherlands
Long Term CRR	Aaa
Type	LT Counterparty Risk Rating - Fgn Curr
Outlook	Not Assigned
Long Term Debt	Aaa
Type	Senior Unsecured - Fgn Curr
Outlook	Stable
Long Term Deposit	Aaa
Type	LT Bank Deposits - Fgn Curr
Outlook	Stable

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.

Contacts

Yasuko Nakamura +33.1.5330.1030
VP-Sr Credit Officer
yasuko.nakamura@moodys.com

Malik Bendib +33.1.5330.3446
Associate Analyst
malik.bendib@moodys.com

Olivier Panis +33.1.5330.5987
Senior Vice President
olivier.panis@moodys.com

Alain Laurin +33.1.5330.1059
Associate Managing Director
alain.laurin@moodys.com

BNG Bank N.V.

Update to credit analysis

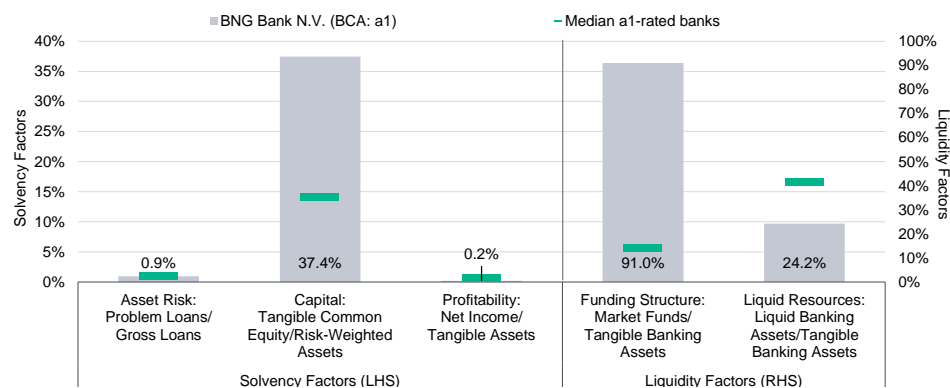
Summary

[BNG Bank N.V.](#)'s (BNG Bank) Baseline Credit Assessment (BCA) of a1 reflects the bank's (1) role as the largest lender to the Dutch public sector; (2) entrenched franchise in a niche market, which results in exceptional stability in its fundamentals; (3) very high asset quality because its portfolio is mostly comprised of loans to Dutch public entities; 4) high capitalisation; and (5) adequate funding profile and liquidity position.

BNG Bank's Aaa deposit and senior unsecured ratings reflect (1) the bank's a1 BCA; (2) the application of our Advanced Loss Given Failure (LGF) analysis, resulting in a two-notch uplift from the bank's Adjusted BCA of a1, given the significant volume of senior unsecured debt; and (3) a two-notch government support uplift, reflecting a very high support probability from the [Government of the Netherlands](#) (Aaa stable) because of the bank's public ownership and its role as one of the main providers of financing to the Dutch public sector.

Exhibit 1

Rating Scorecard - Key financial ratios



Source: Moody's Financial Metrics

Credit strengths

- » Largest lender to the Dutch public sector, fully owned by Dutch public entities
- » High asset quality, reflected in the very low level of nonperforming loans (NPLs)
- » Financial performance commensurate with the bank's public policy role
- » Large volume of senior debt, resulting in the bank's deposit and senior unsecured debt ratings benefiting from a very low loss given failure rate, which results in a two-notch uplift from the BCA
- » Very high probability of government support, resulting in a two-notch uplift for the bank's debt and deposit ratings

Credit challenges

- » Borrower concentration, given the bank's narrow public policy mandate
- » Mismatches between assets and liabilities, mitigated by an ample liquidity portfolio and diverse funding

Outlook

We expect BNG Bank's creditworthiness to remain resilient despite the prospects of weakening operating environment, as reflected in the stable outlook on the bank's ratings.

Factors that could lead to an upgrade

Upward pressure on BNG Bank's BCA could result from a lower reliance on wholesale funding, which is unlikely given the bank's business model. However, an upgrade of the bank's BCA will not trigger any upgrade of the bank's deposit and senior unsecured ratings, which are already at Aaa.

