

CREDIT OPINION

19 February 2025

Update



RATINGS

National Company Kazakhstan Temir Zholy JSC

Domicile	Astana, Kazakhstan
Long Term Rating	Baa2
Туре	LT Issuer Rating - Fgn Curr
Outlook	Stable

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

Contacts

Mikhail Shipilov, CFA +971.4.237.9561 VP-Senior Analyst mikhail.shipilov@moodys.com

Alena Kuranova +971.50.107.7819
Sr Ratings Associate

alena.dyachkova@moodys.com

Rehan Akbar, CFA +971.4.237.9565 Associate Managing Director rehan.akbar@moodys.com

CLIENT SERVICES

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

National Company Kazakhstan Temir Zholy JSC

Update to credit analysis

Summary

National Company Kazakhstan Temir Zholy JSC's (KTZ) Baa2 rating factors in its Baseline Credit Assessment (BCA) of ba3, the <u>Government of Kazakhstan</u>'s Baa1 rating, the moderate default dependence between KTZ and the government, and the high probability of government support in the event of financial distress. We rate KTZ under our Government-Related Issuers (GRI) methodology because the government exerts a very high level of control over the company through its parent <u>Sovereign Wealth Fund Samruk-Kazyna JSC</u> (Samruk-Kazyna, Baa1 stable) and given KTZ's strategic importance to the government.

The BCA factors in the company's position as the monopoly owner of rail transportation infrastructure and the largest provider of transportation services in Kazakhstan; strategic and social importance to its parent company, and to the state and its efforts to diversify the economy away from hydrocarbon sectors, which translates into sizeable ordinary support, accommodating tariff policy and prudent supervision over KTZ's strategy and financial policy; prudent development strategy; and growing revenue, earnings and cargo turnover. At the same time, the BCA reflects the company's ongoing large capital spending programme, which leads to negative cash generation and growing debt over 2023-26, and high exposure to the macroeconomic and regulatory environment in Kazakhstan.

Exhibit 1
Financial performance should remain sound in 2025-26



Source: Moody's Ratings

Credit strengths

- » Status as the monopoly provider of strategic rail infrastructure services in Kazakhstan
- » Expansion of the more profitable transit business
- » Proven track record of ordinary and extraordinary state support, including sizeable long-term funding

Credit challenges

- » Large investment programme, which leads to negative free cash flow (FCF)
- » Exposure to the macroeconomic and regulatory environment in Kazakhstan

Rating outlook

The stable outlook on KTZ's rating reflects our view that KTZ's specific credit factors, including its operating and financial performance, credit metrics, market position and liquidity, will remain commensurate with its rating on a sustainable basis, and there will be no weakening in the probability of support from Samruk-Kazyna and the government in the event of financial distress.

Factors that could lead to an upgrade

Upward rating pressure could emerge if (1) there is a significant improvement in the company's standalone creditworthiness and (2) Kazakhstan's sovereign rating and Samruk-Kazyna's rating are upgraded. The former would require that the company completes its investment cycle and sustainably reduces its adjusted debt/EBITDA below 4.0x.

Factors that could lead to a downgrade

We could downgrade KTZ's rating if it was to downgrade Kazakhstan's sovereign rating or Samruk-Kazyna's rating, or if we reassess the likelihood of support from Samruk-Kazyna and the government in the event of financial distress to a weaker level. A material deterioration in the company's standalone credit quality could also lead to a rating downgrade.

Key indicators

Exhibit 2
National Company Kazakhstan Temir Zholy JSC

(in \$ billions)	2019	2020	2021	2022	2023	LTM Sep-24	2024F	2025F
Revenue	3.0	2.8	3.1	3.3	4.2	4.5	4.7	5.2
Operating Margin	16%	17%	20%	16%	17%	18%	18%	18%
EBITA / Average Assets	5%	6%	9%	8%	8%	8%	7%	7%
Debt / EBITDA	5.4x	4.9x	4.0x	4.2x	4.4x	4.7x	5.0x	5.2x
FFO / Debt	14%	15%	17%	15%	14%	13%	9%	10%
EBIT / Interest Expense	1.3x	2.2x	2.3x	2.0x	1.8x	1.8x	1.6x	1.5x
EBITDA Margin	26%	30%	33%	28%	26%	27%	26%	27%

All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology. LTM = Last 12 months. The forecasts are our opinion and do not represent the views of the issuer.

Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

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.moodys.com for the most updated credit rating action information and rating history.

Profile

Headquartered in Astana, Kazakhstan, National Company Kazakhstan Temir Zholy JSC (KTZ) is the vertically integrated monopoly owner and operator of the national rail network of the Republic of Kazakhstan, and the leading provider of freight and passenger rail transportation services in the country. Beyond its railway operations, KTZ also manages several significant infrastructure assets, including sea ports. The company is wholly owned by JSC National Welfare Fund Samruk-Kazyna. KTZ reported revenue of KZT2,062 billion and Moody's-adjusted EBITDA of KZT555 billion for the 12 months that ended September 2024.

Exhibit 3
Revenue breakdown by service type (2023)

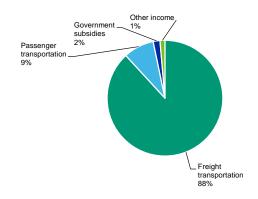
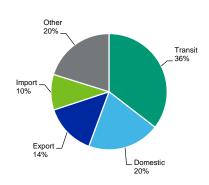


Exhibit 4
Freight transportation revenue breakdown by destination (2023)



Source: Company

Source: Company

Detailed credit considerations

Monopoly owner of the national rail infrastructure and the largest provider of transportation services in Kazakhstan

KTZ's business profile benefits from its position as the monopoly provider of rail infrastructure services in Kazakhstan, a country where railway is the key freight transportation mode because of its substantial territory, landlocked position, and abundant and widespread natural resources. In particular, rail transportation accounted for 65% of the country's freight turnover in 2023, a small increase from 64% in 2022.

Kazakhstan's strategic location among key trading regions such as the European Union, China, Russia and the Commonwealth of Independent States provides good potential for the active development of transit operations in the country. KTZ also holds the leading position in the domestic freight market, accounting for around a third of the total national cargo turnover (including pipelines). Moreover, it remains a dominant provider of rail passenger services in the country, with around 70% of the total rail passenger turnover.

The company competes with pipelines, which have taken over almost all crude oil cargo volume from rail, and with road transportation, which dominates short-haul routes. Private participation in the Kazakhstan railway transportation industry is limited to the ownership, leasing and operation of railcars and containers, with many private operators being part of industrial groups that largely service their own freight turnover. Although the market for locomotive traction was liberalised in 2019, we expect KTZ to retain its leadership in the segment because of its established large fleet and the high capital required for private investors to develop this business.

Financial performance will remain robust because of high regulated tariff indexation and growing freight turnover

KTZ's operating performance had historically been exposed to the economic environment in Kazakhstan and commodity market volatility, which influence transportation activity in the country. However, the increasing stability of transit operations and Kazakhstan's economic resilience and diversification in recent years have reduced this exposure. Notably, KTZ's freight transportation business, accounting for about 90% of its revenue, was resilient to the severe economic impact of the global coronavirus pandemic. In addition, oil and oil products account for only 8% of the company's freight turnover now, which limits its exposure to oil market conditions.

The company benefits from increased transportation activity between Russia and Asia and across the Trans-Caspian International Transport Route — also known as the Middle Corridor. Demand for railway freight transportation is likely to remain elevated because of

a structural diversion of cargo flow in the region and may be curbed only by infrastructure bottlenecks. The company's freight turnover increased by 5.1% in 2022, 6.9% in 2023 and 3.8% in 2024, reaching 272.1 billion ton-kilometers. The freight turnover is likely to grow by 1%-3% a year in 2025-26. Furthermore, container turnover grew rapidly to 1.4 million TEU in 2024 from 1.1 million TEU in 2021-22. Transit volumes increased by 8.8% in 2024.

The tariff regulation has been also supportive recently. The average cargo tariff increased by 13% in 2021, 6% in 2022, 18% in 2023 and 13% for the first nine months of 2024, which helps offset relatively high inflation and finance extensive capital spending. More positively, the company expects average tariff growth of 24% a year in 2025-27.

