CREDIT OPINION
18 November 2024

Update

Send Your Feedback

RATINGS

DSV A/S

Domicile	Denmark
Long Term Rating	A3
Type	LT Issuer Rating - Dom Curr
Outlook	Stable

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

Contacts

Daniel Harlid +46.8.5179.1271
VP-Senior Credit Officer
daniel.harlid@moodys.com

Andreas Soteriou +46.8.5179.1272
Senior Ratings Associate
andreas.soteriou@moodys.com

Stanislas Duquesnoy +49.69.70730.781
Associate Managing Director
stanislas.duquesnoy@moodys.com

CLIENT SERVICES

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

DSV A/S

Update following ratings affirmation

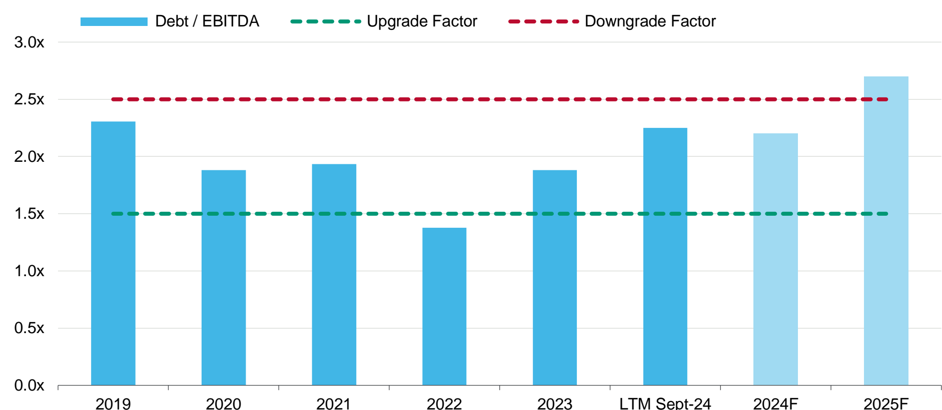
Summary

On Oct. 30, 2024, we affirmed the A3 long term issuer rating of DSV A/S (DSV) following the acquisition of Schenker AG (Schenker) from Deutsche Bahn AG (Aa1 stable) for an enterprise value of €14.3 billion and an equity value of €11.3 billion. The rating action recognised the benefits to DSV's business profile of acquiring Schenker with the potential to significantly increase its profitability. At the same time, the size and scale of Schenker increases complexity and integration risks which most likely will position the rating weakly during the initial period following the completion of the transaction.

DSV A/S' (DSV) A3 rating and stable outlook is supported by its market-leading position in the fragmented global freight forwarding industry. Furthermore, the rating reflects DSV's stable and industry-leading profitability levels through the cycle. This profitability stems from a dedicated management team, productive workforce and a clearly defined and implemented IT strategy, which supports efficiency and further scalability of the business. Although DSV has a history of shareholder orientation with large share buyback programs, the A3 rating reflects its commitment to its net debt/EBITDA target of below 2.0x. Part of DSV's strategy is to grow through acquisitions and since 2006, the company has gone through five transformational transactions.

Although we recognise the risks associated with sizeable acquisitions such as the Schenker transaction, DSV has a track record of using equity to fund the transactions and executing a rapid deleveraging following completion. In addition, its history of integrating acquired companies in a fast and efficient way and realising synergies illustrates the success of its acquisition strategy.

Exhibit 1
Evolution of Debt / EBITDA



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

Credit strengths

» Second largest third-party-logistics (3PL) company in the world

» Track record of stable and predictable profitability and cash flow generation through the cycle

» One of the most profitable companies in its industry

» History of successfully executing and integrating large and transformational acquisitions partially funded with equity

» Dedicated management team with long tenure

Credit challenges

» Large execution risks related to the integration of Schenker

» Deleveraging trajectory highly dependent on increasing Schenker's profitability

» Cyclical and competitive nature of the transportation and logistics sector

» Shareholder-friendly financial policy, although mitigated by its commitment to adhere to internal net leverage targets

» Regular execution of M&A transactions

Rating outlook

The stable outlook reflects our expectation that the company will successfully realise the targeted synergies and increase Schenker's profitability during the next 12-18 months and at the same time decrease the Moody's-adjusted debt / EBITDA ratio to around 2.5x. During this period, we also expect the company to continue adhering to its financial policy where shareholder remuneration will only take place once its net debt / EBITDA ratio decreases below 2.0x.

