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CREDIT OPINION
22 November 2023

Update

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Stora Enso Oyj

Update following rating affirmation and outlook stabilization

RATINGS

Stora Enso Oyj

Domicile	Helsinki, Finland
Long Term Rating	Baa3
Type	LT Issuer Rating - 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.

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Summary

On 17 November 2023, we affirmed the Baa3 issuer rating of Stora Enso Oyj (Stora Enso) and changed the outlook to stable from positive in view of the material weakening of key credit metrics during 2023. Weak demand in all segments, price pressure and cost increases had a material negative effect on Stora Enso's profitability and cash flow generation in a magnitude that exceeded our expectations. While we expect that actions initiated by the company will support a recovery an upgrade to Baa2 is unlikely in the near term.

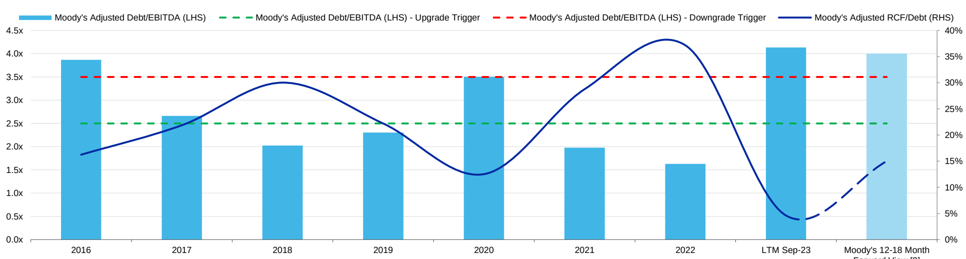
Stora Enso's Baa3 issuer rating is primarily supported by the company's sizeable scale, with annual sales of around €10.1 billion and a number of market-leading positions across its fairly wide product portfolio; good level of vertical integration into wood, pulp and energy; well-managed and continuing diversification into businesses with positive structural growth, such as pulp, wood products and paper-based packaging; and track record of focusing on leverage reduction through EBITDA growth and debt repayments, albeit currently held back by adverse market conditions.

Stora Enso's rating is primarily constrained by the company's exposure to the risk of volatility in its credit metrics because input costs and prices of most of its products are volatile, which reflects the cyclical demand in some of its end markets, as experienced during 2023; the risk of debt-funded growth within Stora Enso's publicly communicated net leverage ceiling of 2.0x (2.4x as of September 2023); and the challenges arising from high cost inflation, which is likely to endure, at least for the remainder of 2023.

Exhibit 1

We expect Stora Enso's credit metrics to improve towards the range expected for the Baa3 rating during 2024

Moody's-adjusted debt/EBITDA and RCF/debt [1]



[1] All figures and ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
[2] This represents Moody's 12-18 Months forward view, not the view of the issuer, and unless noted in the text, it does not incorporate significant acquisitions and divestitures
Sources: Moody's Financial Metrics™ and Moody's Investors Service estimates

Credit strengths

» Sizeable scale with segmental diversification, which supports its business profile

» Track record of successful and continued transformation beyond graphic-grade paper, into structurally growing paper-based packaging, pulp and wood products

» Conservative financial policies

Credit challenges

» Operating profitability exposed to volatile input costs and product pricing

» Challenges presented by high cost inflation likely to endure, at least for 2023

» Some risk of further debt-funded growth, which could (at least temporarily) increase the company's leverage

Rating outlook

The rating is currently weakly positioned. The stable outlook incorporates the company's ongoing commitment to maintain an investment-grade rating and reflects our expectation that actions taken by management will support a swift recovery towards credit metrics seen during 2018-2022. We expect management to focus on a strengthening of profitability, cash flow generation and debt reduction bringing Moody's-adjusted debt/EBITDA below 3.5x, with an EBITDA margin in the mid-teen percentages in the next 12-18 months. Indications that this cannot be achieved will increase downward pressure.

Factors that could lead to an upgrade

Moody's could upgrade Stora Enso's ratings if the company built further track record of good operational performance and financial discipline, leading to

» Moody's-adjusted EBITDA margin sustainably in the high-teen percentages

» Moody's-adjusted retained cash flow (RCF)/debt above 25% on a sustained basis

» Moody's-adjusted gross debt/EBITDA remaining below 2.5x on a sustained basis

» Sustained significant free cash flow (FCF) and a further strengthening of its liquidity, with reduced reliance on short-term debt

Factors that could lead to a downgrade

The ratings could be downgraded if Stora Enso is unable to swiftly reverse the deterioration of operating performance seen during 2023 indicated by the company's inability to restore Moody's adjusted EBITDA margin around mid-teens in percentage terms over an acceptable time frame.

It could also result from weak cash flow generation or more aggressive use of balance sheet, with Moody's adjusted RCF/debt remaining below 20% and Moody's adjusted (gross) debt/EBITDA above 3.5x (including meaningful forest holdings) on a sustained basis. A downgrade could be also triggered by a return to sustained negative free cash flow and a weakening of its liquidity profile or the inability to proactively address upcoming debt maturities.

