CREDIT OPINION
24 July 2024

Update

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RATINGS

Volkswagen Aktiengesellschaft

Domicile	Wolfsburg, Germany
Long Term Rating	A3
Type	LT Issuer Rating
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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Volkswagen Aktiengesellschaft

Update on Key Credit Considerations

Summary

Volkswagen Aktiengesellschaft's (Volkswagen, or VW) A3 long-term ratings are supported by its robust portfolio of highly recognizable brands (including Volkswagen, Audi and Porsche) and established market positions in Western Europe and China; its geographical diversification and good product offering that help shield the group's earnings from local or regional demand cycles, which are inherent to the automotive industry and the company's sizeable liquidity position.

VW's ratings are currently weakly positioned, given the following constraining factors: the high cyclicality of the automotive industry; the group's declining market share in China, its largest single market; the significant divergence in profitability across passenger car brands, with particular weak margins at VW's brand group "Core" somewhat mitigated by strong margins at the premium brands Audi and Porsche; need for high investments to cope with globally increasing environmental standards and the transition to electric vehicles (including EV battery business), and to develop a group-wide vehicle software architecture; and high governance risks according to our ESG criteria, due to the organizational complexity within the group.

On July 1st 2024, we affirmed VW's A3 ratings and kept the outlook unchanged at stable. This rating action balances VW's strong business profile as one of the two largest auto maker globally with stable, but relatively weak margins and free cash flow for the A3 rating category. The affirmation was further supported by the company's low leverage, sizeable liquidity position and the expectation of medium term performance improvements. We expect a muted operating performance this year as investments peak and key model launches are delayed and some improvement next year mainly driven by release of new models at Audi and Porsche.

With its new strategy for China announced in April 2024 and the Rivian transaction announced in June 2024 on software partnership for electric vehicles, VW management is making progress on the execution of its strategy, a positive even if both announcements are subject to significant execution risks and positive impact on metrics will likely not be visible before 2026 at least. As part of its efforts to structurally reduce the cost base and improve profitability, the group announced in July 2024 its intention to close down its Audi plant in Brussels. This, on top of ongoing severance program, will lead to high restructuring costs this year. We expect ratings to remain weakly positioned for the next 12-18 months.

Credit strengths

» Robust and diversified business profile, with strong positions in the global automotive market and a portfolio of highly recognizable brands

» Geographical diversification and good product offering

» Underlying profitability expected to benefit from VW's scale and operating leverage, modular tool kit strategy and cost reductions

» Ability to offer attractive financing, which is a key component of VW's business model

» Sizeable liquidity position and stability of credit metrics

Credit challenges

» Difficult market environment for the automotive industry globally, including its high cyclicality and a highly competitive market environment, including China, where VW has lost market share

» Strong divergence in profitability across passenger car brands, especially weak profitability at the VW brand

» Need for high investments to cope with stricter emission regulation, to develop and produce alternative fuel vehicles (including BEVs) and a group-wide vehicle software architecture that enables connectivity, driving assistance and autonomous driving features

» Corporate governance issues (according to Moody's ESG criteria), including highly complex group structure and history of high management turnover

» Credit metrics somewhat weaker than those of its peers

Rating outlook

The stable outlook reflects our expectations that VW will maintain a Moody's adjusted EBITA margin around 6.0-7.0% and a Moody's adjusted leverage well below 2x in the next 12-18 months. The stable outlook assumes that VW will maintain a sizeable liquidity position despite the expected weakening of free cash flow generation as investments peak this year and conservative financial policies.

Factors that could lead to an upgrade

We would consider upgrading VW's ratings if:

» it demonstrates its ability to, at least, protect its market share in the major markets where it operates, especially in Western Europe and China, regardless of potential changes in global macroeconomic conditions

» there is a significantly improved competitive position for the Volkswagen Passenger Cars brand and in the US market

» more stringent corporate governance structures are implemented

» VW generates robust cash flow on a sustained basis, despite elevated capital spending, with Moody's-adjusted FCF/debt of around 10% and

» VW's Moody's-adjusted EBITA margin is comfortably above 7% on a sustained basis.

Factors that could lead to a downgrade

VW's ratings could be downgraded in case of an operational weakness or more aggressive financial policies resulting in:

» Moody's-adjusted EBITA margin remaining sustainably well below 7%,

» Moody's-adjusted debt/EBITDA above 2.0x, or

» FCF/debt (Moody's-adjusted) remaining below mid-single-digit percentages for a prolonged period.

Also, an erosion in VW's market shares in its core markets, as well as its inability to enhance the profitability of Volkswagen's brand group "Core" to a more competitive level of above 5% on a sustained basis, delays in the transformation towards electrification as well as higher than expected R&D and capex requirements to achieve this, and a weakening of the company's liquidity profile could lead to a rating downgrade.

Key indicators

Exhibit 1
Volkswagen Aktiengesellschaft

(in € millions)	2019	2020	2021	2022	2023	LTM Mar-24	2024F	2025F
EBITA Margin %	8.1%	6.0%	6.9%	7.5%	6.8%	6.4%	6.0%	7.0%
EBITA Margin % excl. JVs	6.7%	4.5%	5.8%	6.5%	5.9%	5.7%	5.6%	6.6%
Debt / EBITDA	1.9x	2.8x	2.3x	1.4x	1.6x	1.7x	1.5x	1.3x
Debt / EBITDA excl. JVs	2.1x	3.2x	2.6x	1.5x	1.7x	1.8x	1.6x	1.3x
(Cash + Marketable Securities) / Debt	60.0%	63.7%	69.2%	124.5%	110.4%	102.7%	92.7%	82.1%
RCF / Debt	43.0%	21.1%	28.9%	14.7%	43.3%	34.7%	37.9%	45.4%
FCF / Debt	15.9%	4.4%	14.8%	-17.8%	13.4%	1.2%	-5.2%	-2.7%
EBITA / Interest Expense	10.0x	7.1x	9.2x	6.1x	6.6x	6.2x	5.9x	7.6x

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. LTM = 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

Volkswagen Aktiengesellschaft, headquartered in Wolfsburg, Germany, is Europe's largest car manufacturer in terms of passenger car unit sales, with a market share of 26% in 2023 in Europe (according to the European Automobile Manufacturers Association), and one of the two largest globally, marginally below Toyota Motor Corporation (A1/P-1 positive).