Factors that could lead to an upgrade

» Successful integration of Schenker

» Operating margin sustainably above 10%

» Funds from operations (FFO)/debt exceeding 40%

» A more conservative financial policy leading to debt/EBITDA sustainably below 1.5x

Factors that could lead to a downgrade

» Failure to successfully integrate Schenker

» Moody's-adjusted debt/EBITDA ratio approaching 2.5x

» FFO/debt below 30% on a sustained basis

» A deterioration in operating margin toward 6%

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.

Key indicators

Exhibit 2
DSV A/S

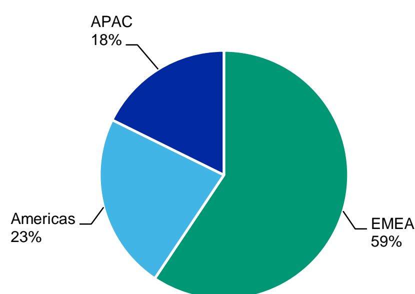
	2018	2019	2020	2021	2022	2023	Q3 2024 (L)	2024F	2025F	2026F
Revenue (USD billion)	12.5	14.2	17.8	29.0	33.4	21.9	23.3	23.8	45.4	46.8
Operating Margin %	7.4%	7.0%	8.1%	8.9%	10.7%	11.6%	9.9%	9.8%	7.9%	8.7%
EBITA / Average Assets	13.0%	9.4%	9.3%	12.7%	16.1%	11.7%	10.4%	10.0%	10.4%	9.4%
Debt / EBITDA	2.0x	2.3x	1.9x	1.9x	1.4x	1.9x	2.2x	2.2x	2.7x	2.2x
Net debt / EBITDA	2.0x	2.2x	1.6x	1.6x	1.1x	1.7x	1.9x	1.7x	2.5x	1.9x
FFO / Debt	39.0%	34.1%	38.6%	38.9%	55.3%	40.4%	35.8%	33.4%	25.7%	32.2%
EBIT / Interest Expense	7.3x	8.0x	9.1x	17.4x	17.5x	11.4x	8.3x	7.5x	7.4x	8.9x

All figures and ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
Periods are financial year-end unless indicated. (L) = Last 12 months.
Moody's forecasts are Moody's opinion and do not represent the views of the issuer.
Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

Profile

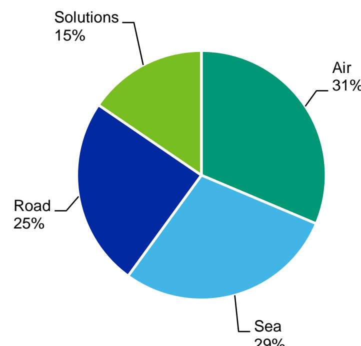
Headquartered in Hedehusene, Denmark, DSV is the third largest third-party logistics (3PL) company in the world; second largest in air and third largest in sea freight forwarding. It is active in over 80 countries and employs 76,000 people. The company was formed in 1976 by 10 independent Danish haulers, and since then, it has grown organically, supported by more than a handful of transformational acquisitions. Its shares are listed on the Nasdaq Copenhagen Stock Exchange and has a market cap of around DKK360 billion. For the twelve months that ended 30 September 2024, the company reported revenue of DKK151 billion and EBIT of DKK16 billion.

Exhibit 3
Revenue per region (YTD Sep-24)



Source: Company filings

Exhibit 4
Revenue per product line (YTD Sep-24)