Factors that could lead to a downgrade

Downward pressure on BNG Bank's BCA could result from (1) a deterioration in the creditworthiness of the Dutch public sector, (2) a significant increase in the bank's non-0% risk-weighted assets, (3) a significant increase in its funding gaps, or (4) a deterioration in its solvency. A downgrade of the BCA could result in a downgrade of all the ratings. BNG Bank's ratings could also be downgraded if the rating of the Dutch government was downgraded.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody's.com> for the most updated credit rating action information and rating history.

Key indicators

Exhibit 2

BNG Bank N.V. (Consolidated Financials) [1]

	12-22 ²	12-21 ²	12-20 ²	12-19 ²	12-18 ²	CAGR/Avg. ³
Total Assets (EUR Million)	108,767.0	144,204.0	132,659.0	126,118.0	118,025.0	(2.0) ⁴
Total Assets (USD Million)	116,081.3	163,398.4	162,315.7	141,567.2	134,919.6	(3.7) ⁴
Tangible Common Equity (EUR Million)	4,269.0	4,117.0	4,078.0	3,875.0	3,892.0	2.3 ⁴
Tangible Common Equity (USD Million)	4,556.1	4,665.0	4,989.7	4,349.7	4,449.1	0.6 ⁴
Problem Loans / Gross Loans (%)	0.9	0.6	0.4	0.4	0.1	0.5 ⁵
Tangible Common Equity / Risk Weighted Assets (%)	37.4	32.3	33.6	31.4	32.1	33.4 ⁶
Problem Loans / (Tangible Common Equity + Loan Loss Reserve) (%)	19.2	12.6	9.3	7.9	1.4	10.1 ⁵
Net Interest Margin (%)	0.4	0.3	0.3	0.3	0.3	0.3 ⁵
PPI / Average RWA (%)	--	2.7	2.7	3.0	3.7	3.0 ⁶
Net Income / Tangible Assets (%)	0.3	0.1	0.2	0.1	0.3	0.2 ⁵
Cost / Income Ratio (%)	28.2	32.2	30.0	24.7	21.4	27.3 ⁵
Market Funds / Tangible Banking Assets (%)	91.0	93.1	91.7	91.6	90.7	91.6 ⁵
Liquid Banking Assets / Tangible Banking Assets (%)	24.2	26.8	10.3	9.7	10.8	16.4 ⁵
Gross Loans / Due to Customers (%)	1876.3	1988.4	1592.3	1586.9	1466.9	1702.2 ⁵

[1] All figures and ratios are adjusted using Moody's standard adjustments. [2] Basel III - fully loaded or transitional phase-in; IFRS. [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. [6] Simple average of Basel III periods.

Sources: Moody's Investors Service and company filings

Profile

Founded in 1914 and headquartered in The Hague, BNG Bank is a Dutch credit institution specialised in lending to (semi-)publicly owned institutions. BNG Bank has no branches¹ and does not provide financing to private customers. The bank's clients are mainly local authorities and public-sector institutions in the areas of housing, healthcare, education and public utilities.

The bank's shareholders are exclusively Dutch public authorities; 50% of the bank's shares are held by the Dutch State and the remaining 50% are held by municipal authorities, provincial authorities and a district water board.

Detailed credit considerations

BNG Bank is the largest lender to the Dutch public sector and is fully owned by Dutch public entities

BNG Bank's bylaws restrict its ownership to the Dutch public sector. This ownership structure has been stable since 1925 and is unlikely to change, given the bank's mandate to act as a lender to the Dutch public sector. The bank's long-term loan portfolio was €88 billion as of the end of December 2022, up €0.9 billion from year-end 2021. Total new long-term lending amounted to €12 billion in 2022, which was 4% lower than the 2021 level. Demand from social housing remained elevated but was lower in the public sector due to competition and investments constrained by inflationary pressures.

The bank's market share of lending to local governments, housing associations and healthcare institutions (core clients) was 67.5% in terms of new long-term lending in 2022. We expect the bank to maintain its position in the Dutch public-sector financing business given its mandate, ownership and advantageous funding costs compared with those of commercial banks.