Key indicators

Exhibit 2

Stora Enso Oyj [1][2]

in EUR millions	FYE Dec-16	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-21	FYE Dec-22	LTM Sep-23	Moody's 12 - 18 Month Forward View [3]
Revenues	9,802	10,045	10,486	10,055	8,553	10,164	11,680	10,087	9,500 - 10,500
EBITDA Margin	13.4%	15.7%	18.3%	20.8%	17.9%	22.1%	22.5%	13.5%	11.5% - 13.5%
RCF / Debt	16.2%	21.9%	30.0%	22.2%	12.5%	28.8%	37.2%	4.6%	10.0% - 20.0%
(RCF - CAPEX) / Debt	-0.6%	4.5%	16.5%	7.9%	-1.4%	12.3%	19.0%	-12.5%	-14.0% - -4.0%
Debt / EBITDA	3.9x	2.7x	2.0x	2.3x	3.5x	2.0x	1.6x	4.1x	3.5x - 4.5x
EBITDA / Interest	6.3x	8.0x	12.0x	12.0x	10.2x	16.2x	17.9x	9.6x	5.0x - 7.0x

[1] All figures and ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
[2] Periods are Financial Year-End unless indicated. LTM = Last Twelve Months.
[3] This represents Moody's forward view, not the view of the issuer, and unless noted in the text, does not incorporate significant acquisitions and divestitures.
Sources: Moody's Financial Metrics™ and Moody's Investors Service estimates

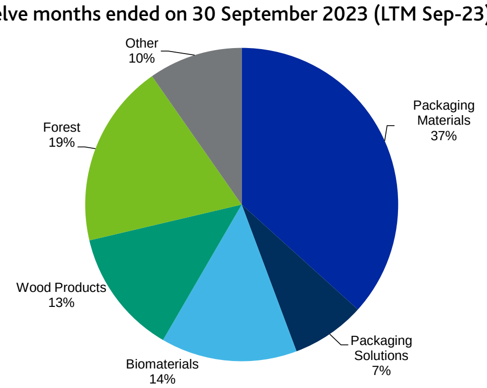
Profile

Headquartered in Helsinki, Finland, Stora Enso Oyj is among the world's largest paper and forest products companies, with annual sales of around €10.1 billion as of September 2023. Its fairly broad portfolio comprises production of paper-based packaging, pulp and wood products. Stora Enso had a market capitalisation of around €9.4 billion as of 10 November 2023, and its shares are listed on the Helsinki Stock Exchange and the Stockholm Stock Exchange. As of 30 September 2023, Solidium Oy, which is 100% owned by the Finnish state, was the company's single-largest shareholder, with a 10.7% stake, followed by Foundation Asset Management AB, with a 10.2% interest. Stora Enso has around 21,100 employees worldwide and generates about 77% of its revenue in Europe.

Exhibit 3

Revenue breakdown by product

Last twelve months ended on 30 September 2023 (LTM Sep-23)

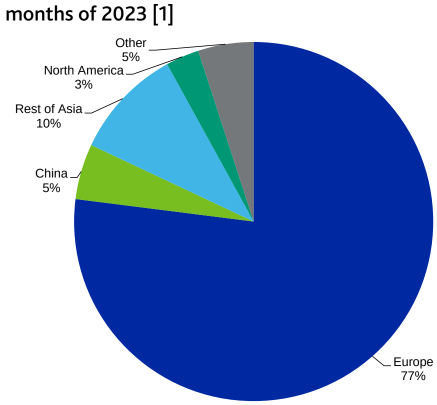


Source: Company reports

Exhibit 4

Revenue breakdown by geography

First nine months of 2023 [1]



[1] Excluding forest division and Beihai's production site
Source: Company presentation

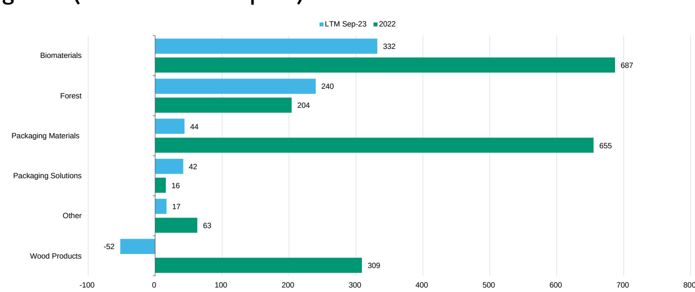
Detailed credit considerations

Sizeable scale and broad product diversification, with a number of leading positions globally and good vertical integration

With sales of around €10.1 billion for the twelve months that ended September 2023, Stora Enso is among the world's largest paper and forest products companies. While traditionally focused on the fairly mature European market, the company has an operational footprint in all of the world's major regions and has shifted its production towards paper-based packaging, pulp and wood products. It has also built one of the widest product portfolios among the paper and forest products companies that we rate, with a number of leading positions in its five segments:

- **Packaging Materials** (36% of revenue and 34% of operational EBIT for 2022): It covers all major consumer board and containerboard categories, with a growing focus on stable and profitable liquid packaging boards and food service boards. With 4.6 million tonnes delivered for 2022, Stora Enso is among the leaders in consumer board products in Europe, competing primarily with Metsa Board Corporation (Baa2 stable), BillerudKorsnas and Iggesund. In containerboard products, it primarily competes with Mondi Plc (Baa1 stable), International Paper Company (Baa2 stable), WRKCo Inc. (Baa2 stable), Saica and Prinzhorn.
- **Packaging Solutions** (5% and 1%): It had an annual production of around 0.8 million square metres of corrugated packaging and 0.8 million square metres of corrugated packaging deliveries for 2022. Although Stora Enso's packaging business is clearly smaller than that of the European leaders, such as Smurfit Kappa Group plc (Baa3 stable) and DS Smith, the company already has leading positions in its core regions (the Nordic countries, the Baltic countries and Poland), where its key assets are located, thereby benefiting from low transport costs. The acquisition of De Jong Packaging Group (De Jong) increased production capacity to more than 2 million square metres and further enhanced Stora Enso's European market presence in corrugated packaging, providing an entry into the Netherlands, Belgium, Germany and the UK.
- **Biomaterials** (14% and 36%): It primarily includes one of the industry's broadest portfolios of unbleached and bleached hardwood and softwood pulp, as well as fluff pulp used in hygiene products. With an annual production capacity of around 5.9 million tonnes in 2022, Stora Enso is among the world's top 10 pulp producers. However, around two-thirds of the production volume is consumed internally.
- **Wood Products** (14% and 16%): It mostly includes the supply of sawn goods in which Stora Enso is the European market leader. Stora Enso is also a pioneer in various building components and systems.
- **Forest** (16% and 11%): This division, which started operations in the beginning of 2020, includes Stora Enso's Swedish forest assets and the 41% share of Tornator, with most of its forest assets located in Finland. Stora Enso is currently one of the biggest private forest owners in the world. The division also includes wood supply operations in Finland, Sweden, Russia and the Baltic countries. The division's key focus areas are sustainable forest management, competitive wood supply to Stora Enso's mills and forest products innovation.

Exhibit 5
Operational EBIT breakdown by segment (2022 and LTM Sep-23)



Data as reported and defined by Stora Enso.
Source: Company

Stora Enso's Baa3 issuer rating also reflects the company's fairly good level of vertical integration into wood, energy and pulp. Stora Enso achieved around 75% energy self-suffiency in 2022 (excluding divested paper assets and including the impact of the Olkiluoto 3 [OL3] power plant) and directly or indirectly owned one of the largest areas of forest land within the peer group of European forest products companies (more than 2 million hectares, valued at around €8.1 billion as of December 2022), enabling it to internally cover some of the group's wood needs. Stora Enso's paper and containerboard production is well integrated into pulp, and the company is long on pulp at the group level, which is an advantageous position at times when pulp prices are rising and are at a high level.

Weak demand in all segments, price pressure and cost increases materially hit Stora Enso during 2023

Following the achievement of its best financial performance in more than 20 years in 2022, Stora was materially hit by adverse market conditions with weak demand, price pressure, and cost increases during 2023.

Stora Enso started witnessing a decline in sales volume as early as Q4 2022, with a 15% decrease compared to Q4 2021. This volume decline was further exacerbated in the first three quarters of 2023 (around 7% - 9% lower vs. previous quarters of 2022) and combined with a decline in sales' prices in Q2 2023 (-8% vs. Q2 2022) and Q3 2023 (-13% vs. Q3 2022). The decrease in revenue across all business divisions combined with inflationary pressure on fixed and variable costs base have led to a significant decrease in profitability, as evidenced by Moody's-adjusted EBITDA margin decreasing to 13.4% as of the last twelve months ended on September 2023 from 22.4% in 2022.

The company is facing different operational challenges across its business divisions. In the **Packaging Materials** and **Packaging Solution** divisions which serve converters, brand owners, and retailers, Stora Enso faced significantly lower demand, volumes, and pricing for containerboard, corrugated packaging, and paper products (representing around 43% of the production capacity) and had several maintenance shutdowns in the first nine months of 2023. In light of the low demand and uncertain recovery of the retail segment, the company proactively chose to reduce its production capacity with the permanent closure of Ostroleka containerboard site in Poland (with an annual production capacity of 375,000 tons of long-fiber pulp), the permanent closure of De Hoop containerboard site in the Netherlands (with an annual production capacity of 380,000 tons), and the permanent closure of one of the two paper machines in Anjalankoski site in Q4 2023 (with an annual production capacity of 250,000 tons).

In the **Biomaterials** division, Stora Enso faced a significantly weaker demand and pricing for both soft- and hardwood pulp. In response to the soft demand and the reduction in its cost competitiveness at several sites, the company permanently closed the Sunila pulp production and lignin extraction unit in Finland (with an annual production capacity of 375,000 tons of long-fiber pulp).