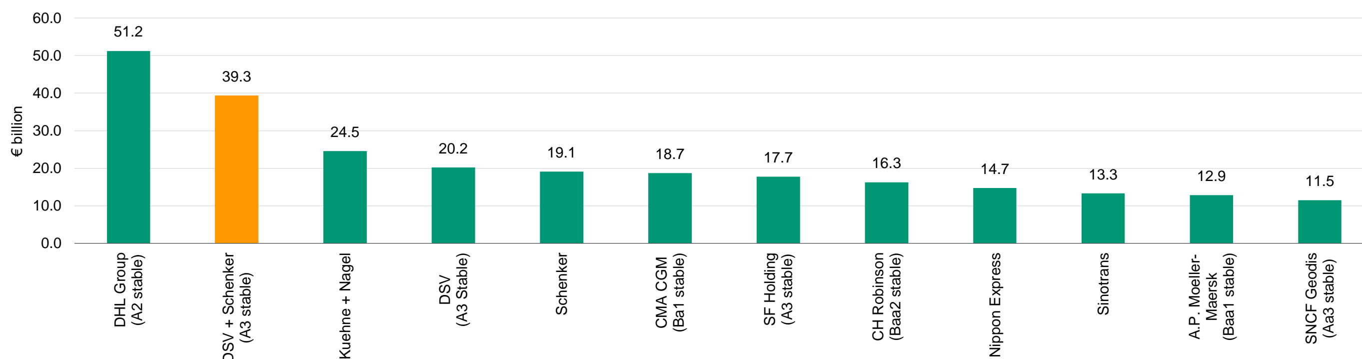
Source: Company filings

Detailed credit considerations

Acquisition of Schenker is largest on record for DSV - modus operandi the same as always

On Oct. 2, 2024, the supervisory board of Deutsche Bahn AG approved the sale of its logistics subsidiary to DSV for an enterprise value of €14.3 billion and an equity value of €11.3 billion. The transaction will be funded by €5.0 billion in new equity that DSV raised in October this year, €5.0 billion in bonds that was issued in November and the remainder through a combination of cash and bank debt. We understand that completion of the transaction is expected in the second quarter of 2025. By acquiring Schenker, DSV will become the second largest 3PL company in the world. As seen in exhibit 1, pro forma revenue for 2023 amounted to €39 billion which would have been 60% higher than for Switzerland based Kuehne+Nagel Group.

Exhibit 5
DSV will become the second largest 3PL company globally
Revenue for 2023



Numbers for DHL Group exclude its division Express and Post & Parcel Germany. For CMA CGM, numbers related to its subsidiary CEVA Logistics SA but pro forma for the acquisition of Bolloré Logistic. For S.F. Holding CO, figures exclude its Time-Definite express division.
Sources: Moody's Ratings and FactSet

Notwithstanding the importance of having large market shares in the regions you serve, the global 3PL market is very fragmented as is its largest segments - freight forwarding, road freight and contract logistics. Historically, correlation between market shares and profitability has been very low which partly is a result of the commoditised nature of transport and logistics services. This also explain the very low EBIT margin of the industry which before the pandemic was hovering at around 3% - 5%. This has led to companies not being profitable enough to make necessary investments in its IT infrastructure which in turn has complicated the ability to extract noticeable synergies from M&A.

The exception to the above is DSV, which during the last 10 years has carried out four rather transformational acquisitions, expanding the group's revenue by 20%-50% every time. Although the companies have been different in terms of size, segments and geographical coverage, DSV's business case has more or less been the same in all transactions - acquire volumes for its freight forwarding business and achieve DSV's profitability level on those volumes. Put differently, increase productivity per employee in the acquired business.

Exhibit 6
DSV has historically acquired companies with significantly lower profitability than itself
DKK billion

Acquisition	UTI	Panalpina	GIL	Schenker
Acquisition date	Sep-15	Apr-19	Apr-21	Sep-24
Enterprise value	9.3	35.1	30.2	107.0
Equity value	6.6	35.8	29.7	84.0
Equity raised	4.8	35.3	29.5	37.3
Revenue	**2015**	**2019**	**2021**	**2024**
DSV	48.6	79.1	115.9	150.8
Target	27.5	40.0	26.0	142.5
EBIT	**2015**	**2019**	**2021**	**2024**
DSV	2.6	5.5	9.5	17.7
Target	-0.8	0.8	0.9	8.4
Margin	**2015**	**2019**	**2021**	**2024**
DSV	5.4%	6.9%	8.2%	11.8%
Target	-2.8%	2.0%	3.3%	5.9%
Targeted synergies	1.5	2.3	2.8	n/a
Timeline (years)	3	3	2	3
Volume (000's)	**2015**	**2019**	**2021**	**2024**
DSV Air, tonnes	311	689	1,300	1,300
Target Air, tonnes	353	1,039	300	1,150
DSV Ocean, TEUs	855	1,442	2,200	2,500
Target Ocean, TEUs	513	1,484	600	1,800
Logistics Centres (m2), DSV		5,500	6,000	9,200
Logistics Centres (m2), Target		500	1,400	8,500

