

Research Update:

Braskem S.A. Downgraded To 'BB+' On Persistently Weak Industry Conditions Keeping Leverage High; Outlook Stable

February 26, 2024

Rating Action Overview

- After difficult petrochemical industry conditions in 2023, we believe that the rebound in petrochemical spreads will take longer than previously expected.
- As a result, we expect to see weaker profitability, and consequently, higher leverage for Braskem until 2025, deviating from our expectations for a 'BBB-' rating.
- On Feb. 26, 2024, S&P Global Ratings lowered its global scale issuer credit rating (ICR) on Braskem to 'BB+' from 'BBB-'. We also lowered our issue-level ratings on the company's senior unsecured notes to 'BB+' from 'BBB-' and on its subordinated notes to 'B+' from 'BB'.
- Given the drop in the ICR to 'BB+', we assigned a '3' recovery rating to the company's senior unsecured issue-level ratings, indicating our expectation for meaningful recovery (50-70%; rounded estimate: 60%) in a simulated default scenario.
- At the same time, we affirmed our national scale ICR on Braskem at 'brAAA/Stable/--' and the ratings on its debentures at 'brAAA'.
- The stable outlook reflects our expectation that Braskem will reduce leverage close to or below 4.0x by 2025.

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Rating Action Rationale

Petrochemical industry conditions remain weak and should result in Braskem's higher leverage for longer than we previously expected. With uncertainties over global economic growth and global petrochemical capacity additions and eventual shutdowns, we're now assuming a slower rebound of petrochemical spreads. This would lead to Braskem's weaker-than-expected profitability, despite management's measures to cut costs and expenses and optimize operating cash flow. Also, given the company's preliminary data for production and sales volumes in the fourth quarter of 2023 and realized spreads, we now forecast S&P-adjusted debt to EBITDA of

9.0x-9.5x for fiscal 2023.

With our weaker starting point as of the end of 2023 and challenging industry conditions, we now forecast Braskem's debt to EBITDA at 4.0x-4.5x in 2024 and close to 4.0x in 2025, a significant gap from our previous expectations of 3.0x-3.5x in 2024 and below 3.0x in 2025. This led to a change in our assessment of the company's financial risk profile to aggressive from significant.

Management's commitment to reduce leverage and the company's satisfactory business position remain important credit strengths.

The company's has met its leverage target of 2.5x across industry cycles over many years, although not recently amid the uncommonly prolonged weak industry conditions. The current industry downturn also hit Braskem harder than global peers that use ethane as the main ethylene input, because of Braskem's much larger exposure to naphtha. The combination of somewhat stronger spreads and management's successful countercyclical actions could lead to lower leverage than our base-case forecast. But we can't confidently include these factors in our base-case assumptions given significant uncertainties over industry trends.

Still, management's track record--along with the company's large scale, geographic diversification, sound market position in Brazil, and financial flexibility--are credit differentiators, in our view, from lower rated companies, which led us to apply a positive comparable rating analysis score.

Outlook

The stable outlook reflects our expectation that Braskem will reduce leverage, with debt to EBITDA close to or below 4.0x by 2025 and to remain consistently below that level afterward. This would be a result of gradual improvements in industry conditions and the company's measures to strengthen profitability and cash generation.

Downside scenario

We could lower the ratings in the next 12-18 months if Braskem's credit metrics don't align with our current base-case assumptions. We would see debt to EBITDA remaining at 4.5x-5.0x on a three-year average (2024-2026) and negative free operating cash flow. This could be a result of low spreads until 2025 due to weak global economic growth and continued expansion of global industry capacity. We could also lower the ratings in a scenario of sizable additional provisions related to Alagoas, which is not part of our base-case scenario at this point.

Upside scenario

An upgrade is unlikely in the next 12-18 months considering our current base-case forecast of higher leverage for a longer period, above the threshold for an investment-grade rating. We could raise the ratings if we were to expect less volatility in Braskem's credit metrics across industry cycles than recently. This could result from a lower debt level or higher confidence that the company can protect its EBITDA margin amid industry downturns. An upgrade would also depend on the company maintaining its leverage at the three-year moving average of 2.0x-3.0x.