As a bank established with an explicit public policy mandate, BNG Bank benefits from an entrenched franchise in a niche market. These conditions result in exceptional stability in terms of asset quality, capital and profitability, supporting the bank's ongoing operating performance and resulting in a very low risk profile. BNG Bank is also relatively insulated from a prolonged economic slowdown if it were to arise. This feature is reflected in a qualitative positive adjustment of one notch in our scorecard.

High asset quality, reflected in the very low level of NPLs

Despite market volatility, BNG Bank has consistently been able to lend to the Dutch public sector at advantageous rates, given the bank's low funding costs compared with those of commercial banks. The bank's narrow public policy mandate translates into concentrations in its loan portfolio. However, these concentrations mainly relate to Dutch local governments, housing associations and healthcare actors that benefit from guarantees on their liabilities from the central government (92% of long-term lending, or

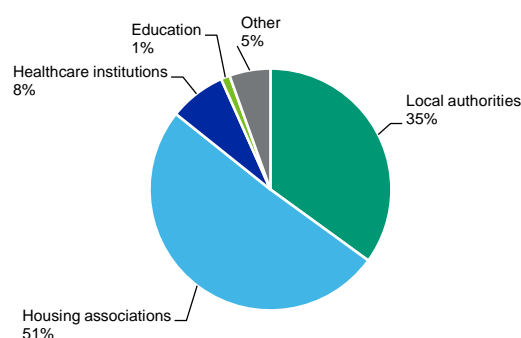
€81 billion as of year-end 2022 compared to €80.5 billion a year ago²). Therefore, they do not entail any capital charge. The export refinancing activities under the central government's export credit guarantee will be discontinued.

Less than 10% of the bank's lending was subject to a capital charge at year-end 2022. These exposures consist of loans, for example, to public-private partnerships. Concentration risks in such loans are modest and volumes are closely monitored. The cost of risk remains extremely low but increased to 6 basis points (bps) in 2022 versus 2 bps in 2021. As defined in its strategic framework "Our Road to Impact", BNG Bank will exclusively focus on the public domain in the Netherlands. The bank does not expect any substantial increase in the share of non-zero risk weighted loans.

The bank's non-performing exposure totaled €848 million as of end-December 2022, representing 0.9% of loans and advances, which although low, is somehow up from 0.6% at year-end 2021. The increase is due to the transfer of four obligors to Stage 3. As of year-end 2022, BNG received a €391 million guarantees from the government with respect to non-performing exposures.

Exhibit 3

Breakdown of the long-term loan portfolio as of year-end 2022



Source: Company reports

BNG Bank's securities portfolio (€16 billion as of 31 December 2022) mainly consists of highly rated securities. The portfolio is primarily invested in government debt, bonds with government guarantees and covered bonds. This portfolio is mainly composed of securities rated from Aaa to A (97%) and securities in the Baa range (3%). Non-investment-grade securities only represent 0.3% of the portfolio. BNG Bank's overall exposures to the weaker European sovereigns³ through both its loan and securities portfolios amounted to around €0.5 billion as of end-December 2022.

These factors result in an Asset Risk score of aa2.

Strong capital in view of low-risk lending activity

BNG Bank's capitalisation is commensurate with its low-risk assets. The bank's Common Equity Tier 1 capital ratio was 35% as of 31 December 2022, compared with the regulatory requirement of 10.25% for 2023⁴. The bank's Tier 1 capital includes €309 million of Additional Tier 1 (AT1) capital securities issued in 2016. The bank redeemed the AT1 instruments issued in 2015 (€423.8 million) in May 2022. As of end-December 2022, BNG Bank's Tier 1 leverage ratio was 13% (year-end 2021: 11%), above the minimum regulatory requirement of 3%.

The bank's strong capitalisation is reflected in a Capital score of aa1.

BNG Bank's financial performance is in line with the bank's public policy role

Like other government-related specialised lenders, BNG Bank must generate sufficient profit to grow its capital in line with its loan portfolio and comply with regulatory capital requirements. However, the bank must also balance this capital growth and profit objectives with the provision of efficient, low-cost funding to local governments and related public sectors.

We expect increasing expenses, driven by wage inflation but also investments in systems and staff, to continue to constrain BNG Bank's profitability. We nonetheless believe that the bank's business model, its dominant position in the market and close relationships with

its clients (part of which are also its shareholders) will continue to provide it with sufficient flexibility in setting up margins, thereby preserving the necessary level of profit.