Financial performance remains sound. Revenue increased by 9% in the first nine months of 2024, compared with 26% in 2023 and 16% in 2022. The slowdown in revenue growth was caused by a reduction in coal exports because of rising prices and a poor harvesting season that lead to a decline in grain transportation. Nevertheless, better operating performance in the second half of 2024 and tariff indexation are likely to result in low-double-digit revenue growth in percentage terms for full-year 2024. In the first nine months of 2024, the company reported strong growth in Moody's-adjusted EBITDA, increasing by 11% to KZT460 billion from KZT413 billion in the year-earlier period. EBITDA margin slightly improved to 30% from 29% in the same period a year earlier. We expect EBITDA margin to remain stable at 25%-28% in 2024-26.

Large investment programme

Since 2023, KTZ is executing a large capital spending programme. The company is investing in the expansion of infrastructure, particularly in its key transit route Dostyk–Aktogay–Moyinty, which will help remove bottlenecks; and in the modernisation and expansion of locomotives, freight cars and passenger cars. The infrastructure spending will be financed mostly by debt from Samruk-Kazyna. Locomotives and railway cars are financed by debt from Samruk-Kazyna and various ECAs. The company's capital spending increased to KZT807 billion in 2023 from KZT358 billion in 2022 and KZT269 billion in 2021. We expect KTZ's capital spending to increase by 10% to KZT900 billion in 2024.

Exhibit 5

Capital spending will remain high in 2024-26



As a result, the company's FCF was deeply negative in 2023-24 and is likely to remain negative in 2025-26 due to debt-funded capital spending, despite strong operating cash generation and the absence of dividends.

In addition, KTZ is considering additional initiatives to enhance infrastructure on the Trans-Caspian Route, including construction of new railway lines, modernisation and expansion of transport corridors, and completion of digitalization projects. If approved, this will increase the company's capital spending programme further.

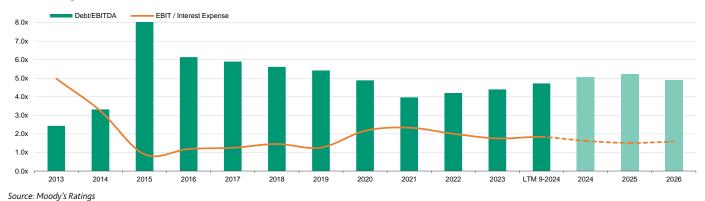
However, the capital spending programme is reasonable given the recent strong growth in cargo turnover, expectations of further growth, inability to meet all demand due to infrastructure bottlenecks and sometimes lack of available locomotives, and the need to replace obsolete railway cars.

Recent improvement in credit metrics will be reversed temporarily because of high capital spending

The company demonstrated improvement in credit metrics in 2020-23, compared with 2015-19. Leverage reduced to 4.0x-5.0x in 2020-23 from 5.5x-6.0x in 2016-19, and EBIT/interest expense increased to around 2.2x from 1.3x over the same period.

However, this will be reversed partially in 2024-26 because of the high capital spending cycle. KTZ's Moody's-adjusted total debt increased to KZT2,620 billion as of September 2024 from KZT2,234 billion in 2023 and KZT1,831 billion in 2022. As a result, gross leverage increased to 4.7x in the 12 months that ended September 2024 from 4.4x in 2023 and 4.2x in 2022, but still remained below the average of 5.3x in 2018-20. We expect leverage to be around 5.0x in 2024-26. However, around half of the company's debt is provided or orchestrated by the government and features a very long repayment profile and low or subsidized interest rates.

Exhibit 6
Gross leverage will hover around 5.0x in 2024-26



We also acknowledge KTZ's focus on reducing leverage in the long term and debt portfolio optimisation (in terms of currency composition and maturity profile) under the financial policy approved by Samruk-Kazyna. Specifically, the financial policy targets

State support remains a key rating driver

leverage to be at or below 4.0x reported debt/EBITDA.