Stora Enso's **Wood Products** division has been impacted by the negative outlook on the construction sector, which witnessed a decrease of 30% - 45% in the number of building permits compared to last year. Lower sales volumes and prices, especially for sawn wood, have led to negative operational EBIT margins since Q4 2022. In Q4 2023, Stora Enso will permanently close Näpi sawmill in Estonia (with an annual production capacity of 50,000 m^3 sawn timber, 180,000 m^3 processes timber, and 25,000 tons pellets).

In the **Forest** division, Stora Enso has been able to maintain a stable level of revenue in 2023 compared to other divisions and increase its profitability compared to 2022. The company is 30% self sufficient on wood supply from its owned biological assets and leased forest land (under long-term agreements). The company benefits from strong demand for industrial and energy wood and fierce competition on wood supply, especially as the Finnish market transitions into an alternative supply source for around 10% of the imports share that used to come from Russia).

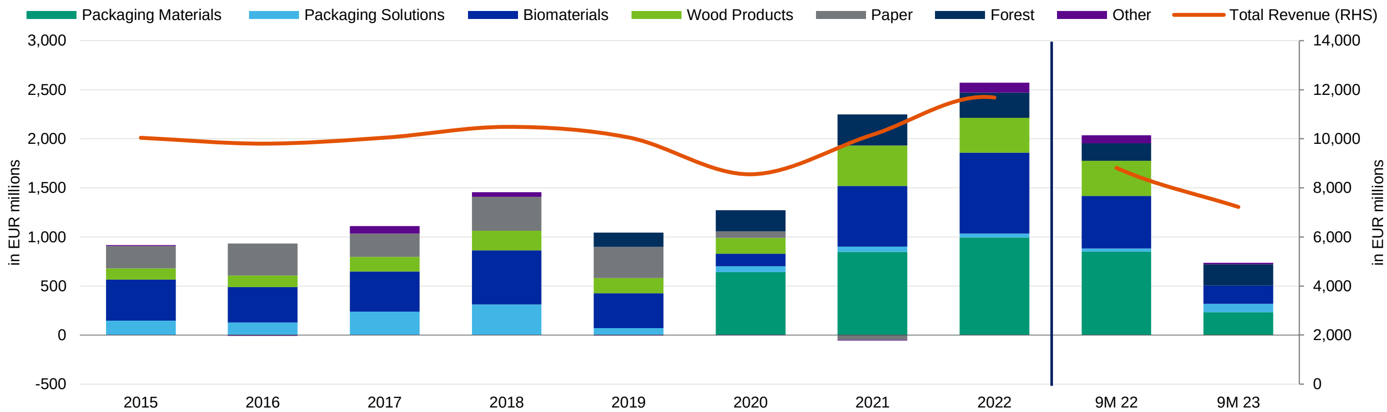
Similar to several of its peers in the paper and forest product industry, Stora Enso is proactively addressing the significant negative pressure on earnings and profitability through the commensuration of production capacity to demand levels and the reduction of fixed and variable costs. The company has permanently closed several containerboard and timber mills and reduced the number of employees within group functions. Together, these actions are expected to generate annual savings of around €110 million on the operational EBIT level.

Track record of successful and continued transformation beyond the structurally declining graphic paper market, shifting growth focus to eco-friendly and circular solutions

One of the key factors supporting Stora Enso's Baa3 issuer rating is its ongoing business transformation beyond graphic paper, the demand for which is subject to an average secular decline of 5%-6% per year across all major grades, driven by digital substitution, although the rate of decline will continue to vary depending on the grade and the phase of the general business cycle. To reflect this demand trend, during the last 15 years until December 2022, Stora Enso step by step reduced its exposure to this declining market and finally dissolved its paper business in January 2023. The Langerbrugge and Anjala sites, retained by Stora Enso, are reported as part of the Packaging Materials segment since January 2023.

Exhibit 6

The relative importance of businesses with structural growth in Stora Enso's EBITDA generation has significantly increased



Data as defined and reported by Stora Enso.
Source: Company

To further diversify beyond graphic paper, Stora Enso has focused on growth areas of packaging, wood products and biomaterials, which support its environmentally responsible approach and provide circular solutions. We generally view this diversification as credit positive, given their positive industry fundamentals with underlying demand growth normally ranging between 2% and 4% and occasionally up to 10% per year depending on the product. Furthermore, megatrends, such as urbanisation, growing shift to e-commerce, higher ecological awareness and sustainability, add to underlying growth prospects. We expect Stora Enso's packaging business to be the main driver of the envisaged transformation benefiting from high demand for plastic-free and eco-friendly circular packaging, along with a wide spectrum of available investment options and leading market positions. Pulp innovations and building solutions through wood products are also likely to contribute significantly through their high-growth end-product markets where Stora Enso can leverage its proprietary technologies and value proposition.

