Maalot
S&P Global Ratings

Tower Semiconductor Ltd.

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Issuer Rating Affirmed	ilAA/Stable

Overview

Key Strengths	Key Risks
• High competitive position in the analog chip market. • Long-term relationships with clients. • Low leverage. • Strong liquidity.	• Relatively concentrated customer base. • Diseconomies of scale, compelling the Company to invest in R&D and fixed assets in order to maintain its technological advantage.

After growth in Tower Semiconductor Ltd.'s ("Tower" or "the Company") operations in 2022, we expect its revenue to decrease in 2023. The Company's revenues grew by about 11% in 2022, both due to an increase in the quantities of products sold and due to an increase in their average price. Organic revenue growth was even higher, about 24% compared to 2021, despite the cessation of operations of the Arai factory in Japan in July 2022 as part of the reorganization of local operations. Accordingly, the Company's adjusted EBITDA margin improved to 37.5% in 2022 from 31.2% in 2021. However, according to S&P estimates, semiconductor sales will decline by 10% in 2023, following almost 40% growth in the past three years. The expected decrease reflects our assessment of a correction in clients' inventory levels, which they had increased due to concerns of further procurement challenges following supply chain disruptions, despite lower demand.

We estimate that despite the expected slowdown in operations and continued investments, Tower will continue to maintain low leverage in 2023-2024. The Company's adjusted debt continued to decrease in 2022, to about $272 million at year-end, approximately 13% lower than year-end 2021. Due to higher revenues and improved profitability, the Company's adjusted EBITDA grew by over 30% in 2022, to about $630 million. As a result, its adjusted gross debt to EBITDA was about 0.4x in 2022, compared to about 0.7x in 2021. In our base case scenario we assume that the Company will continue to make substantial investments, inter alia in completing the construction of its facility in Italy and expanding manufacturing capacity, in order to maintain its competitive position in the medium to long term. However, and despite the expected slowdown in operations in 2023, we expect the Company to maintain an adjusted gross debt to EBITDA ratio lower than 1x in the next two years.

Outlook

The stable outlook reflects our assessment that Tower will maintain its competitive position in the analog chip market and strong liquidity in the medium term. We also expect the Company to maintain adequate utilization rates and profitability. We expect the Company to maintain an adjusted gross debt to EBITDA ratio below 1.5x, commensurate with the current rating.

Downside Scenario

We may lower the rating if Tower's competitive position is undermined. This could happen if market conditions worsen, leading to lower utilization rates in the Company's facilities and to a continued or material decline in profitability. The rating will also come under pressure if the Company consistently fails to generate positive cash flows and if its adjusted gross debt to EBITDA exceeds 1.5x.

Upside Scenario

We may consider a positive rating action if Tower's business risk profile materially improves, as reflected, among other things, by a higher market share, materially improved profitability, wider geographical spread of its plants, and a wider client base and product variety compared with peers.

Base-Case Scenario

Key Assumptions

- A decrease of about 10% in revenues in 2023 due to expected weakening demand in the semiconductor industry, and 5% growth in revenues in 2024.
- An adjusted EBITDA margin of about 30% in 2023-2024.
- Capital expenditure on maintenance and new investments of about $500 million - $600 million.
- No dividend distribution.
- Our base case scenario does not consider the Intel transaction, due to the uncertainty regarding the timing of its completion or approval, partly due to increasing geopolitical tensions surrounding the semiconductor industry.

Key Metrics

Financial Metric	2022A	2023E	2024E
Debt/EBITDA	0.4x	0.5x-1.0x	0.4x-1.0x
FFO/debt	~200%	>100%	>100%

A - actual. E – Estimate. FFO – funds from operations.

We are taking into account gross debt without deducting cash.

Company Description

Tower Semiconductor Ltd. is an Israeli manufacturer of semiconductors and integrated circuits ("chips"). It is a pure-play foundry, i.e. focused on production according to clients' or third parties' specifications. Chips produced by the Company are embedded in a wide variety of products in various markets, including electronic consumer products, personal computers, communication products, auto products, industrial products and medical products. Tower also provides engineering support services and complimentary manufacturing services. The Company produces in seven facilities located in Israel, U.S.A., Japan and Italy.

Business Risk

Tower's business risk profile is supported by a leading market share in its niche – analog chip production, and by its competitive position as one of the leading analog specialty foundries in the world. The Company's business risk profile is also supported by high barriers to entry based on technological know-how, long-term relationships with clients and high replacement costs when changing chip suppliers, since up to 18 months may pass between the initial order of a product and its commercial manufacturing, due to the design and development process.

On the other hand, Tower's business risk profile is constrained by its niche-type activity and by its product variety compared with global peers, and is affected by inherent risks in the chip industry and by diseconomies of scale. These require the Company to invest heavily in R&D and fixed assets in order to maintain its technological advantage. We believe the fast technological developments in the chip market is a material risk for the Company. However, the analog chip segment on which Tower focuses is characterized by lower investments compared with the digital chip segment, as analog chip technology is less affected by the chip size minimization race which largely dictates the need to develop new technologies and make large investments. Accordingly, the life cycle of the products and technologies in the analog field tends to be longer.

Tower's business risk profile is also constrained by its concentrated customer base – the Company's largest client, Nuvoton Technology Corporation Japan, was responsible for over 10% of Company revenues in 2022, and its five largest clients - for over 40% of revenues.