VW manufactures mass-market and premium vehicles under the Volkswagen Passenger Cars, SKODA, SEAT, Cupra, Audi, Bentley, Lamborghini and Porsche (VW share 75%) brands, as well as commercial vehicles under the Volkswagen Commercial Vehicles brands. VW also produces trucks and buses via its publicly listed subsidiary TRATON SE (Baa2 positive, VW share 89.7%), which produces vehicles under the MAN, Scania, Navistar and VW Truck & Bus brands. In addition, VW's subsidiary Audi has a 100% stake in the premium motorcycle manufacturer, Ducati.

In 2023, VW delivered 9.2 million vehicles to its customers (8.3 million in 2022). Volkswagen generates the vast majority of its unit sales in Europe (44% in LTM March 2024) as well as Asia-Pacific (39%, predominantly China), followed by North America (11%) and South America (6%).

VW also provides a full range of banking, leasing, insurance and mobility services mainly through its subsidiaries Volkswagen Financial Services AG (A3/P-2 stable) and Volkswagen Bank GmbH (Bank Deposits A1, Junior Senior Unsecured A3, BCA baa3). Volkswagen Bank GmbH holds a banking licence and offers wholesale and retail banking services.

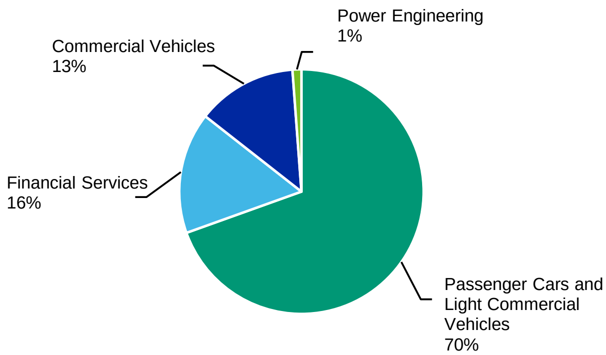
Detailed credit considerations

Robust and diversified business profile, with strong positions in the global automotive market, weakening positioning in China though

VW has a strong business profile, with leading and established market positions in Europe (number one position with 25.9% market share in 2023, well before Stellantis N.V. (Baa1 stable), with a share of 16.6%, according to ACEA), China (number one position achieved through joint ventures [JVs] with local partners) and Brazil (second position, behind Stellantis and just before General Motors Company (Baa2 stable). Given its broad and attractive product and service offering (including the ability to provide customer financing), as well as a strong product pipeline, we expect the company to maintain a market share in Europe at the current level of around 24%-26% in the medium term.

Exhibit 2

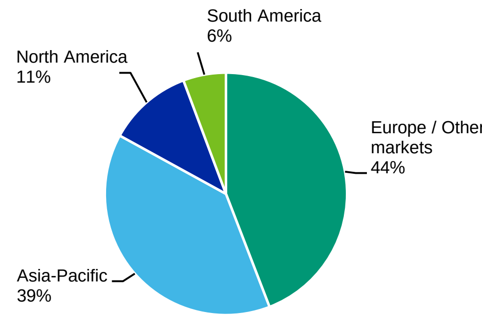
Revenue breakdown by segment (LTM Mar-24)



Does not include the Chinese joint venture revenue. Breakdown by sales revenue, excluding internal reconciliation. LTM = Last 12 months.
Source: Company filings

Exhibit 3

Vehicle sales by region (LTM Mar-24)



Does include the Chinese joint ventures. LTM = Last 12 months.
Source: Company filings

VW's presence in both passenger cars and commercial vehicles brings a degree of diversification to its business risk profile. We expect cooperation between VW's commercial vehicle brands to increase. VW has bundled its commercial vehicle activities under its publicly listed subsidiary TRATON SE (Baa2 positive; VW share: 89.7% as of December 2023), comprising Scania, MAN, Navistar and VW Truck & Bus.

Since 2019, VW's competitive positioning has been weakening in China because the company did not manage to effectively compete with fierce local competition on the rapidly growing BEV segment. As a result, VW's market share declined from 19.3% in 2020 to 14.5% in 2023 and its proportionate operating result coming from the Chinese JV decreased from €4.4 billion in 2019 to €2.6 billion in 2023. In order to defend its challenged position in China, VW released a new strategy in April 2024. The company intends to localize some of the decision making processes and leverage capabilities of the local JV partners as well as the new partnership with Xpeng for the electronic architecture. Thanks to this new set up the company expects to reduce time to market by 30% and become cost competitive with local players on BEV and ICE by 2026. In the next 12-18 months, we assume a stabilization of the performance in China, at low levels versus historic figures. The Moody's adjusted EBITA margin includes the at-equity contribution from the Chinese JV which we forecast at €1.5 billion per annum for this year and next down from €2.6 billion in 2023. While China accounted for 34% of VW's global units sales in 2023, it represented only 14% of VW's Moody's adjusted EBITA given that only proportionate JV result is accounted at equity.