The proven government support, both ordinary and extraordinary, is a particularly important rating component and is underpinned by the company's strategic importance to the economy as the monopoly owner of the rail transportation infrastructure and the largest provider of transportation services in Kazakhstan; role as a key platform in implementing the state initiative of developing the transportation industry, including the strategically important transit operations; and social importance as one of the largest employers and taxpayers in the country. The company's current rating is underpinned by strong evidence of consistent state support for its efforts to stabilise its operating and financial performance, and our expectation that the government will provide extraordinary aid if needed. In addition, the government could exert a very high level of control through KTZ's parent Samruk-Kazyna over the governance, financial policies and strategy of the company.

KTZ's business model incorporates ordinary support from the state in the form of approval of tariff indexation; annual subsidies for loss-making passenger operations; equity injections, subsidies and long-term state funding at preferable terms to finance the investment programme; subsidised interest rates on bonds placed in the domestic market; and active involvement in KTZ's strategy and operations, appointment of management and board of directors, investments, financing policies and risk management.

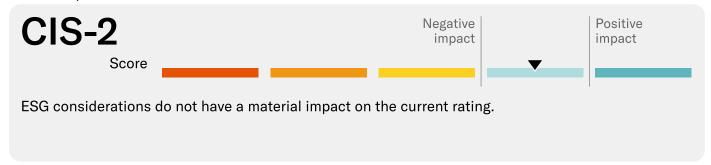
In particular, the company's ongoing debt portfolio optimisation efforts have been fully supported and orchestrated by the government, which also provides part of the funding. The state-provided subsidies for passenger operations amounted to KZT39 billion in 2023, KZT38 billion in 2022, KZT39 billion in 2021 and KZT26 billion in 2020. Around half of the company's debt portfolio is either low-interest debt from the state or is covered by interest-rate subsidies. Historically, the state has also provided crucial extraordinary support to the company's liquidity when needed.

ESG considerations

National Company Kazakhstan Temir Zholy JSC's ESG credit impact score is CIS-2

Exhibit 7

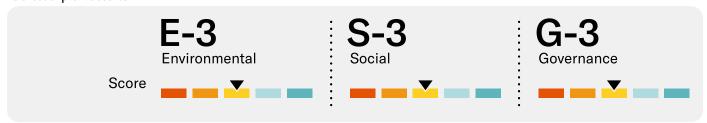
ESG credit impact score



Source: Moody's Ratings

KTZ's **CIS-2** indicates that ESG considerations are not material to the rating thanks to the uplift provided by its continued strategic importance to Samruk-Kazyna and the Government of Kazakhstan.

Exhibit 8
ESG issuer profile scores



Source: Moody's Ratings

Environmental

E-3. KTZ has moderate exposure to environmental risks (**E-3**) and reflects the lower environmental impact of railways over road transportation and other modes of transport. Around one third of KTZ's locomotive fleet is electrified. But the company is exposed to some environmental risks through its transportation of sometimes hazardous materials.

Social

S-3. KTZ has moderate exposure to social risks because of the high level of unionisation of its workforce and its dependence on a skilled workforce.

Governance

KTZ's **G-3** is driven by its balanced financial policy; Samruk-Kazyna's strong influence over its strategy and operations; and its concentrated ownership.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moodys.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.

Liquidity analysis

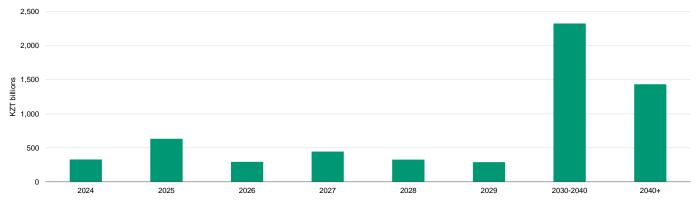
KTZ's liquidity has historically benefited from a fairly comfortable debt maturity profile, with over 60% of its total debt due after 2028; from the discretionary nature of most of the company's total capital spending; and from its proven access to bank and capital market financing, and state support via equity injections and long-term state loans. However, the size of its committed available credit facilities is modest compared with the sizeable capital spending programme.