In 2022, BNG reported a net profit of €300 million, up 18% on 2021. This progression primarily stemmed from €97 million (18%) increase in revenues partly offset by €8 million rise in operating expenses (+7%) and €32 million increase in cost of risk. The rise in revenues mainly came from net interest income which was up by 73 million to €481 million in 2022.⁵ The increase in net interest income is largely attributable to the fact that, due to a TLTRO procedural error, the bank was disqualified from the 0.5% conditional bonus rate under the TLTRO between 24 June 2020 and 23 June 2021 (which resulted in a negative impact of €57 million in 2021) whereas it received the rebate in 2022. The rise in interest rates also contributed to the increase in the bank's net interest income.

Like most other specialised lenders, BNG Bank's costs are low relative to its total assets. The bank's adjusted cost-to-income ratio decreased to 28% in 2022 compared to 32% in 2021 as revenues increased more than expenses.

These factors are reflected in the bank's Profitability score of ba3, which is adjusted upwards by one notch to reflect the quality and stability of earnings.

Funding profile and liquidity are adequate

BNG Bank is almost entirely wholesale funded and, therefore, relies on capital markets for its financing. The bank deploys a diversified funding strategy by issuing debt in multiple currencies and markets, with the aim of reaching out to a wide array of investors. BNG Bank's asset and liability management entails some maturity mismatches. The bulk of assets has remaining maturities above five years, whereas a greater proportion of liabilities have maturities remaining below five years. Maturity mismatches could have negative implications for the bank's interest margins (whereby the bank's spreads would rise significantly for a prolonged period and imply an increase in the refinancing cost of outstanding loans).

Liquidity risk is managed through euro commercial paper and US dollar commercial paper programmes and a comfortable liquidity buffer (constituting highly liquid assets - eligible to the liquidity coverage ratio - worth €10.2 billion as of 31 December 2022). The bank also has an immediate drawing capacity of €16 billion, collateralised by public-sector loans (pre-pledged) at the European Central Bank. Additionally, most of BNG Bank's loan book can be used as collateral for central bank funding.

The funding gaps are maintained within reasonable limits in view of BNG Bank's good standing in the capital markets. As bonds issued by a promotional bank (an institution where lending to the public sector represents more than 90% of total loans), the securities issued by BNG Bank are classified as "level 1" category assets⁶. BNG Bank's bonds are also eligible for the European Central Bank's public-sector purchase programme aimed at stimulating the economy. These measures have further enhanced financial institutions' appetite for the bank's securities. As of year-end 2022, BNG Bank's liquidity coverage ratio (LCR) was 189% (up from to 174% in 2021) and its net stable funding ratio (NSFR) was 125% (from 126% in 2021), in compliance with the European Union (EU) prudential requirements.

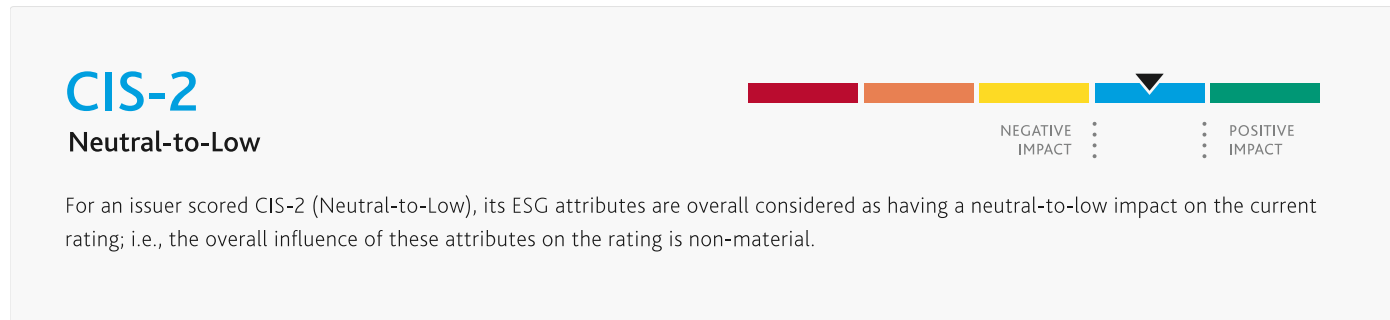
These factors are reflected in the bank's Combined Liquidity score of baa2.