However, as seen during 2023, some of these businesses are subject to volatile pricing, which may translate into volatility in Stora Enso's credit metrics. Some of Stora Enso's end markets are cyclical, and even when demand is growing, there are periods of oversupply because new capacity coming to the market can be sizeable at times, exceeding demand growth. However, the company's broad product portfolio, which addresses a number of end markets (including the more stable food and hygiene products markets), serves as a mitigating factor.

Accelerating growth and diversification towards paper packaging through inorganic growth

In January 2023, Stora Enso completed the acquisition of corrugated packaging producer De Jong. Founded in 1996, De Jong is one of the largest corrugated packaging producers in the Benelux countries. The company specialises in corrugated trays and boxes mainly for fresh products, e-commerce and industry. De Jong is also active in containerboard production. With sales of around €1 billion in 2022, De Jong has 17 sites in the Netherlands, Belgium, Germany and the UK, and employs around 1,300 people.

Stora Enso has paid an enterprise value of €1.02 billion, including the transfer of lease liabilities amounting to €250 million, which represents a multiple of 8.9x EBITDA pre-synergies. The transaction was closed in January 2023, and was financed with existing liquidity and bilateral loan arrangements. Stora Enso may in 2024 make a maximum additional earnout payment in cash of €45 million, subject to De Jong achieving certain earnings thresholds. The acquisition will enhance Stora Enso's European market presence in corrugated packaging, and provides an entry into the Netherlands, Belgium, Germany and the UK.

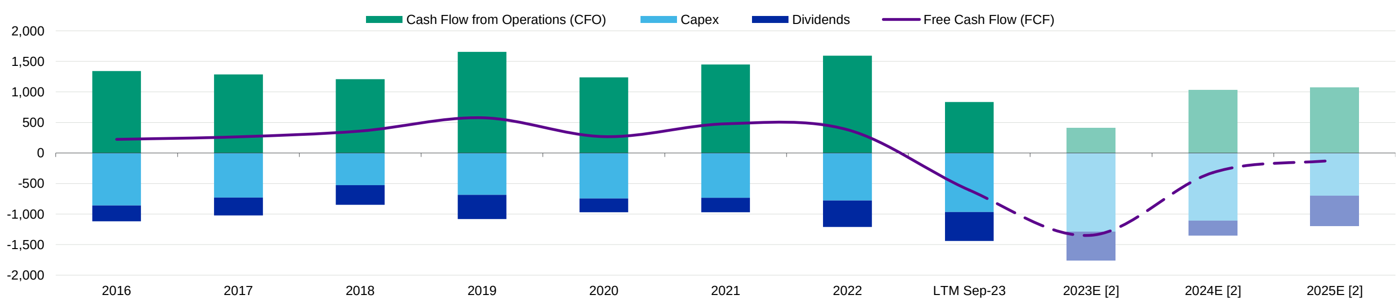
De Jong has been integrated within Stora Enso's Packaging Solutions division and increased its corrugated packaging capacity by around 150%, including De Jong's ongoing expansion projects, to more than 2000 million square metres. The investment in De Jong also demonstrates the continued execution of the company's strategy of moving away from graphic paper, including the divestment of paper assets, and investing in renewable paper packaging, which provides an improved basis for a higher degree of earnings stability in the future. The acquisition was expected to add around €115 million of EBITDA to the group without taking into account any synergies and expansion projects, leading to incremental EBITDA contribution of €70 million by 2025. Stora Enso has started a feasibility study at its paper production site in Langerbrugge, Belgium, for the conversion of one of the two paper lines into a high-volume recycled containerboard line. If Stora Enso decides to proceed with the conversion, further synergies will be possible.

FCF will decline driven by adverse market conditions and high transformation capital spending

Despite some volatility in its cash flow from operations (CFO) Stora Enso consistently delivered free cash flow (FCF) each year since 2018. FCF generation improved significantly in 2021 and 2022, with Moody's-adjusted FCF of €478 million and €381 million, respectively, compared with €268 million in 2020. The main driver of the improvement in FCF was higher profitability, partly offset by significant working capital consumption, particularly during 2022. Current trading signals negative FCF for 2023 as a result of adverse market conditions and a significant increase in capital spending towards strategic transformation projects.

Exhibit 7

Stora Enso is likely to continue to generate significant FCF, after temporarily turning negative in 2023 in the context of high capital intensity related to its strategic investments [1]



[1] All metrics are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
[2] This represents Moody's forward view, not the view of the issuer, and unless noted in the text, does not incorporate significant acquisitions and divestitures.
Source: Moody's Financial Metrics™ and Moody's Investors Service estimates

In the context of its strategic transformation, Stora Enso announced, in October 2022, its plans to convert its idle paper machine at its Oulu site in Finland into a high-volume consumer board production line for folding box board and coated unbleached kraft. The project's €1 billion capital investment over 2022-25 will increase the company's Packaging Materials division's total annual capacity by 750,000 tonnes of consumer board. The company expects production on the converted machine to begin around early 2025. The investment will significantly strengthen Stora Enso's global market position in renewable packaging and improve its profitability. It will also reduce the company's market pulp position by 250,000 tonnes, which will effectively reduce earnings volatility. The main end markets for the new consumer board line are food and beverage packaging, especially frozen and chilled, and dry and fast food mainly in Europe and North America. Stora Enso's management expects the new consumer board line to be among the most cost-efficient assets and to generate annual sales of around €800 million, with profitability target aligned with that of its Packaging Materials division. We expect the investment to be financed by excess liquidity and cash flow for 2022-25.