Numbers are shown for the preceding year of the acquisition.
Timeline refers to how many years DSV expected it would take to reach targeted synergies at the time of announcement.
Sources: Company presentations and Moody's Ratings

As seen by Exhibit 6, DSV typically acquires companies that are significantly less profitable but with substantial volumes within air and ocean freight forwarding. In all four acquisition listed above, it has had more or less the same business case - increasing productivity and efficiency of the acquired business, mainly by consolidating operations, as well as reducing overhead costs / centralized functions such as administration and IT. We argue that the biggest driver of DSV's strong record in terms of integration and synergy realization is DSV's IT architecture. It includes a centrally governed enterprise architecture as back-end and one single transport management system per division in the front-end (not in road transport). This setup has also been implemented in every company DSV has acquired.

Ability to deleverage rests on ability to increase productivity at Schenker

For simplicity, our base case assumes DSV consolidates Schenker as of Jan. 1, 2025. We understand management aspires to lift the operating margin of the combined entity to a minimum of DSV's current levels within the respective business areas in year three after closing of the transaction. Based on reported EBIT margins for DSV's segments for the twelve months that ended in September 2024, this would equal synergies of €700 million (DKK5.2 billion). However, this seems low considering what was achieved in the last

three transactions and therefor our base case includes synergies of around €1.0 billion which will reach full run-rate in year five post transaction closing.

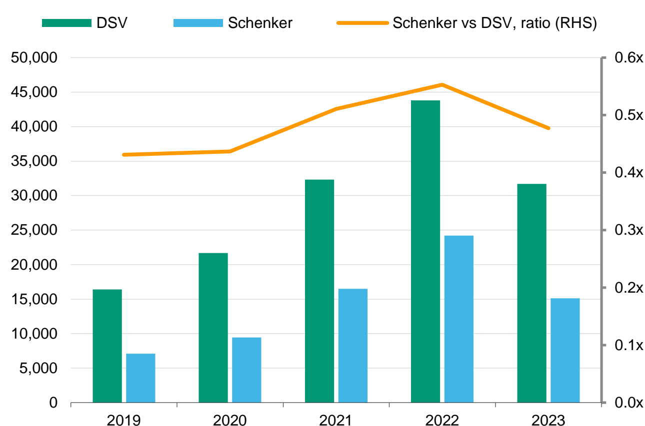
We have identified two factors that explains why DSV is so much more profitable than Schenker. Firstly, Schenker derives around 40% of revenue from its Land transport division whereas the corresponding figure for DSV is around 24% - this is the least profitable division for both companies.

Secondly, and even more important than the previous factor, is that Schenker's EBIT per employee is very low. This can be seen in Exhibits 7 which shows that Schenker generates around half the level of EBIT per employee than that of DSV. One reason for this is Schenker's personnel expenses, which are 30% higher than DSV's despite the two having workforces of equal size (Exhibit 8). Another driver is that Schenker's operating expenses, excluding salaries and cost of goods sold, are 25% higher than DSV's.

Exhibit 7

Schenker's productivity has been 50% lower than DSV on average

EBIT per employee



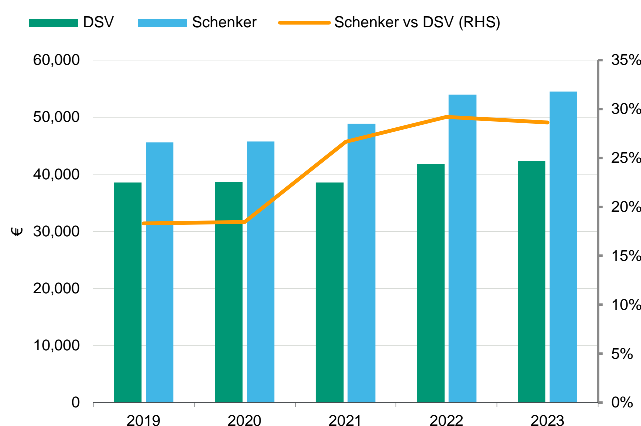
EBIT divided by average number of employees