In the medium to long term we believe that in order to expand its operations, Tower will continue investing in increasing its production capacity and improving utilization in its facilities. Thus, for example, in 2021 Tower signed a partnership agreement with ST Microelectronics Srl to establish a 12" chip plant in Italy. The plant is under construction, and upon its expected opening in the upcoming year, Tower will use one-third of its area to produce 12" chips using its machines.

Although currently not part of our base case scenario, we estimate that the completion of the acquisition by Intel will materially affect Tower's production capacity, as we believe cooperation between the two companies, given the size and deployment of Intel's plants worldwide, will allow Tower to significantly increase its utilization rates and expand its product range.

Financial Risk

Tower’s financial risk profile reflects low leverage, similarly to other companies in the semiconductor industry, but potentially high volatility in operating performance over the business cycle due to the high correlation between demand and the business cycle, production and utilization rates at the Company’s plants.

The Company’s adjusted (gross) debt decreased in 2022 to about $272 million, compared to about $315 million at year-end 2021 and about $390 million at year-end 2020. Despite investments of about $279 million in 2021 and about $214 million in 2022, among other things for the purpose of continuing to increase production capacity, the Company’s gross debt increase and its cash and cash equivalents increased. The decrease in debt and the increase in cash were mainly due to operating cash flow of about $421 million in 2021 and about $530 million in 2022, with no dividend distribution. Due to increased revenues and improved profitability in 2021-2022, the Company’s gross debt to EBITDA was about 0.4x in 2022, compared to about 0.7x in 2021 and about 1.1x in 2020.

We estimate that the Company will continue investing given the need to increase its product offering and production capacity, and that its adjusted gross debt to EBITDA ratio will remain below 1x in 2023-2024. We also expect the Company will continue supporting growth in the upcoming years, and therefore will refrain from distributing dividends in the short term.

Liquidity

According to our criteria, the Company’s liquidity is “strong”. We estimate that the ratio between the Company’s sources and uses will exceed 1.5x in the next 12-24 months. This assessment mainly reflects expected operating cash flow and the Company's cash and liquid investment balance, which are sufficient to support its investment and working capital needs. We note that the Company has a large share of liquid and available assets to finance its debt maturities in the next two years. In addition, the Company intends to avoid distributing dividends in the medium term in accordance with its organic-growth-oriented strategy.

We estimate the Company's main sources in the 12 months starting January 1, 2023, to be as follows:

Principal Liquidity Sources	Principal Liquidity Uses
• Cash and liquid investments of about $1 billion. • Cash FFO of about $430 million.	• Debt maturities of about $51 million. • Capital expenditure (capex) of about $500 million - $600 million. • Working capital swings of about $140 million.

Modifiers

Diversification/portfolio effect: Neutral

Capital structure: Neutral

Liquidity: Neutral

Financial policy: Neutral

Management and governance: Neutral

Comparable ratings analysis: Positive

Environmental, Social, And Governance

ESG Credit Indicators

ESG factors have an overall neutral influence on our credit analysis of Tower Semiconductor Ltd.

ESG Credit Indicator	E-2	S-2	G-2
ESG factor	Not relevant	Not relevant	Not relevant

ESG credit indicators provide additional disclosure and transparency at the issuer level, and reflect our assessment of the impact of environmental, social and corporate governance factors on our credit rating analysis. ESG indicators are not a credit rating, a sustainability rating or an ESG Evaluation. The factors' effect is expressed on a scale of 1 to 5, where 1 = positive effect, 2 = neutral, 3 = moderately negative effect, 4 = negative effect, and 5 = very negative effect. For additional information see ESG Credit Indicator Definitions And Application, published on October 13, 2021.

Reconciliation

In order to create a basis for comparison with other rated companies, we adjust the data reported in the financial statements which we use to calculate financial ratios. The main adjustments to Tower Semiconductor Ltd.'s consolidated data for 2022 are adding about $24 million to EBITDA due to share-based payments and adding lease-related obligations to reported debt.

Related Criteria And Research

- Principles Of Credit Ratings, February 16, 2011
- Methodology: Management And Governance Credit Factors For Corporate Entities And Insurers, November 13, 2012
- Methodology: Industry Risk, November 19, 2013

- Country Risk Assessment Methodology And Assumptions, November 19, 2013
- Corporate Methodology, November 19, 2013
- Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers, December 16, 2014
- Methodology For National And Regional Scale Credit Ratings, June 25, 2018
- Corporate Methodology: Ratios And Adjustments, April 1, 2019
- Group Rating Methodology, July 1, 2019
- Environmental, Social, And Governance Principles In Credit Ratings, October 10, 2021
- S&P Global Ratings Definitions, November 10, 2021

Ratings List

Tower Semiconductor Ltd.	Rating	Date when the rating was first published	Date when the rating was last updated
Issuer rating(s)			
Long term	ilAA/Stable	09/05/2016	03/05/2022
Issuer Credit Rating history			
Long term			
May 03, 2022	ilAA/Stable		
April 30, 2018	ilAA-/Stable		
May 10, 2017	ilA+/Stable		
May 09, 2016	ilA/Stable		
Additional details			
Time of the event	08/05/2023 09:57		
Time when the event was learned of	08/05/2023 09:57		
Rating requested by	Issuer		