We estimate that the company will generate about KZT345 billion of funds from operations in 2025, which should adequately cover its upcoming debt maturity of KZT185 billion, excluding KZT415 billion (\$833 million) in bonds held by its parent company Samruk-Kazyna. We expect the bond redemption to be refinanced or converted into an equity-like instrument by the parent company. However, to fund its extensive capital expenditure programme, which we estimate at around KZT1,000 billion in 2025, the company will need to rely on external facilities. KTZ is likely to receive funding from the state at low interest rates and with long tenors to finance its capital spending before committing itself to spending.

We expect KTZ to remain in compliance with the financial covenants under its bank debt. We also take into account the company's historical ability to receive the applicable waivers in a timely manner if needed.

Exhibit 9

Debt maturity profile is skewed towards 2030-40



Debt maturities as of 30 June 2024 *Source: Company*

Methodology and scorecard

The principal methodology used in KTZ's rating is our Surface Transportation and Logistics rating methodology and Government-Related Issuers methodology.

Exhibit 10
Rating factors
National Company Kazakhstan Temir Zholy JSC

Surface Transportation and Logistics Industry Grid	Curre LTM Se		Moody's 12-18 mont	h famuand view
Factor 1 : Scale (15%)	Measure	Score	Measure	Score
a) Revenue (\$ billions)	4.5	Ba	4.7 - 5.2	Ba
Factor 2 : Business Profile (20%)				
a) Business Profile	A	A	A	Α
Factor 3 : Profitability & Efficiency (10%)				
a) Operating Margin %	18%	Baa	18%	Baa
b) EBITA / Average Assets	8%	Ва	7%	Ва
Factor 4 : Leverage & Coverage (40%)	,			
a) Debt / EBITDA	4.7x	В	5.0x - 5.2x	В
b) FFO / Debt	13%	Ва	9%-10%	В
c) EBIT / Interest Expense	1.8x	В	1.5x - 1.6x	В
Factor 5 : Financial Policy (15%)				
a) Financial Policy	Ва	Ва	Ва	Ва
Rating:				
a) Scorecard-Indicated Outcome	•	Ba2		Ba1
b) Actual Rating Assigned				Baa2
Government-Related Issuer	Factor			
a) Baseline Credit Assessment	ba3			
b) Government Local Currency Rating	Baa2			
c) Default Dependence	Moderate			
d) Support	High			
e) Actual Rating Assigned	Baa2			

All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology. LTM = Last 12 months. The forecasts are our opinion and do not represent the views of the issuer.

Sources: Moody's Financial MetricsTM and Moody's Ratings forecasts

Appendix

Exhibit 11

Peer comparison

National Company Kazakhstan Temir Zholy JSC

	National Company Kazakhstan Temir Zholy JSC		Deutsche Bahn AG		SNCF S.A.			Union Pacific Corporation				
	В	aa2 Stable		(P)Aa1 Stable			A1 Stable		A3 Positive		
	FY	FY	LTM	FY	FY	LTM	FY	FY	LTM	FY	FY	LTM
(in \$ millions)	Dec-22	Dec-23	Sep-24	Dec-22	Dec-23	Jun-24	Dec-22	Dec-23	Jun-24	Dec-22	Dec-23	Sep-24
Revenue	3,335	4,239	4,479	54,894	48,869	48,133	43,684	45,159	45,933	24,875	24,119	24,288
EBITDA	946	1,113	1,206	5,319	2,687	1,640	8,188	8,293	8,067	12,843	12,208	12,681
Total Debt	3,957	4,900	5,449	42,424	47,584	47,127	81,504	79,584	71,818	35,352	34,583	33,100
Operating Margin	15.6%	17.5%	17.6%	1.6%	-3.2%	-5.8%	6.5%	6.1%	5.6%	40.1%	37.9%	39.7%
FFO / Debt	14.7%	14.0%	12.9%	14.3%	10.4%	7.8%	7.5%	7.8%	8.9%	27.3%	26.0%	28.4%
EBITA / Average Assets	7.6%	7.9%	7.7%	1.7%	-1.6%	-2.9%	3.2%	3.2%	3.0%	16.0%	14.4%	14.9%
Debt / EBITDA	4.2x	4.4x	4.7x	7.9x	17.3x	29.0x	9.8x	9.4x	9.0x	2.8x	2.8x	2.6x
EBIT / Interest Expense	2.0x	1.8x	1.8x	1.6x	-1.6x	-2.3x	1.9x	2.0x	2.0x	7.6x	6.8x	7.3x
RCF / Net Debt	17.2%	15.3%	13.7%	16.3%	9.5%	7.0%	17.7%	15.2%	13.5%	18.8%	17.4%	19.3%