Source: Moody's Ratings

Exhibit 8

Schenker has had a significantly more expensive labour force than DSV

Cost per employee



Total staff costs divided by average number of employees

Source: Moody's Ratings

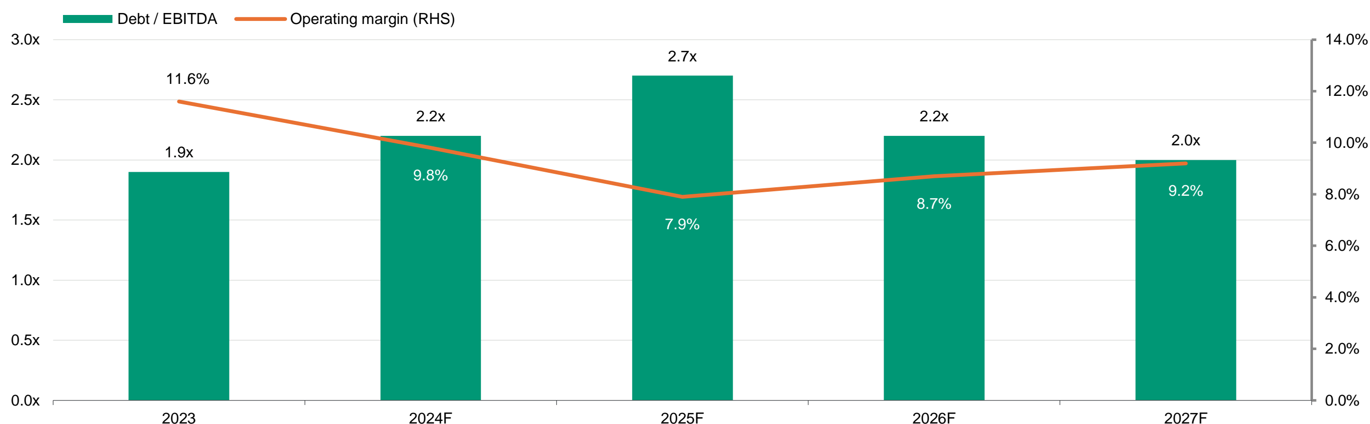
We suspect the difference in personnel expenses is related to Schenker having a large amount of people working in central functions. Around 4,000 full-time-equivalent positions (FTEs) were defined as working in corporate management in early 2023. This means that DSV will have to cut costs mainly by reducing headcount.

We believe cutting central costs by reducing headcount will take time, also considering that DSV has agreed to certain social commitments for employees of Schenker in Germany, including the protection of certain jobs during the first two years after completion of the transaction. Although somewhat old data, in 2021 around 17,000 out of 75,000 employees were based in Germany. We note positively, however, that Schenker has already initiated a restructuring program and overall it has reduced total number of employees gradually since 2019 by around 7%.

Our base case still assumes DSV will be able to extract significant synergies as well as paying down some of the debt it has raised to fund acquisition over the next three years, bringing its Moody's-adjusted debt / EBITDA ratio back to below 2.0x in 2027 from 2.7x in 2025 (Exhibit 9).

Exhibit 9

We expect metrics to weakly position DSV's A3 rating at least during the first full year post completion
Moody's-adjusted debt / EBITDA and operating margin following Schenker acquisition



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

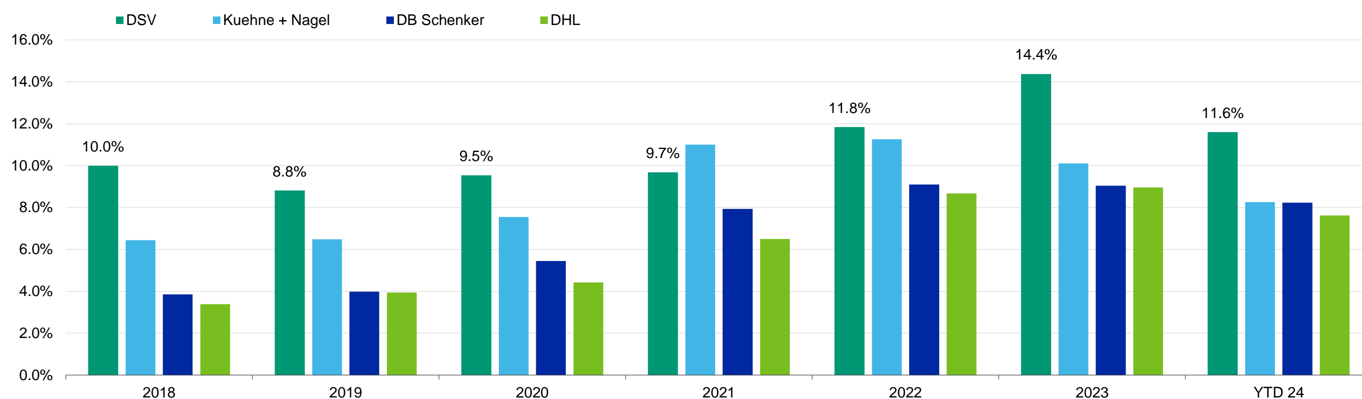
Strong track record realising synergies in freight forwarding