Company Description

Braskem is the leading thermoplastic resins producer in the Americas and among the world's top 10 sector players, with leading positions in polyethylene (PE; low density [LDPE], high density [HDPE], and linear low density [LLDPE]), polypropylene (PP), and polyvinyl chloride (PVC). The company integrates the first and second generations of the Brazilian petrochemicals industry, consisting of the naphtha or ethane cracking function (basic petrochemicals) and main chemicals and thermoplastics production (polyolefin and PVC). Novonor (formerly Odebrecht S.A.) controls 38.3% of Braskem's total shares (50.1% of voting shares), and Petroleo Brasileiro S.A. - Petrobras (BB-/Stable/--) owns 36.1% of total shares (47% of voting). The company's remaining shares trade on Bovespa, Latibex, and NYSE.

Our Base-Case Scenario

- An average exchange rate of R\$5.1 per \$1 in 2024, R\$5.2 in 2025, and R\$5.28 in 2026.
- Stable Brent crude prices of \$85 per barrel (bbl) over the next few years, leading to stable naphtha input prices.
- After a decline in volumes in 2023, we assume volume growth starting in 2024 at a somewhat higher pace than GDP growth assumptions for Brazil, as the market and Braskem should benefit from the sanitation and recent industrialization laws.
- Average spreads in 2024 to be similar to those in 2023 due to low global economic growth and new capacity entering the market, assuming limited capacity shutdowns among higher-cost players. For 2025, we assume a rebound in spreads mainly from industry rationalization and no significant capacity entering the market.
- Cost and expense reductions related to the company's several measures in place to reduce these lines.
- Capital expenditure (capex) of about \$400 million in 2024, and rising to about \$650 million in 2025 and close to \$750 million in 2026.
- Cash outflows related to Alagoas geological event of about R\$2.7 billion in 2024, about R\$1.4 billion in 2025, and less than R\$1 billion in 2026.
- We don't consolidate the Mexican subsidiary Braskem Idesa S.A.P.I. (B/Negative/--) in our financial analysis and forecasts for Braskem.

Braskem S.A.--Forecast summary

Industry sector: Chemical cos

(Mil. R\$)	--Fiscal year ended Dec. 31--								
	2019a	2020a	2021a	2022a	2023f	2024e	2025f	2026f	2027f
Revenue	49,961	55,780	101,448	93,039	66,416	70,607	74,927	81,065	83,095
EBITDA (reported)	3,565	3,996	30,217	8,970	3,666	8,832	10,781	11,824	14,760
Plus/(less): Other	827	5,400	(3,099)	188	(683)	(1,189)	(2,527)	(2,659)	(2,669)
EBITDA	4,393	9,396	27,118	9,159	2,983	7,643	8,254	9,165	12,091
Less: Cash interest paid	(2,417)	(2,989)	(2,399)	(2,321)	(2,693)	(3,251)	(3,111)	(2,885)	(2,627)

Braskem S.A.--Forecast summary (cont.)

Industry sector: Chemical cos

(Mil. R\$)	--Fiscal year ended Dec. 31--								
	2019a	2020a	2021a	2022a	2023f	2024e	2025f	2026f	2027f
Less: Cash taxes paid	(412)	(258)	(2,698)	(1,621)	(865)	(367)	(905)	(921)	(1,458)
Funds from operations (FFO)	1,564	6,149	22,021	5,217	(575)	4,025	4,238	5,360	8,006
Interest expense	1,592	2,225	2,830	3,150	3,170	3,358	3,218	2,992	2,734
Cash flow from operations (CFO)	256	7,172	12,328	5,431	3,615	5,690	6,896	9,111	11,362
Capital expenditure (capex)	2,401	2,401	3,057	3,951	3,640	1,940	3,280	3,960	3,960
Free operating cash flow (FOCF)	(2,144)	4,772	9,271	1,480	(25)	3,750	3,616	5,150	7,402
Dividends	669	2	5,993	1,350	--	--	46	603	893
Discretionary cash flow (DCF)	(2,813)	4,769	3,278	130	(25)	3,750	3,569	4,547	6,508
Debt (reported)	29,292	41,968	35,094	35,717	42,478	44,452	42,064	38,055	34,759
Plus: Lease liabilities debt	2,677	3,208	3,156	4,241	3,520	3,520	3,520	3,520	3,520
Plus: Pension and other postretirement debt	257	312	322	326	326	326	326	326	326
Less: Accessible cash and liquid Investments	(7,474)	(15,247)	(9,548)	(12,272)	(17,653)	(16,540)	(12,624)	(11,102)	(12,888)
Plus/(less): Other	(1,687)	2,045	55	(6)	(1,020)	(1,020)	(1,020)	628	628
Debt	23,065	32,286	29,080	28,005	27,651	30,737	32,267	31,427	26,345
Cash and short-term investments (reported)	8,491	17,490	12,173	14,762	19,109	17,750	14,706	13,184	15,440
Adjusted ratios									
Debt/EBITDA (x)	5.3	3.4	1.1	3.1	9.3	4.0	3.9	3.4	2.2
FFO/debt (%)	6.8	19.0	75.7	18.6	(2.1)	13.1	13.1	17.1	30.4
FFO cash interest coverage (x)	1.6	3.1	10.2	3.2	0.8	2.2	2.4	2.9	4.0
EBITDA interest coverage (x)	2.8	4.2	9.6	2.9	0.9	2.3	2.6	3.1	4.4
CFO/debt (%)	1.1	22.2	42.4	19.4	13.1	18.5	21.4	29.0	43.1
FOCF/debt (%)	(9.3)	14.8	31.9	5.3	(0.1)	12.2	11.2	16.4	28.1
DCF/debt (%)	(12.2)	14.8	11.3	0.5	(0.1)	12.2	11.1	14.5	24.7
EBITDA margin (%)	8.8	16.8	26.7	9.8	4.5	10.8	11.0	11.3	14.6