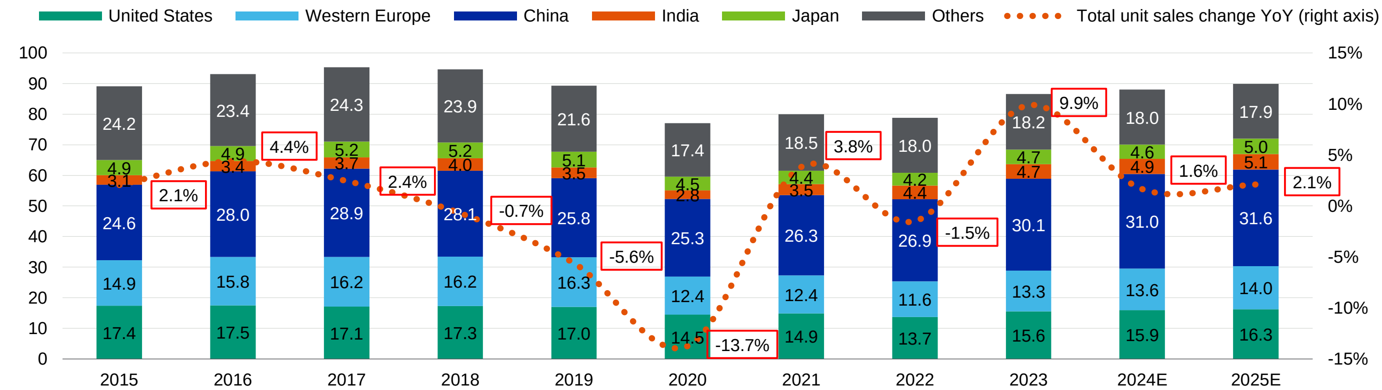
Difficult environment for the global automotive industry, which is highly cyclical and highly competitive

VW, like all major automakers, is exposed to the cyclicality of the global automotive industry. After several years of continuous growth since the beginning of the decade, global light vehicle sales peaked at around 95 million units in 2017-18. In 2019, global light vehicle sales declined by around 6% to around 90 million units, driven mainly by an 8% decline in China. The COVID-19 pandemic caused a severe 14% plunge in 2020, with only a modest recovery in 2021. In 2022 global light vehicle sales declined by a minor 1.5% because of production constrains stemming from the global shortage of semiconductors. Light vehicle sales saw a strong rebound in 2023 as the supply constrains eased and registered a 10% YoY growth. We expect global light vehicle sales to continue to recover, albeit at a slower pace — 1.6% this year and 2.1% in 2025. Our forecast is driven by our expectation that the sector's growth will nearly track the stabilization of global macroeconomic growth to 2.6% in 2024 and 2025, compared to 2.9% in 2023. Global annual unit sales have yet to match their pre-pandemic level though, so that slower growth will be off a lower base.

Exhibit 4

Global light vehicle sales growth will slow to 1.6% this year, 2.1% next year

Our projections for global light vehicle unit sales (in million units)



China unit sales represent auto sales, including those of both passenger and commercial vehicles.
Sources: ACEA, CAAM, LMC and Moody's Ratings estimates

In 2023, when global light vehicles increased by 10%, VW's vehicle deliveries grew by 12% to 9.2 million from 8.3 million in 2022, 8.9 million in 2021 and 9.3 million 2020. The 2023 level is still 16% below the peak of 11.0 million in 2019. During the first half of 2024, VW's global deliveries were broadly flat but key margin contributors Audi and Porsche delivered less than the same period last year hence hurting group's margin. The delivery of Audi was constrained by the supply shortage of V6 and V8 engines.

After a strong recovery in global light vehicle sales last year, we expect market conditions to become more challenging this year, with an intensified competitive environment characterized by an increasing price pressure. We expect VW to grow revenue by 1-2% in 2024, implying a muted volume growth as key models release especially for Audi and Porsche have been delayed towards the end of the year. A stronger product momentum should boost revenue growth next year.

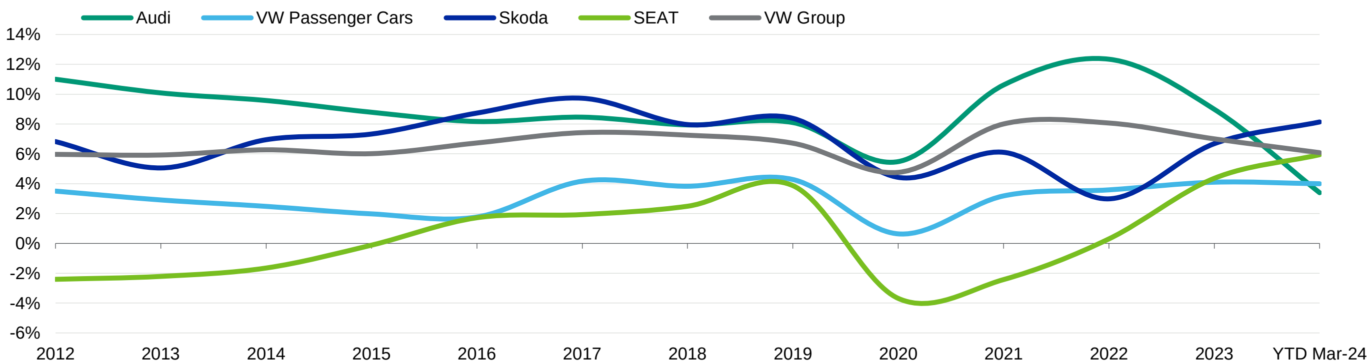
Weaker profitability than peers, strong divergence in profitability across passenger car brands, management initiatives aim at sustainability improving margins

VW's large scale should help the group to efficiently deploy resources and boost its profitability thanks to operating leverage. But VW's profitability, also stable, has remained at weak levels compared with peers. In June 2023, VW management announced a new strategic plan that includes the goal to improve the group's operating margin before special items to 8%-10% by 2027 (7.0% in 2023 or 8.0% excluding hedge accounting) and 9%-11% by 2030. In 2023, while they accounted only for 24% of group's deliveries, Audi and Porsche represented more than 50% of the group's operating profit (excluding the intercompany profit, special items and results from JVs). In 2023, Volkswagen's brand group “Core”, comprising VW Passenger Cars, SKODA, SEAT/Cupra, and VW Commercial Vehicles, reported operating margins (before special items) of 5.3% up from 3.6% in 2022. While VW's premium brands continue to drive earnings, higher profitability at the group’s other brands is key to achieve the management goal of group's margin improvement to 8-10%. The group also aims to cut overhead cost, reduce its total number of model variants, and streamline its modular architectures further, reducing them to four major variants.