Pro forma for the transaction, freight forwarding (Air & Sea) generated 52% of revenue in 2023 whereas the reported figure for DSV was 60%. On an EBIT level, the division will continue to be the main driver of the group's profit as over 70% is generated by it. As such, the increased market share gained by DSV in the global freight forwarding market will be credit positive. According to data from research firm Transport Intelligence, the market value of the global freight forwarding market was €193 billion in 2023 which means DSV had a market share of around 6.5%. With the addition of Schenker's Air & Ocean Freight division, DSV will become the largest global freight forwarder in the world with a market share of 10.9%.

Historically, DSV's acquisitions have been focused on increasing volumes for its freight forwarding business (Air & Sea) as the division has very high operating leverage - following a successful restructuring of the acquired business, the marginal cost of additional volume decreases with the increased scale. As previously mentioned, DSV is aspiring to lift Schenker's EBIT margin to the same level as itself in year three after completion of the acquisition. This follows the same logic as when DSV acquired Panalpina in 2019, where its air forwarding business had an EBIT margin of 3% and its ocean forwarding business was loss making. It took DSV around 12 months to get profitability up to its own levels. Following the GIL acquisition in 2021, it went even faster. Given DSV's very strong record in substantially increasing EBIT per freight unit in acquired companies, we are confident this will be the case when it comes to Schenker.

Exhibit 10

DSV has continued to show an industry-leading EBIT margin with profitability enhancing acquisitions
EBIT margins for European freight forwarders



For DSV: Air & Sea division. For Kuehne + Nagel: Sea Logistics and Air Logistics. For DHL: Global Forwarding within its DGFF division. For DB Schenker: Air & Ocean Freight.
Source: Moody's Ratings and company filings

Limited scope for synergies in road and contract logistics

We are less certain around the ability for anyone to extract significant synergies within the European road transport industry, where both DSV and Schenker generate the lion share of revenue for its respective road divisions. It is highly fragmented, where Schenker only have a market share of 2% despite being number one. It is also the most commoditized service within 3PL which partly explains the average EBIT margin of around 1% - 2%. DSV is unique in that it enjoy's a 5% EBIT margin which, however, is not driven by the past acquisitions it made over the last five years. This is because unlike its Air & Sea and Solutions divisions, which each have one single transport management system (TMS) / warehouse management system (WMS) per division globally, DSV road has been running on a fragmented and legacy IT infrastructure. As such, acquiring volumes in road transport does not yield the same results as for Air & Sea. We understand that Schenker has come further when it comes to rolling out a single TMS in Europe whereas DSV is in a similar project that started in 2023 and will be rolled out fully in 2026 (Road Way Forward). According to management, this will enable its Road division to be M&A ready similar to its Air & Sea division.

For contract logistics, called Solutions for DSV, synergies should be somewhat limited given Schenker's profitability and productivity (EBIT per employee) is similar to DSV's. We assume that given overlaps between warehouse space in Europe, there should be some potential from consolidating the footprint.

Conservative financial policy will be equally important as synergies to strengthen the rating

Our base case assumes revenue growth of around 3% annually over the next three years, with an operating margin going back to DSV standalone levels of around 9% - 10% in 2027 (based on the acquisition closing Jan. 1, 2025, for illustrative purposes). Coupled with debt repayments during the forecast period, DSV's debt / EBITDA ratio should will go down to 2.0x from around 3.0x (based on our expectations for pro forma 2024 full year figures). As part of the financing package, DSV will fund the acquisition with debt that will be paid down over two years.