Financial policies commensurate with an investment-grade rating, demonstrated by net leverage commitment

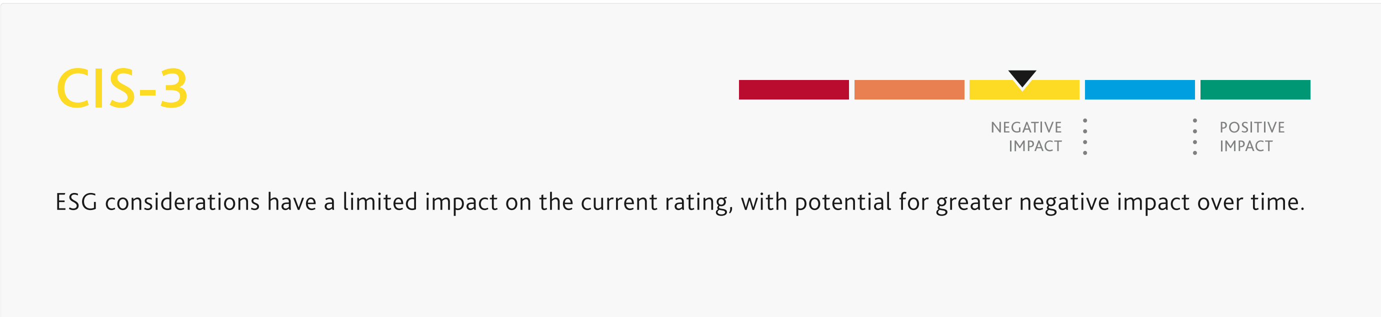
We expect Stora Enso to operate with Moody's-adjusted debt/EBITDA of around or below 3.5x (including significant forest holdings), which is consistent with a Baa3 rating. Stora Enso has also stated that an investment-grade rating is an important element in its financing strategy. However, because the company is currently operating above its net debt/operational EBITDA ceiling of 2.0x (2.4x as of September 2023, as defined by Stora Enso), we expect management to continue focusing on preserving cash flow generation and to strengthen long-term competitiveness.

Management's track record with regard to shareholder distributions has been conservative. Stora Enso's dividend policy is to distribute 50% of earnings per share excluding fair valuation over the cycle. The company distributed total dividends of €473 million for 2022, and we expect a material cut of dividend for 2023.

ESG considerations

Stora Enso Oyj's ESG credit impact score is CIS-3

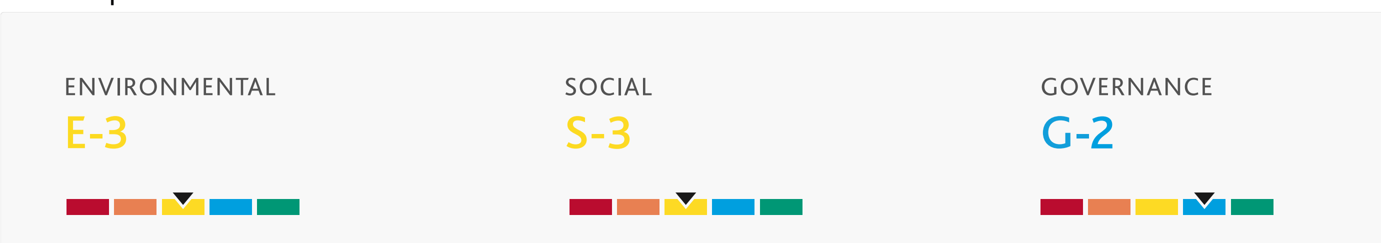
Exhibit 8
ESG credit impact score



Source: Moody's Investors Service

Stora Enso's CIS-3 indicates that ESG considerations have a limited impact on the current rating with potential for greater negative impact over time. The low governance risk is a supporting factor.

Exhibit 9
ESG issuer profile scores



Source: Moody's Investors Service

Environmental

Stora Enso's E-3 takes into account that the company is exposed to similar environmental risks as other rated companies within the Paper and Forest Products sector. Its environmental risks are mitigated to a degree by its commitment to reduce carbon emissions, water usage and waste in its manufacturing process.

Social

Stora Enso's S-3 is primarily driven by the industry-wide exposure to health & safety and human capital risks, while the company has neutral to low exposure to customer relations, responsible production and demographic and societal trends.

Governance

Stora Enso's G-2 reflects the company's conservative financial policies, a well-established governance structure and a high degree of board independence.