Management intends to improve margin towards 6.5% for VW brand (versus 4.1% in 2023) and 8.0% for the division “Core” by 2027 (versus 5.3% in 2023). We note that VW has been attempting to improve the margins for the brand group “Core” for a long time with a very mixed track record so far. Key drivers of the expected margin improvement include improved product positioning and efficiency measures. Notwithstanding small margin improvement recently, we believe that the management targets have significant execution risks given the mixed track record, the highly competitive automotive sector environment and the high organizational complexity within the group. Moreover, high investments into the software architecture will continue to weigh on profitability.

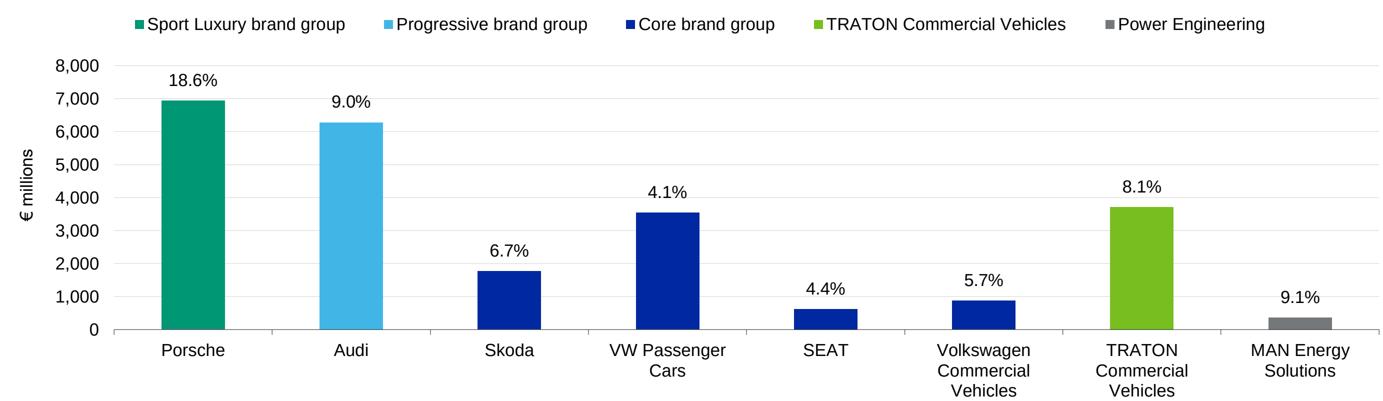
The group's ongoing strategy to drive economies of scale in unit cost through the global rollout of its MQB (Modularer Querbaukasten) platform is expected to play a key role in enhancing the profitability of its mass-market brands. The effects of the strategy were, so far, most visible at the SKODA and SEAT/CUPRA brands, with their operating margins improving (as reported by VW) by around three and six percentage points, respectively, in 2013-19. This trend was interrupted in 2020, when the profitability of all brands was hurt by the pandemic, with Spain, where SEAT is located, being particularly hit. The profitability of SKODA and SEAT but also - to a smaller extent - the VW brand is on a positive trend since the last two years.

Exhibit 5
VW Management targets to improve group profitability to 8-10% by 2027
Operating margin by segment



Excluding intercompany profit, special items and results from joint ventures; VW Group's operating margin before special items decreased to 7.0% in 2023 from 8.1% in 2022. YTD = Year to date.
Source: Company filings

Exhibit 6
Sustainable improvement of the Volkswagen Passenger Cars brand profitability is key to achieving higher operating margins at the group level
Reported operating profit and margin by brand and business field (2023)



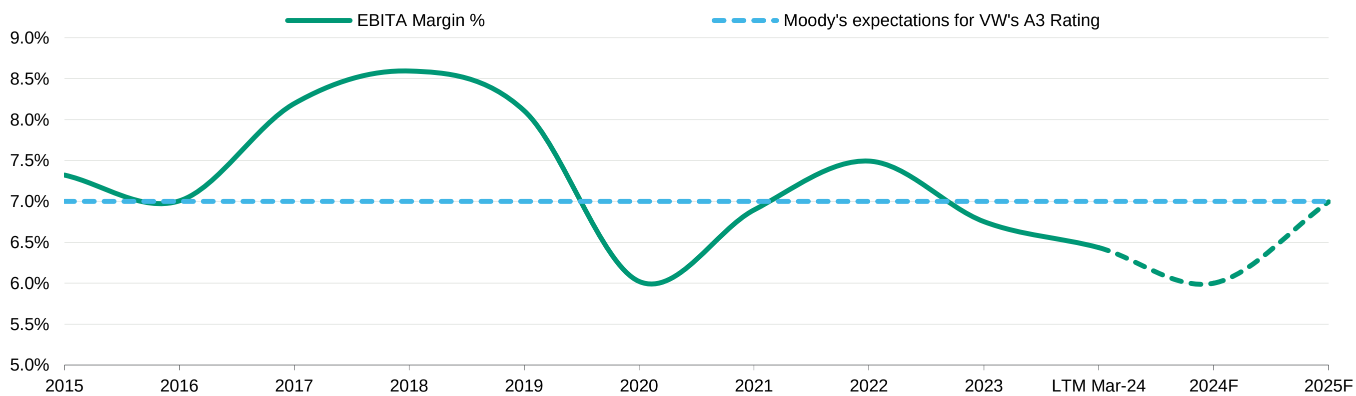
Excluding intercompany profit, special items and results from joint ventures. YTD = Year to date.
Source: Company filings