All figures are adjusted by S&P Global Ratings, unless stated as reported. a--Actual. e--Estimate. f--Forecast.

Liquidity

We continue to view Braskem's liquidity as strong. We expect liquidity sources to exceed uses by more than 2x in the next 12-24 months. This is thanks to the company's robust cash position, revolving credit line, and cash flows, which combined are more than enough to cover short-term debt, capex, and working capital requirements. Moreover, Braskem has access to diversified

funding sources, which supports its smooth debt maturity profile. The company has been prioritizing the maintenance of higher liquidity cushion than in the past because of the more pronounced industry uncertainties over the past few quarters.

Principal Liquidity Sources:

- Cash and cash equivalents of R\$17 billion as of September 2023;
- Undrawn committed lines of \$1 billion (about R\$5 billion) due in 2026; and
- Cash funds from operations of about R\$3.5 billion in the next 12 months from September 2023.

Principal Liquidity Uses:

- Short-term debt maturities of R\$1.7 billion as of September 2023;
- Capex close to R\$2.5 billion in the next 12 months from September 2023;
- Seasonal working capital needs of R\$2.5 billion; and
- Cash outflows related to Alagoas disbursements and the leniency agreement totaling about R\$3.7 billion in the next 12 months after September 2023.

Covenants

The company has no financial covenants on its debt. Braskem's bonds have a payment-acceleration clause in case its issue ratings are lowered as a result of a change of control at Braskem's level. If that were to happen, we will monitor the payment-acceleration risk.

Environmental, Social, And Governance

Environmental factors are a negative consideration in our credit rating analysis of Braskem. Producers of petrochemicals and thermoplastics are among the most intensive CO2 emissions producers.

Brazilian authorities claimed that Braskem's rock salt extraction caused geological damage in the state of Alagoas. The company provisioned R\$14.4 billion (more than 40% of its debt as of December 2019) to shut down the salt extraction operation, relocate the affected families, and for socio-environmental expenses. In December 2023, there were atypical soil movements in the region, increasing risks of a sinkhole. The soil movements ceased after some weeks, with only a partial collapse in the affected cavity. Also, a Parliamentary Commission of Inquiry was recently established to investigate Braskem's responsibility in the geological damage. We currently believe that company's signed agreements with various authorities over the past few years should cover any penalties stemming from the investigation, but we continue to monitor these types of emerging risks.

The company also had to sign a leniency agreement following a corruption investigation, which resulted in a R\$3.1 billion fine in 2016. As part of that agreement, Braskem went through several internal control and governance changes that we believe improved the company's governance. However, governance factors are a moderately negative factor in our credit rating analysis of the company.

On the positive side, Braskem aims to achieve carbon neutrality by 2050 and reduce GHG emissions (scopes 1 and 2) by 15% by 2030 from the average of the 2018-2020 level. This would be done through higher consumption of renewable energy and efficient energy projects. Also, the

company recently expanded its production of green ethylene, made from sugarcane ethanol, to produce PE. Through an investment of \$87 million, it increased from 200,000 tons per year to 260,000 tons of green ethylene per year. This product still represents only close to 1% of total production, but Braskem has a target to increase capacity to 1 million tons by 2030.

Issue Ratings - Recovery Analysis

We rate several senior unsecured notes and debentures, either issued or guaranteed by Braskem. We lowered the global scale issue-level ratings to 'BB+' from 'BBB-', the same level of the ICR, while assigning a '3' recovery rating to all the senior unsecured debt. We also rate the company's subordinated notes issued in 2020. We categorize these notes as having intermediate equity content, because they're subordinated in liquidation to Braskem's senior debt obligations and aren't subject to features that could discourage or considerably delay deferral.