Environmental, social and governance considerations

BNG Bank N.V.'s ESG Credit Impact Score is Neutral-to-Low CIS-2

Exhibit 4

ESG Credit Impact Score



Source: Moody's Investors Service

BNG Bank's **CIS-2** indicates that ESG considerations have no material impact on the current ratings.

Exhibit 5

ESG Issuer Profile Scores



Source: Moody's Investors Service

Environmental

BNG Bank faces moderate exposure to environmental risks. Given its role as lender to the public sector, BNG Bank's exposure to environmental risks is closely aligned to that of the Dutch sovereign, which primarily stems from its exposure to physical climate risks, and in particular to rising sea levels.

Social

BNG Bank faces moderate social risks in relation to regulatory and litigation risks, which require the bank to meet strong compliance standards. The exposure to customer relation risks is however below the industry average, as the bank has only modest exposures to private companies and no retail activity with individuals.

Governance

BNG Bank faces neutral-to-low governance risks. The bank's risk management policies and procedures are in line with the industry's best practices. BNG Bank has a proven track record of contained risk appetite in its lending and investment activities. BNG Bank's simple legal structure reflects its domestic franchise as a public sector lender. Ownership is concentrated within the Dutch public sector, with the Dutch State owning half of the bank's shares and the other half being held by municipal authorities, provincial authorities and a water company board. However, the large presence of independent administrators, the alignment between the bank's public policy role and the interest of the controlling shareholders as well as the domestic developed institutional framework mitigate associated governance risks.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moody's.com. In order to view the latest scores, please click [here](#) to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

Support and structural considerations

Loss Given Failure (LGF) analysis

Despite its ownership and public mandate, BNG Bank falls in the scope of the EU Bank Resolution and Recovery Directive (BRRD), which we consider to be an operational resolution regime. Nonetheless, the Single Resolution Board (SRB) announced on 27 February 2019 that simplified obligations apply to BNG Bank and that the preferred resolution strategy was normal insolvency law - liquidation - rather than bail-in.

We assume residual tangible common equity of the lower of the current amount and 3%, post-failure losses of 8% of tangible banking assets, a 25% run-off in junior wholesale deposits and a 5% run-off in preferred deposits, and assign a 25% probability to deposits being preferred to senior unsecured debt. The proportion of deposits considered junior is 26%. These are in line with our standard assumptions. The low-trigger Additional Tier 1 securities of the bank are incorporated in the LGF analysis under the heading "Preference shares (bank)" in Exhibit 4.

Our LGF analysis indicates a very low loss given failure for the bank's deposits and senior unsecured debt, leading to a two-notch uplift to the bank's Adjusted BCA.

Government support considerations

Despite the limitations on government support embedded in the BRRD, the scope of which includes BNG Bank, we expect a very high probability of government support for the bank's deposits and senior unsecured debt, resulting in a two-notch uplift for both debt classes. Because of the bank's ownership and public policy mission, the probability of receiving government support is considerably greater than that of commercial banks.

The very high support assumptions include the support that would come (1) from the Dutch public sector (including the central government) acting as the shareholder of the bank, and (2) from the government stepping in to address systemic risks. BNG Bank was designated as a domestic systemically important bank in 2015.

Counterparty Risk (CR) Assessment

BNG Bank's CR Assessment is positioned at Aaa(cr)/P-1(cr)

The CR Assessment, before government support, is positioned three notches above the Adjusted BCA of a1, based on the buffer against default provided to the senior obligations represented by the CR Assessment by subordinated instruments. The main difference with our Advanced LGF approach used to determine instrument ratings is that the CR Assessment captures the probability of default on certain senior obligations, rather than expected loss; therefore, we focus purely on subordination and take no account of the volume of the instrument class.

The CR Assessment also benefits from one notch of systemic support. This reflects our view that any support provided by governmental authorities to a bank that benefits senior unsecured debt or deposits is very likely to benefit operating activities and obligations reflected by the CR Assessment as well, consistent with our belief that governments are likely to maintain such operations as a going concern to reduce contagion and preserve a bank's critical functions.