Last year, VW's margin (Moody's adjusted EBITA) reached 6.8% to be compared with 7.5% in 2022. When excluding fair value effects of derivatives outside hedge accounting, VW's margin (Moody's adjusted EBITA) improved from 6.7% in 2022 to 7.9% in 2023. The margin improvement last year reflected the strong consumer demand and the favorable pricing (less discounts) and mix (allocation of available semiconductors to the more profitable vehicles) effects, in line with what we have observed for peers. During the first quarter of 2024, VW margin dropped significantly driven by declining operating results at Audi which suffered from supply chain issues. The valuation of derivatives outside hedge accounting has impacted VW's margin historically in a positive or negative way. VW is currently implementing a new hedging strategy that should significantly diminish the impact of valuation of derivatives outside hedge accounting starting 2025.

On July 9 2024, VW announced its intention to close down its Audi plant in Brussels, one of its most expensive production sites. This will result in restructuring costs which on top of other additional expenses including FX losses at the financial services and restructuring at MAN Energy Solutions led VW to revise its 2024 guidance down to 6.5%-7.0% Group operating margin for the full year from 7.0-7.5% previously. Other restructuring costs for this year include the severance payment program of €0.9 billion booked in Q2.

We forecast Moody's EBITA margin of 6.0% this year and 7.0% next compared with 6.8% in 2023 (or 7.9% when adjusted for negative hedge accounting effects). Headwinds to the margin development this year include muted volume growth as key model launches at Audi and Porsche have been delayed to the second half of this year, labor cost inflation, the rising share of less-profitable battery electric vehicles (BEV), price and mix pressure linked to tougher competition as well as high restructuring costs mentioned above. Lower raw material prices and continuous progress on the fixed cost structure should provide some margin protection. The margin improvement forecasted for next year is mainly driven by the release of new models in particular at Audi and Porsche and lower restructuring costs. We also expect Moody's-adjusted debt/EBITDA to remain below 2.0x within the next 12-18 months (1.7x at the end of March 2024), a level also appropriate for its A3 rating.

Exhibit 7
VW's profitability will come down this year driven by muted volume and high restructuring costs
EBITA margins (Moody's adjusted)



Including at equity contribution of Chinese JVs.
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. LTM = 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

IPO of Porsche led to substantial cash proceeds, but has made governance more complicated

The IPO of VW's subsidiary Dr. Ing. h.c. F. Porsche AG (Porsche AG) at the end of September 2022 and the sale of a minority stake to Porsche Automobil Holding SE (Porsche Holding) have led to total proceeds of approximately €19.2 billion. Even after the payment of a special dividend of €9.6 billion in early 2023, the transaction has improved VW's financial flexibility, a credit positive. At the same time, credit negative factors are the increased organizational complexity of VW's governance, and the cash leakage within the group due to the new minority shareholders going forward, and the fact that there are now minority shareholders at the most profitable entity within the group. Moreover, Porsche's CEO was also appointed Volkswagen's CEO as of September 2022, which can lead to conflicts of interests between both roles. Our calculation of debt for the VW group does not include the debt that has been incurred at the Porsche Holding level (€7.0 billion, as of March 2024), but, at the same time, debt service at Porsche Holding will have to come primarily from dividend payments from both VW AG as well as Porsche AG.

Since 29 September 2022, Volkswagen's previously wholly owned subsidiary Porsche AG (Porsche) has been publicly listed at the Frankfurt stock exchange. Porsche has been fully embedded in the VW Group and is a technology leader in many categories that are later rolled out to the wider VW group. Porsche's shares are split into 50% ordinary shares and 50% preference shares. 24.2% of the preference shares are owned by free float investors, and 25% plus one share of the ordinary shares are now owned by Porsche Automobil Holding SE (Porsche Holding), Volkswagen's main shareholder.

Strong emphasis on electrification requires ongoing high investments but should help to protect the group's strong market position

Execution risk around the transition to electric vehicles continues to be significant. The global automotive industry remains at an early stage of a significant long-term transition to reduce carbon emissions by improving fuel efficiency and shifting to fully electric vehicles. Key risks for automakers, including VW, include a loss of market share, inability to earn adequate profits and returns on electric vehicles, as well as inability to manufacture vehicles due to potential constraints in the supply of critical materials. In our latest report, we forecast that the share of BEVs will approach about a third of global light vehicle sales in 2030 and around half by 2035, compared with only 12.5% in 2023.

VW has heavily invested into the transition including its in-house battery production capacity under its subsidiary “PowerCo”. Volkswagen has also accelerated the development and production of electric vehicles in recent years. Volkswagen's share of BEVs has increased sharply over the last four years, from less than 1% in 2019 (73,700 units), 2.5% in 2020, 5.1% in 2021, 6.9% in 2022 to 8.3% in 2023 (771,100 units). We believe that Volkswagen has a credible strategy to navigate the EV transition. EV adoption has recently lost momentum in all geographies. We still forecast sales of BEV to grow but at a slower rate than previously expected. VW expects its own BEV penetration to increase to 9-11% by 2024 and targets 50% by 2030 (with a higher share in Europe) fueled by the launch of new models.

Sourcing of batteries is key to Volkswagen's strategy. The group currently sources from large battery suppliers such as LG Chem, Ltd. (A3 negative), Samsung SDI, SKI (Baa3 negative) and CATL (A3 stable). In 2022, VW founded its subsidiary “PowerCo”, a battery supplier, which is bundling VW's global battery business across the entire value chain. PowerCo will develop sizeable own battery production and thus reduce VW's dependence on external battery supplies. However, ongoing high investments into R&D and capital spending will also weigh on Volkswagen's profit margins and cash flow generation. PowerCo should cover around 50% of the EV battery demand in 2030. Volkswagen has already announced three own plant developments in Salzgitter/Germany (40GWh), Valencia/Spain (40GWh, with 20GWh extension option) and in St. Thomas/Canada (up to 90GWh). In addition, one plant with up to 40 GWh production capacity will be developed in a JV with its partner Northvolt in Sweden. Moreover, the group aims to recycle up to 95% of raw materials. Volkswagen also plans to develop a network of 18,000 fast-charging points in Europe with its partners.