All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology. LTM = Last 12 months. Source: Moody's Financial Metrics™

Exhibit 12 Moody's-adjusted debt reconciliation National Company Kazakhstan Temir Zholy JSC

(in KZT billions)	2019	2020	2021	2022	2023	LTM Sep-24
As reported debt	1,513	1,620	1,637	1,740	2,189	2,575
Pensions	44	43	46	44	45	45
Non-Standard Adjustments	30	56	51	47	-	-
Moody's-adjusted debt	1,587	1,720	1,734	1,831	2,234	2,620

All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology. LTM = Last 12 months. Source: Moody's Financial Metrics™

Exhibit 13 Moody's-adjusted EBITDA reconciliation National Company Kazakhstan Temir Zholy JSC

(in KZT billions)	2019	2020	2021	2022	2023	LTM Sep-24
As reported EBITDA	226	292	421	356	489	466
Pensions	11	3	5	8	5	5
Unusual Items	56	58	11	72	14	84
Moody's-adjusted EBITDA	293	352	437	436	508	555

All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology. LTM = Last 12 months. Source: Moody's Financial Metrics™

Exhibit 14

Overview on select historical and forecast Moody's-adjusted financial data
National Company Kazakhstan Temir Zholy JSC

(in KZT billions)	2019	2020	2021	2022	2023	LTM Sep-24	2024F	2025F
INCOME STATEMENT								
Revenue	1,139	1,173	1,329	1,536	1,934	2,062	2,169	2,414
EBITDA	293	352	437	436	508	555	562	640
EBITDA margin %	25.7%	30.0%	32.9%	28.4%	26.3%	26.9%	25.9%	26.5%
EBIT	168	216	296	290	351	389	391	456
EBIT margin %	14.8%	18.4%	22.3%	18.9%	18.1%	18.9%	18.0%	18.9%
Interest Expense	133	99	127	144	200	212	241	302
BALANCE SHEET								
Cash & Cash Equivalents	152	155	178	267	205	187	49	76
Total Assets	3,333	3,367	3,604	3,996	4,914	5,527	5,770	6,505
Total Debt	1,587	1,720	1,734	1,831	2,234	2,620	2,836	3,332
CASH FLOW								
Funds From Operations (FFO)	225	260	293	269	313	338	251	346
Capital Expenditures	(169)	(214)	(269)	(358)	(807)	(642)	(892)	(1,013)
Dividends	(21)	(1)	-	-	(1)	(4)	-	-
Retained Cash Flow (RCF)	204	259	293	269	311	334	251	346
Free Cash Flow (FCF)	60	7	53	(88)	(526)	(362)	(514)	(565)
INTEREST COVERAGE								
EBITDA / Interest Expense	2.2x	3.5x	3.4x	3.0x	2.5x	2.6x	2.3x	2.1x
(FFO + Int.) / Interest Expense	2.7x	3.6x	3.3x	2.9x	2.6x	2.6x	2.0x	2.1x
LEVERAGE								
FFO / Debt	14.2%	15.1%	16.9%	14.7%	14.0%	12.9%	8.8%	10.4%
RCF / Net Debt	14.2%	16.5%	18.8%	17.2%	15.3%	13.7%	-8.5%	-10.9%
FCF / Net Debt	4.2%	0.4%	3.4%	-5.6%	-25.9%	-14.9%	17.5%	17.8%
Debt / EBITDA	5.4x	4.9x	4.0x	4.2x	4.4x	4.7x	5.0x	5.2x
Net Debt / EBITDA	4.9x	4.4x	3.6x	3.6x	4.0x	4.4x	- 5.2x	-5.0x

All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology. LTM = Last 12 months. The forecasts are our opinion and do not represent the views of the issuer.