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

Moody's expects Stora Enso to maintain an excellent liquidity profile in the next 12-24 months, underpinned by around €1.8 billion of available cash and cash equivalents, €700 million available committed revolving credit facility (maturing in December 2027), and €100 million of undrawn committed term loans (maturing in March 2025) as of 30 September 2023. The syndicated revolving credit facility is of high quality, containing neither covenants nor a Material Adverse Change clause. It is linked to sustainability targets and has a one-year extension option.

In November 2023, Stora Enso issued four tranches of fixed and floating senior secured notes with a total amount of SEK 5.2 billion (equivalent €447 million) maturing in February 2027 and November 2028. Together with funds from operations of around €900 million (Moody's estimate), Stora Enso can comfortably address all upcoming debt maturities, working capital swings, capital expenditure needs, and dividend distributions.

Structural considerations

Stora Enso's financing structure is relatively complex. It consists of debt issued by the holding entity, Stora Enso Oyj, constituting around 70% of consolidated debt (including the Baa3-rated bonds) and debt sitting at operating subsidiaries, such as local financing in China and short-term local funding for working capital purposes related to the 50-50 pulp joint ventures in Latin America. While debt at operating subsidiaries is relatively sizeable, potentially creating a structural subordination issue for the bonds issued by Stora Enso Oyj, a downward notching of the bonds is not warranted because the debt at the operating subsidiaries is amortising and its proportion has gradually reduced; Stora Enso Oyj is also an operating entity and a significant cash flow contributor to the group, generating around half of the group's cash flow from operations in 2022; and our decision to not notch the bonds down is supported by Stora Enso's relatively low chances of default, taking into account its investment-grade rating.

Methodology and scorecard

We use our global Paper and Forest Products rating methodology, published in December 2021, as the primary methodology for analysing Stora Enso. Our scorecard indicated outcome also takes into account significant forest holdings that lead to a notch uplift for Stora Enso. The scorecard indicates an A3 outcome (Baa1 before notching adjustments) for our current view and a Baa2 outcome (Baa3 before notching adjustments) for our 12-18-month forward view, which is one notch above the actual assigned rating of Baa3.

The main reason for the notching difference is the fact that Stora Enso's strong operating performance has been achieved in a fairly benign operating environment along with higher expected capital intensity as a result of the growth projects that will negatively weigh on (RCF-Capex)/Debt factor.

Exhibit 10
Rating Factors
Stora Enso Oyj

Paper and Forest Products Industry Grid [1] [2]	Current LTM 9/30/2023		Moody's 12-18 Month Forward View As of November 2023 [3]	
Factor 1 : Scale (10%)	**Measure**	**Score**	**Measure**	**Score**
a) Revenue (USD Billion)	$10.8	Baa	$10.2 - $11.2	Baa
Factor 2 : Business Profile (30%)				
a) Product Line Diversification	A	A	A	A
b) Geographic and Operational Diversification	Baa	Baa	Baa	Baa
c) Market Position, Cyclicality and Growth Potential	Baa	Baa	Baa	Baa
Factor 3 : Profitability and Efficiency (15%)				
a) EBITDA Margin	13.5%	B	11.5% - 13.5%	B
b) Fiber and Energy Flexibility and Cost	Baa	Baa	Baa	Baa
Factor 4 : Leverage and Coverage (30%)				
a) RCF / Debt	4.6%	Caa	10.0% - 20.0%	Ba
b) (RCF - CAPEX) / Debt	-12.5%	Ca	-14.0% - -4.0%	Ca
c) Debt / EBITDA	4.1x	Ba	3.5x - 4.5x	Ba
d) EBITDA / Interest	9.6x	Baa	5.0x - 7.0x	Ba
Factor 5 : Financial Policy (15%)				
a) Financial Policy	Baa	Baa	Baa	Baa
Rating:				
Indicated Outcome Before Notching Adjustments		Ba1		Ba1
Notching Adjustments		1.0	1.0	1.0
a) Scorecard-Indicated Outcome		Baa3		Baa3
b) Actual Rating Assigned				Baa3

[1] All ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
[2] As of September 2023
[3] Forward view represents Moody's view, not the view of the issuer, and does not incorporate significant acquisitions, investments or extraordinary shareholder distributions.
Source: Moody's Financial Metrics™ and Moody's Investors Service estimates

Ratings

Exhibit 11

Category	Moody's Rating
STORA ENSO OYJ	
Outlook	Stable
Issuer Rating	Baa3
Senior Unsecured	Baa3
Other Short Term	(P)P-3