The group is planning significant investments into R&D and capital spending of €170 billion for the years 2025-29, equivalent to 12% of sales on average over the period and exceeds the company's investment target of around 9%, seen as a continuous baseline, given temporary additional investments into competitiveness (around 1%), EV batteries (around 1%) and other strategic topics. The sizeable investments illustrate Volkswagen's strong commitment to electrification and to reduce emissions of its fleet, which is subject to increasingly stricter environmental regulation (see our separate ESG section). The plan includes a front-loaded investment plan with investment ratio (R&D and capital expenditure) of peaking at 13.5-14.5% in 2024, gradually declining to below 11% by 2027.

Rivian transaction highlights strategic shift of software strategy

VW's ongoing high investment spending, including the 13.5-14.5% planned for 2024, indicate the need for substantial investment spending to implement the group's electrification and digitisation strategy, including high investments into software. VW's dedicated software subsidiary CARIAD was founded in 2020 and is pooling the group's software expertise to create a standardized operating system (VW.OS) for the group's vehicles. CARIAD, which employs 6,500 specialists, is responsible for the development of connectivity, infotainment, driver assistance and autonomous driving systems. The process to develop such software has slowed down recently given the high complexity of the task.

In June 2024, VW announced the intention to form a new partnership with the American automotive manufacturer Rivian that includes the creation of a 50/50 JV and an equity investment into Rivian. The JV will provide E/E architectures and software for electric vehicles of both partners. The JV will serve all VW brands in Western regions while XPeng will remain VW's E architecture development partner for the Chinese market. VW intends to invest up to $5 billion in Rivian and the new JV until 2026 based on certain milestones. VW's in-house software subsidiary CARIAD, founded in 2020, faced operational issues which caused delays of key model launches in particular at Audi and Porsche. CARIAD reported €2.4 billion and €2.1 billion operating losses in 2023 and 2022 respectively. Also subject to significant execution risks, the Rivian transaction is a positive in our view as it is an attempt to reduce software development costs and time to market of new models going forward. The $5 billion cash outflow expected during 2024-26 can be absorbed by VW's sizeable cash balance. VW indicated that it might finance part of the $5 billion investment by divestment of non-core assets.

Steady credit metrics, although somewhat weaker than those of its peers

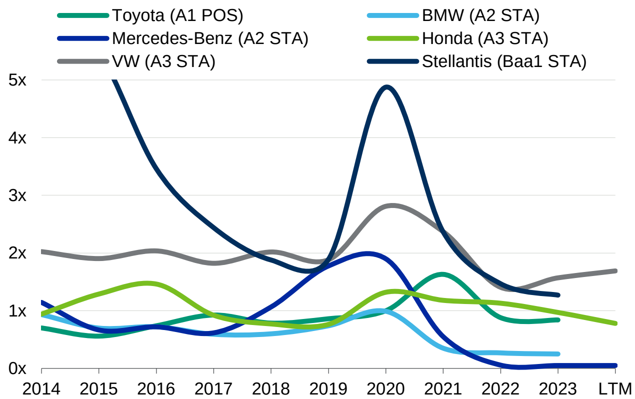
Since 2022, VW maintained an adjusted gross debt/EBITDA well below 2.0x (upper limit set for the A3) on the back of increased EBITDA and decreased pension deficit from €40.1 billion as of 2021 to €29.1 billion as of 2023 due to higher interest rates. The pension adjustment is the largest adjustment we make to Volkswagen's gross debt which amounts €46.1 billion in total.

During the pandemic, the substantially weakened volumes and operating profitability resulted in a spike at 2.8x debt/EBITDA (Moody's adjusted) in 2020. VW remains somewhat higher levered compared to its single-A rating peers.

Exhibit 8

Peer comparison

Moody's-adjusted gross debt/EBITDA

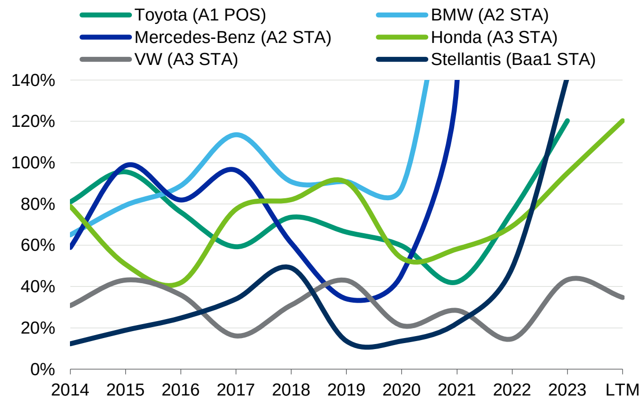


All figures and ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. Periods are financial year-end unless indicated. Toyota's and Honda's financial year ends on 31 March. LTM = Last 12 months. Honda's LTM is as of Dec-23, Mercedes-Benz's and VW's LTM is as of Mar-24. Stellantis' historical metrics until 2020 are based on FCA standalone.
Y-axis is capped at 5x.
Source: Moody's Financial Metrics™

Exhibit 9

Peer comparison

Moody's-adjusted retained cash flow/debt



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. Toyota's and Honda's financial year ends on 31 March. LTM = Last 12 months. Honda's LTM is as of Dec-23, Mercedes-Benz's and VW's LTM is as of Mar-24. Stellantis' historical metrics until 2020 are based on FCA standalone.
Y-axis is capped at 140%.
Source: Moody's Financial Metrics™

Free cash flow turned negative in 2022 to around -€8 billion due to the payment of €10 billion of special dividend as part of the Porsche IPO that we include according to our standard definition as outflow in our FCF calculation. Without this effect, Moody's-adjusted free cash flows amounted to around €2 billion in 2022, a level lower than 2021 mainly due to increase in capital expenditure by €4 billion to €22.5 billion in 2022. In 2023, VW's free cash flow (Moody's adjusted) reached €6.1 billion. We forecast free cash flow to turn negative this year driven by muted operating performance, peak in investment and working capital outflow.