Exhibit 11
DSV's credit metrics will gradually strengthen over the next three years
DKK million

EBITDA	2024F	Debt	2024F	EBITDA	2027F	Debt	2027F
DSV	22,143	DSV	48,595	DSV	24,906	DSV	44,800
Schenker	13,472	Acquisition debt	44,760	Schenker	17,524	Acquisition debt	27,975
Total	35,615	Schenker adjustment	13,816	Total	42,430	Schenker adjustment	13,816
		Gross debt	107,171			Gross debt	86,591
		Cash	11,905			Cash	27,496
		Net debt	95,266			Net debt	59,095
		Debt / EBITDA	3.0x			Debt / EBITDA	2.0x
		Net debt / EBITDA	2.7x			Net debt / EBITDA	1.4x

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

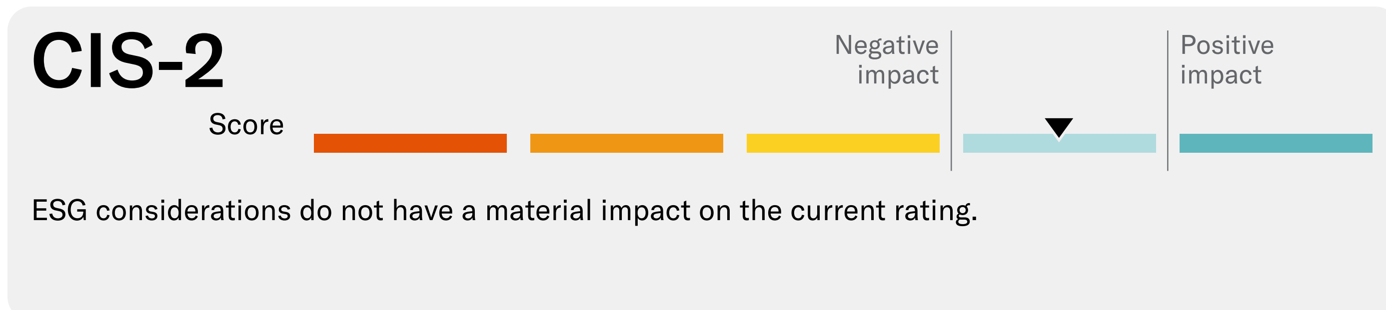
DSV's capital structure is governed by its financial policy of keeping net debt/EBITDA below 2.0x (excluding pension liabilities but including lease liabilities). The company has a clear order of prioritising cash flow; (1) repayment of net interest bearing debt in periods when the financial gearing ratio is above the target range; (2) value-adding investments in the form of acquisitions or development of the existing business and (3) distribution to shareholders by means of share buybacks and dividends. In addition, DSV's dividend policy is to pay out the equivalent of 10%-15% of net profit to shareholders.

The financial policy has been in place for over 10 years and is also why we feel comfortable that the company will reduce leverage by paying down some of the debt it will use to fund the acquisition. In addition, the company has publicly stated that it remains committed to maintain its current credit ratings.

ESG considerations

DSV A/S' ESG credit impact score is CIS-2

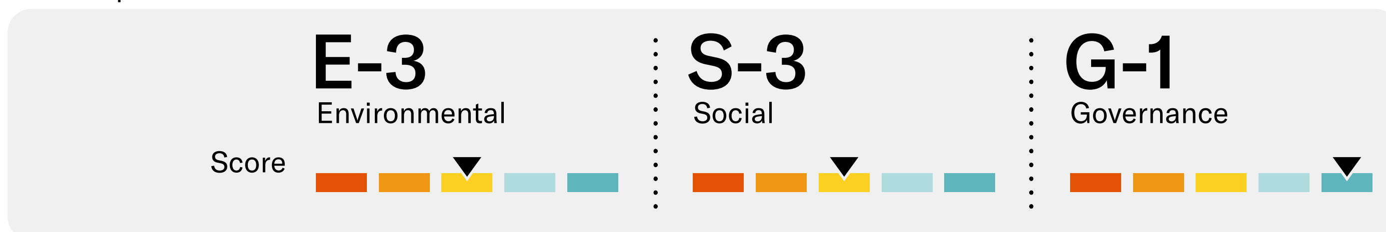
Exhibit 12
ESG credit impact score



Source: Moody's Ratings

DSV's **CIS-2** indicates that ESG considerations are not material to the rating. Furthermore, it balances our very strong governance assessment for the group with its moderate environmental and social risk exposure. Key ESG related risks include carbon transition risk, waste and pollution as well as health and safety for its workforce.