Methodology and scorecard

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 6

BNG Bank N.V.

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	0.9%	aa2	↔	aa2	Quality of assets	Long-run loss performance	
Capital							
Tangible Common Equity / Risk Weighted Assets (Basel III - fully loaded)	37.4%	aa1	↔	aa1	Risk-weighted capitalisation		
Profitability							
Net Income / Tangible Assets	0.2%	b1	↔	ba3	Earnings quality		
Combined Solvency Score		a1		a1			
Liquidity							
Funding Structure							
Market Funds / Tangible Banking Assets	91.0%	caa3	↔	baa3	Term structure	Market funding quality	
Liquid Resources							
Liquid Banking Assets / Tangible Banking Assets	24.2%	baa1	↔	a3	Additional liquidity resources		
Combined Liquidity Score		b1		baa2			
Financial Profile							
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				aa3 - a2			
Assigned BCA				a1			
Affiliate Support notching				0			
Adjusted BCA				a1			
Balance Sheet							
		in-scope (EUR Million)		% in-scope		at-failure (EUR Million)	% at-failure
Other liabilities		13,327		12.3%		13,815	12.7%
Deposits		4,785		4.4%		4,297	4.0%
Preferred deposits		3,541		3.3%		3,364	3.1%
Junior deposits		1,244		1.1%		933	0.9%
Senior unsecured bank debt		87,045		80.0%		87,045	80.0%
Dated subordinated bank debt		38		0.0%		38	0.0%
Preference shares (bank)		309		0.3%		309	0.3%
Equity		3,263		3.0%		3,263	3.0%
Total Tangible Banking Assets		108,767		100.0%		108,767	100.0%

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	84.2%	84.2%	84.2%	84.2%	3	3	3	3	0	aa1
Counterparty Risk Assessment	84.2%	84.2%	84.2%	84.2%	3	3	3	3	0	aa1 (cr)
Deposits	84.2%	3.3%	84.2%	83.3%	2	3	2	2	0	aa2
Senior unsecured bank debt	84.2%	3.3%	83.3%	3.3%	2	2	2	2	0	aa2

Instrument Class	Loss Given Failure notching	Additional notching	Preliminary Rating Assessment	Government Support notching	Local Currency Rating	Foreign Currency Rating
Counterparty Risk Assessment	3	0	aa1 (cr)	1	Aaa(cr)	
Deposits	2	0	aa2	2		Aaa
Senior unsecured bank debt	2	0	aa2	2	Aaa	Aaa

[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 7

Category	Moody's Rating
BNG BANK N.V.	
Outlook	Stable
Counterparty Risk Rating	Aaa/P-1
Bank Deposits	Aaa/P-1
Baseline Credit Assessment	a1
Adjusted Baseline Credit Assessment	a1
Counterparty Risk Assessment	Aaa(cr)/P-1(cr)
Issuer Rating	Aaa
Senior Unsecured	Aaa
Commercial Paper	P-1

Source: Moody's Investors Service

Endnotes

- 1 BNG Bank has two subsidiaries that are being unwound.
- 2 Off-balance sheet commitments amount to €11.1 billion, which slightly increased compared to 2021. No breakdown by sector is provided.
- 3 Italy, Portugal and Spain.
- 4 This ratio includes a 4.5% Pillar 1 requirement, a 1.75% Pillar 2 requirement, a 1% systemic risk buffer and a 2.5% capital conservation buffer.
- 5 Based on our calculations, net interest margin was 36 bps of average interest earning assets in 2022, up from 27 bps in 2021 and within its 30-40 bps usual range.
- 6 The highest quality of the High-Quality Liquid Assets of the liquidity coverage ratio

© 2023 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved. CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED BY MOODY'S (COLLECTIVELY, "PUBLICATIONS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES ITS PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the credit rating process or in preparing its Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it fees ranging from \$1,000 to approximately \$5,000,000. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moody's.com under the heading "Investor Relations — Corporate Governance — Charter Documents - Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any credit rating, agreed to pay to MJKK or MSFJ (as applicable) for credit ratings opinions and services rendered by it fees ranging from JPY100,000 to approximately JPY550,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454