Emissions issue-related cost consumed significant amounts of capital, but most of the payments have already been made

Despite the substantial provisions to settle the diesel issue (as Exhibit 5 shows) and the difficult market conditions, we positively note the solid operating performance of the Volkswagen Group over the last years (predominantly driven by the Porsche and Audi brands). However, we believe that the funds paid to resolve the diesel issue otherwise could have been used for investments in future products or to strengthen the company's credit metrics.

At this stage, most of the payments related to the diesel issue, totaling to cost of around €33 billion, were already made in 2016-20 (€28.8 billion). In 2021 and 2022, outflows amounted only to another €1 billion each. Lawsuits in many regions worldwide are still ongoing but given VW's sizeable liquidity position, we expect that remaining outflows for the diesel issue will remain manageable, assuming that the current level of provisions is sufficient. The balance sheet provisions to account for legal risks related to the diesel issue amounted to €0.9 billion in December 2023.

Exhibit 10
VW's remediation and litigation overview

Year	Amount
2015	Legal €7.0 billion Other items €9.2 billion
2016	Mainly legal risks €6.4 billion
2017	Buyback/retrofit program + legal €3.2 billion
2018	Legal €3.2 billion (includes a fine imposed by the public prosecutor in Braunschweig and Munich)
2019	€2.3 billion (includes a fine imposed by the Stuttgart Public Prosecutor on Porsche AG of €0.5 billion and further additions to reserves for legal risks)
2020	€0.9 billion additional legal cost
2021	€0.8 billion special items
2022	€0.4 billion special items
2023	no special items booked
Q1 2024	no special items booked
Total	**€33.4 billion**

Source: Company filings

Ability to offer attractive financing is a key component of VW's business model

VW's issuer rating incorporates our assessment of the company's captive finance operations because these operations represent an integral part of the group's business model as the availability of financing support is an important element in promoting product sales and maintaining its competitive position. Our approach is to analyse the finance business as a standalone entity and consider what capital or liquidity support may be necessary in a stress scenario, which is then considered in the context of VW's overall rating. In 2023, the Financial Services Division (including Volkswagen Financial Services as well as the financial services activities of Scania, Navistar and Porsche Holding Salzburg) had total assets of about €294 billion (49% of the broader group's assets) and an equity ratio of 14.8%, and generated an operating profit of €3.8 billion, down from €5.6 billion a year earlier driven by higher interest expenses and adverse effect from derivatives which had a positive effect in the previous year.

In its leasing business, Volkswagen is exposed directly to residual value risk worldwide. In addition, Volkswagen also bears indirect residual value risk through the health of its dealerships. However, the continued solid operating and asset-quality performance of Volkswagen's Financial Services division will reflect Volkswagen's success in maintaining stable or growing levels of demand for and pricing power of its automotive brands. In addition, so far, residual values have not suffered significantly from the diesel-related issues and the transition to electric vehicles.

ESG considerations

Volkswagen Aktiengesellschaft's ESG credit impact score is CIS-4

Exhibit 11
ESG credit impact score

CIS-4

ESG considerations have a discernible impact on the current rating, which is lower than it would have been if ESG risks did not exist. The negative impact of ESG considerations on the rating is higher than for an issuer scored CIS-3.

Source: Moody's Ratings

VW's **CIS-4** indicates that the rating is lower than it would have been if ESG risk exposures did not exist. We downgraded VW to A3 when the Diesel issue emerged in 2015. Since then, the company has spent more than €30 billion for litigation and compensation payments, which otherwise could have been invested into the business. The main ESG risks relate to carbon transition and the high costs to manage it, and to company's relatively weak governance, which are both constraints to the rating.

Exhibit 12
ESG issuer profile scores

Source: Moody's Ratings

Environmental

VW's **E-4** is driven by carbon transition, which is a high risk for the global auto sector in terms of stricter environmental regulation and the trend towards low and zero emission vehicles. VW has, however, taken mitigating actions by developing and successfully launching electrified vehicles (plug-in hybrids and battery electric vehicles) and investing sizeable amounts into future technologies. Since 2021, Volkswagen Group fleet CO2 emissions complied with EU targets but remained flat; further improvement needed by 2025 when EU regulation becomes stricter.

Social

VW's **S-4** is driven by high risks in three categories: Human capital risks incorporate the strong reliance on a highly skilled workforce and high strike risks, given the high degree of unionization of production workforce. Responsible production risks are also high, given the complexity of the global supply chain and very high requirements for vehicle product quality. The high risks in terms of Demographic & Societal Trends include the heightened environmental awareness among consumers and the risk that brand loyalty among younger consumers might gradually fall.

Governance

VW's **G-4** is driven by the highly complex group structure, with multiple stakeholders, including the family owners, the German State of Lower Saxony and workers unions, and the existence of minority shareholders in key businesses, like Porsche AG, TRATON SE and the JVs in China. The history of high management turnover within the group, including the early replacement of the CEO in September 2022, and the early replacement of the divisional CEO of Audi in June 2023, result in a weak management credibility and track record under Moody's ESG criteria, with the need to build credibility. We note that there was no management turnover since then, an improvement. These weaknesses are only partially mitigated by the company's conservative financial strategy and risk management.

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.