Exhibit 13
ESG issuer profile scores



Source: Moody's Ratings

Environmental

E-3. Environmental risks stems from the nature of DSV's business, where the company facilitates transport by air, sea and road on behalf of its customers. Increasing regulatory pressures ultimately will lead to requirements of reduced CO2 emissions and other pollutants in the whole transport value chain. The company partly mitigates these risks with its targets of reducing direct and indirect emissions from its own operations (scope 1 & 2) with 40% and across the value chain (scope 3) with 30% by 2030 compared with 2019.

Social

S-3. Our assessment of social risks currently reflects that DSV's operating performance following the acquisition of Schenker rests on the ability to reduce the workforce which can be a challenge.

Governance

G-1. Governance considerations has a positive impact on DSV's A3 rating. Not at least, its long term focus has enabled the company to invest heavily and build out its IT-infrastructure which in turn has meant it has become very efficient in terms of M&A integration. Management credibility and track record positively contributes to the overall low governance risks and is further supported by a highly independent board and the absence of ownership concentration.

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

We expect DSV to have excellent liquidity over the next 12 months, supported by a cash position of DKK8.5 billion and DKK6.9 billion in revolving credit facilities as of 30 September 2024. Furthermore, we expect the combined business will generate DKK17 billion in cash flow from operation during the first 12 months post completion of the transaction. As both DSV and Schenker are asset light businesses, capex needs are relatively low at around 1.5% of revenue (we expect annual capex spending of around DKK5.0 billion). Having said that, free cash flow is likely to be burdened by a non-recurring high working capital charge as a direct consequence of the transaction.

Methodology and scorecard

The principal methodology used in these ratings was the Surface Transportation and Logistics methodology. DSV's long-term issuer rating of A3 is in line with the scorecard indicated outcome, both on a current view and forward view basis.

Exhibit 14

Rating factors

DSV A/S

Surface Transportation and Logistics Industry Grid	Current LTM Sept-24		Moody's 12-18 month forward view	
Factor 1 : Scale (15%)	**Measure**	**Score**	**Measure**	**Score**
a) Revenue ($ billions)	23.0	A	45-46	Aa
Factor 2 : Business Profile (20%)				
a) Business Profile	Baa	Baa	A	A
Factor 3 : Profitability & Efficiency (10%)				
a) Operating Margin %	9.9%	Ba	8.0% - 8.5%	Ba
b) EBITA / Average Assets	10.5%	Baa	9.5% - 10.5%	Baa
Factor 4 : Leverage & Coverage (40%)				
a) Debt / EBITDA	2.3x	A	2.7x - 2.5x	Baa
b) FFO / Debt	35.8%	A	26.0% - 29.0%	Baa
c) EBIT / Interest Expense	8.3x	A	7.4x - 8.2x	A
Factor 5 : Financial Policy (15%)				
a) Financial Policy	A	A	A	A
Rating:				
a) Scorecard-Indicated Outcome		A3		A3
b) Actual Rating Assigned				A3

All figures and ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
Moody's forecasts are Moody's opinion and do not represent the views of the issuer.
Source: Moody's Financial Metrics™ and Moody's Ratings forecasts

Ratings

Exhibit 15

Category	Moody's Rating
DSV A/S	
Outlook	Stable
Issuer Rating -Dom Curr	A3
Senior Unsecured MTN	(P)A3
DSV FINANCE B.V.	
Outlook	Stable
Bkd Senior Unsecured -Dom Curr	A3

Source: Moody's Ratings

© 2024 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 to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moodys.com under the heading "Investor Relations — Corporate Governance — Charter 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 (as defined in Moody's Investors Service Rating Symbols and Definitions): Please note that a Second Party Opinion ("SPO") is not a "credit rating". The issuance of SPOs is not a regulated activity in many jurisdictions, including Singapore. JAPAN: In Japan, development and provision of SPOs 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 1428463

CLIENT SERVICES

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