We lowered our rating on Braskem's subordinated notes to 'B+' from 'BB'. The two-notch downgrade reflects that we are now incorporating one additional notch of subordination to the company's senior debt because the ICR is now 'BB+'. The current three-notch difference between the subordinated notes rating and ICR reflects our deduction of:

- Two notches to reflect subordination to the company's senior debt obligations; and
- One notch for loss absorption or cash conservation features. Braskem's coupon deferral is discretionary and not limited in time.

Key analytical factors

- Our simulated default scenario assumes a payment default in 2029 due to persistently weak petrochemical spreads, causing revenue and margins to decline, primarily related to a prolonged deterioration in macroeconomic conditions, increased competition, and operational issues.
- Our simulated default scenario assumes the company is restructured as a going concern, rather than liquidated, because of its solid market position in the markets it operates.
- We derive our distressed enterprise value for Braskem by applying a 5.5x multiple to our estimated emergence EBITDA of about R\$4.99 billion.
- The 5.5x multiple is aligned with the one we use for industry peers with similar business strengths.

Simulated default assumptions

- Simulated year of default: 2029
- Jurisdiction: Brazil
- Emergence EBITDA: R\$5 billion
- EBITDA Multiple: 5.5x

Simplified waterfall

- Net enterprise value (after 5% administrative adjustment): R\$26.1 billion
- Senior unsecured debt: R\$40.6 billion (senior notes, debentures, and other bank loans)
- Recovery expectations for senior unsecured notes and debentures: 50%-70% (rounded estimate 60%)

Note: All debt amounts include six months of prepetition interest.

Ratings Score Snapshot

Issuer credit rating

- Global scale: BB+/Stable/--
- National scale: brAAA/Stable/--

Business risk: Satisfactory

- Country risk: Moderately high
- Industry risk: Moderately high
- Competitive position: Satisfactory

Financial risk: Aggressive

- Cash flow/leverage: Aggressive

Anchor: bb

Modifiers

- Diversification/portfolio effect: Neutral (no impact)
- Capital structure: Neutral (no impact)
- Financial policy: Neutral (no impact)
- Liquidity: Strong (no impact)
- Management and governance: Moderately Negative (no impact)
- Comparable rating analysis: Positive (+1 notch)

Related Criteria

- Criteria | Corporates | General: Corporate Methodology, Jan. 7, 2024
- Criteria | Corporates | General: Methodology: Management And Governance Credit Factors For Corporate Entities, Jan. 7, 2024
- General Criteria: National And Regional Scale Credit Ratings Methodology, June 8, 2023
- General Criteria: Hybrid Capital: Methodology And Assumptions, March 2, 2022

- General Criteria: Environmental, Social, And Governance Principles In Credit Ratings, Oct. 10, 2021
- General Criteria: Group Rating Methodology, July 1, 2019
- Criteria | Corporates | General: Corporate Methodology: Ratios And Adjustments, April 1, 2019
- Criteria | Corporates | General: Recovery Rating Criteria For Speculative-Grade Corporate Issuers, Dec. 7, 2016
- General Criteria: Guarantee Criteria, Oct. 21, 2016
- Criteria | Corporates | Recovery: Methodology: Jurisdiction Ranking Assessments, Jan. 20, 2016
- Criteria | Corporates | General: Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers, Dec. 16, 2014
- General Criteria: Methodology: Industry Risk, Nov. 19, 2013
- General Criteria: Country Risk Assessment Methodology And Assumptions, Nov. 19, 2013
- General Criteria: Ratings Above The Sovereign--Corporate And Government Ratings: Methodology And Assumptions, Nov. 19, 2013
- General Criteria: Principles Of Credit Ratings, Feb. 16, 2011

Ratings List

Downgraded; CreditWatch/Outlook Action

	To	From
Braskem S.A.		
Issuer Credit Rating	BB+/Stable/--	BBB-/Negative/--

Ratings Affirmed

Braskem S.A.		
Issuer Credit Rating		
Brazil National Scale	brAAA/Stable/--	

Downgraded

	To	From
Braskem America Finance Co.		
Braskem Netherlands Finance		
Senior Unsecured	BB+	BBB-
Recovery Rating	3(60%)	NR
Braskem Netherlands Finance		
Subordinated	B+	BB
Braskem S.A.		
Senior Unsecured	brAAA	
Recovery Rating	3(60%)	NR

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