 $Sources: \textit{Moody's Financial Metrics} \\ ^\intercal \textit{and Moody's Ratings forecasts}$

Ratings

Exhibit 15

Category	Moody's Rating
NATIONAL COMPANY KAZAKHSTAN TEMIR ZHOLY	
JSC	
Outlook	Stable
Issuer Rating	Baa2
PARENT: SOVEREIGN WEALTH FUND SAMRUK-	
KAZYNA JSC	
Outlook	Stable
Issuer Rating	Baa1
NSR LT Issuer Rating	Aaa.kz
Source: Moody's Ratings	

© 2025 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 OR OTHERWISE MADE AVAILABLE BY MOODY'S (COLLECTIVELY, "MATERIALS") 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 MATERIALS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S MATERIALS 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 MATERIALS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS 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 OR OTHERWISE MAKES AVAILABLE ITS MATERIALS 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 MATERIALS 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 MATERIALS 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. FOR CLARITY, NO INFORMATION CONTAINED HEREIN MAY BE USED TO DEVELOP, IMPROVE, TRAIN OR RETRAIN ANY SOFTWARE PROGRAM OR DATABASE, INCLUDING, BUT NOT LIMITED TO, FOR ANY ARTIFICIAL INTELLIGENCE, MACHINE LEARNING OR NATURAL LANGUAGE PROCESSING SOFTWARE, ALGORITHM, METHODOLOGY AND/OR MODEL.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS 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 Materials.

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 Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and all MCO entities that issue ratings under the "Moody's Ratings" brand name ("Moody's Ratings"), also maintain policies and procedures to address the independence of Moody's Ratings' credit ratings and credit rating processes. Information regarding crudian 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 ir.moodys.com under the heading "Investor Relations — Corporate Governance — Charter and Governance Documents - Director and Shareholder Affiliation Policy."

Moody's SF Japan K.K., Moody's Local AR Agente de Calificación de Riesgo S.A., Moody's Local BR Agência de Classificação de Risco LTDA, Moody's Local MX S.A. de C.V, I.C.V., Moody's Local PE Clasificadora de Riesgo S.A., and Moody's Local PA Calificadora de Riesgo S.A. (collectively, the "Moody's Non-NRSRO CRAs") are all indirectly wholly-owned credit rating agency subsidiaries of MCO. None of the Moody's Non-NRSRO CRAs is a Nationally Recognized Statistical Rating Organization.

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 657AFSL 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 India only: Moody's credit ratings, Assessments, other opinions and Materials are not intended to be and shall not be relied upon or used by any users located in India in relation to securities listed or proposed to be listed on Indian stock exchanges.

Additional terms with respect to Second Party Opinions and Net Zero Assessments (as defined in Moody's Ratings Rating Symbols and Definitions): Please note that neither a Second Party Opinion ("SPO") nor a Net Zero Assessment ("NZA") is a "credit rating". The issuance of SPOs and NZAs is not a regulated activity in many jurisdictions, including Singapore. JAPAN: In Japan, development and provision of SPOs and NZAs fall under the category of "Ancillary Businesses", not "Credit Rating Business", and are not subject to the regulations applicable to "Credit Rating Business" under the Financial Instruments and Exchange Act of Japan and its relevant regulation. PRC: Any SPO: (1) does not constitute a PRC Green Bond Assessment as defined under any relevant PRC laws or regulations; (2) cannot be included in any registration statement, offering circular, prospectus or any other documents submitted to the PRC regulatory authorities or otherwise used to satisfy any PRC regulatory disclosure requirement; and (3) cannot be used within the PRC for any regulatory purpose or for any other purpose which is not permitted under relevant PRC laws or regulations. For the purposes of this disclaimer, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.

REPORT NUMBER

1436494

CLIENT SERVICES

 Americas
 1-212-553-1653

 Asia Pacific
 852-3551-3077

 Japan
 81-3-5408-4100

 EMEA
 44-20-7772-5454