Source: Moody's Investors Service

Appendix

Exhibit 12

Peer comparison

Stora Enso Oyj

	Stora Enso Oyj Baa3 Stable			UPM-Kymmene Baa1 Stable			Metsa Board Corporation Baa2 Stable			Smurfit Kappa Group plc Baa3 RUR UPG		
(in USD million)	FYE Dec-21	FYE Dec-22	LTM Sep-23	FYE Dec-21	FYE Dec-22	LTM Sep-23	FYE Dec-21	FYE Dec-22	LTM Sep-23	FYE Dec-21	FYE Dec-22	LTM Sep-23
Revenues	12,026	12,310	10,766	11,612	12,352	11,911	2,466	2,613	2,262	11,958	13,506	12,846
EBITDA Margin	22.1%	22.5%	13.5%	18.2%	22.5%	16.0%	22.2%	24.7%	14.2%	16.0%	18.0%	18.0%
RCF / Debt	28.8%	37.2%	4.6%	21.4%	17.9%	21.8%	36.4%	53.4%	5.9%	22.6%	34.8%	31.9%
(RCF - CAPEX) / Debt	12.3%	19.0%	-12.5%	-26.0%	-8.3%	-12.9%	-10.7%	-21.5%	-61.4%	6.6%	11.8%	9.0%
Debt / EBITDA	2.0x	1.6x	4.1x	1.8x	2.1x	2.2x	1.0x	0.8x	1.5x	2.7x	1.9x	2.0x
EBITDA / Interest	16.2x	17.9x	9.6x	44.0x	30.7x	19.0x	41.1x	47.8x	23.2x	11.5x	12.6x	11.3x

All ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
Source: Moody's Financial Metrics™

Exhibit 13

Reconciliation of Moody's-adjusted EBITDA

Stora Enso Oyj

(in EUR million)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-21	FYE Dec-22	LTM Sep-23
As Reported EBITDA	1,405	1,829	1,901	1,528	2,247	2,627	1,419
Pensions	-	(1)	(1)	1	(2)	(6)	(6)
Securitization	10	9	4	1	1	7	8
Leases	98	-	-	-	-	-	-
Unusual Items - Income Statement	65	79	184	0	0	0	(56)
Moody's Adjusted EBITDA	1,578	1,916	2,088	1,530	2,246	2,628	1,365

Reported EBITDA is as defined by us (i.e., pretax income plus interest expense plus depreciation and amortisation).
Source: Moody's Financial Metrics™

Exhibit 14

Moody's-adjusted debt

Stora Enso Oyj

(in EUR million)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-21	FYE Dec-22	LTM Sep-23
As Reported Total Debt	3,016	3,344	4,193	4,756	3,938	3,972	5,335
Pensions	353	376	431	449	322	136	136
Securitization	355	240	255	155	184	174	174
Leases	522	-	-	-	-	-	-
Non-Standard Adjustments	(41)	(81)	(70)	-	-	-	-
Moody's Adjusted Total Debt	4,205	3,879	4,809	5,360	4,444	4,282	5,645

Source: Moody's Financial Metrics™

Exhibit 15

Overview of Moody's-adjusted financial data

Stora Enso Oyj

(in EUR million)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-21	FYE Dec-22	LTM Sep-23
INCOME STATEMENT							
Revenue	10,045	10,486	10,055	8,553	10,164	11,680	10,087
EBITDA	1,578	1,916	2,088	1,530	2,246	2,628	1,365
EBIT	1,013	1,437	1,542	914	1,697	2,094	749
Interest Expense	198	160	174	151	138	147	142
BALANCE SHEET							
Cash & Cash Equivalents	607	1,130	876	1,661	1,481	1,917	2,077
Total Debt	4,205	3,879	4,809	5,360	4,444	4,282	5,645
Net Debt	3,598	2,749	3,933	3,699	2,963	2,365	3,568
CASH FLOW							
Funds from Operations (FFO)	1,212	1,488	1,462	894	1,516	2,026	733
Cash Flow From Operations (CFO)	1,288	1,207	1,657	1,237	1,447	1,592	834
Capital Expenditures	(731)	(525)	(686)	(746)	(732)	(777)	(968)
Dividends	(292)	(323)	(394)	(223)	(237)	(434)	(473)
Retained Cash Flow (RCF)	920	1,165	1,068	671	1,279	1,592	260
RCF / Debt	21.9%	30.0%	22.2%	12.5%	28.8%	37.2%	4.6%
(RCF - CAPEX) / Debt	4.5%	16.5%	7.9%	-1.4%	12.3%	19.0%	-12.5%
Free Cash Flow (FCF)	265	359	577	268	478	381	(607)
FCF / Debt	6.3%	9.3%	12.0%	5.0%	10.8%	8.9%	-10.8%
PROFITABILITY							
% Change in Sales (YoY)	2.5%	4.4%	-4.1%	-14.9%	18.8%	14.9%	-12.5%
EBIT margin %	10.1%	13.7%	15.3%	10.7%	16.7%	17.9%	7.4%
EBITDA margin %	15.7%	18.3%	20.8%	17.9%	22.1%	22.5%	13.5%
INTEREST COVERAGE							
EBIT / Interest Expense	5.1x	9.0x	8.9x	6.1x	12.3x	14.2x	5.3x
EBITDA / Interest Expense	8.0x	12.0x	12.0x	10.2x	16.2x	17.9x	9.6x
LEVERAGE							
Debt / EBITDA	2.7x	2.0x	2.3x	3.5x	2.0x	1.6x	4.1x
Net Debt / EBITDA	2.3x	1.4x	1.9x	2.4x	1.3x	0.9x	2.6x

All ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
Source: Moody's Financial Metrics™

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