Carbon transition is Volkswagen's key environmental risk

We assess Volkswagen's environmental risks as high, in line with sector-wide risks of the automotive industry (see our environmental heat map). Environmental considerations are particularly relevant because these restrict the company's ability to reduce certain investments: Continued tightening of emissions standards and regulations across most major markets, because of environmental concerns, require investments into greater efficiency and electrification to maintain compliance and avoid fines or additional costs.

Volkswagen, like its competitors, faces stricter CO_2 emission targets set by the EU. Efforts to achieve these targets (as Exhibit 10 shows) and Volkswagen's aim of playing a leading role in the strategic areas for the future of connectivity, autonomous driving, mobility services and electric drive, as well as in the intelligent linking up of these areas, require substantial capital investments. We expect automotive manufacturers to continue to invest substantial amounts in R&D and capital spending to meet increasingly stringent hurdles imposed by CO_2 emissions regulations worldwide, as well as electrification expectations set by governments in the major automotive markets globally.

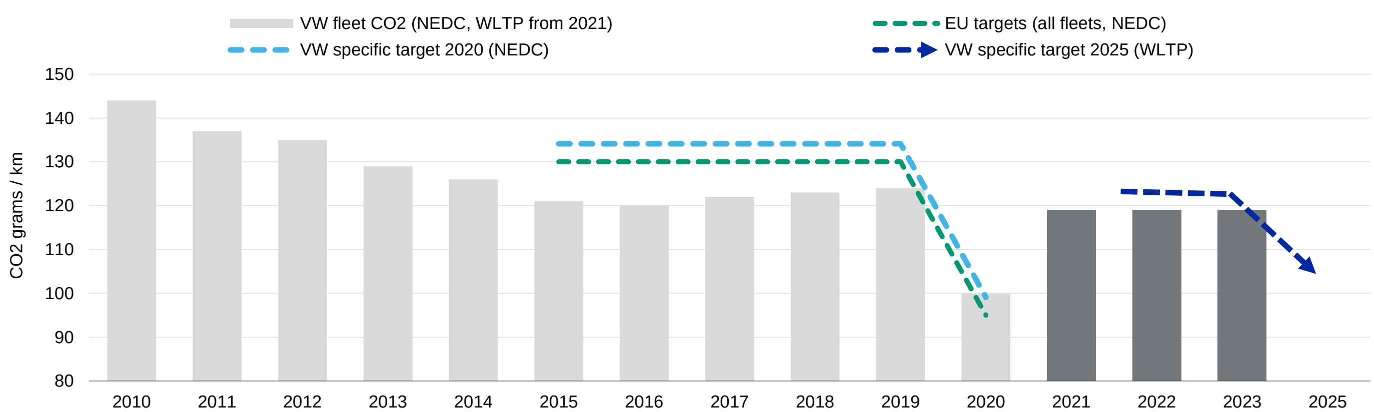
Committed to the Paris Agreement, Volkswagen wants to become a net carbon-neutral company by 2050. By 2030, the company wants to reduce the carbon footprint of its passenger cars and light commercial vehicles by 30% per vehicle compared with 2018 without any offset measures. Within its €170 billion five-year investment plan for capital spending and R&D, Volkswagen has allocated a significant amount into the development of BEVs.

Since the beginning of this decade, Volkswagen managed to reduce CO2 emissions of the group's new passenger car fleet in the EU. In 2020, when the EU limit was lowered to 95 gram (g) CO per kilometre (km), implying Volkswagen's company-specific target of 99g/km, the company managed to reduce its fleet emissions by as much as 20%, missing the stricter target by only 0.8g/km. This significant improvement was driven by substantially higher sales of electrified vehicles (battery electric vehicles and plug-in hybrids), and lower sales volumes of conventional combustion engines during the pandemic. In 2021, the calculation of CO2 emissions was changed from the old testing standard NEDC to the new standard WLTP. According to the WLTP standard, which typically leads to higher emissions, Volkswagen's emissions amounted to 119 g/km, and thus fully complied with the stricter regulatory maximum of 121 g/km. This was achieved due to various measures, including the continued launch of new electrified models (both, battery electric and plug-in electric vehicles), the launch of more efficient conventional models with internal combustion engines and the termination of production of older, inefficient models.

VW expects its own BEV penetration to increase to 9-11% by 2024 and to 50% by 2030 fueled by the launch of new models. VW reported an EU CO2 emission of 119g CO2/km last year, stable since 2021, versus a regulatory target of less than 122g. The EU regulatory target will be tighten as from 2025 (15% reduction versus 2021) meaning a CO2 target of less than 100g. Given the trend over the last three years, we believe that it will be difficult for VW to comply with the 2025 regulatory target without additional efforts to boost volume, for example in terms of discounts.

Exhibit 13

Volkswagen Group fleet CO_2 emissions complied with targets since 2021 but remained flat; further improvement needed for 2025



Sources: Company filings and Moody's Ratings

Liquidity analysis

In our theoretical scenario of no access to the capital markets for its manufacturing and financial services activities, Volkswagen had a coverage of more than 12 months of its corporate needs as of end March 2024. The group's liquidity position is supported by cash on balance sheet and short-term marketable securities (after a 20% haircut) of around €70 billion as of March 2024, as well as its cash flow generation in the next 12 months. We apply a 25% haircut on Porsche AG's cash & cash equivalents. In addition, VW has access to a significant amount of long-term committed credit facilities, totaling around €31.3 billion, out of which only €0.4 billion was drawn (as of December 2023).

Methodology and scorecard

For the ratings of VW, we have applied our Automobile Manufacturer Industry rating methodology. The scorecard-indicated outcome indicates Baa1, one notch below the actually assigned rating of A3 indicating a weak positioning of the rating.

Exhibit 14
Rating factors
Volkswagen Aktiengesellschaft

Auto Manufacturer Industry Scorecard	Current LTM Mar-24		Moody's 12-18 month forward view	
Factor 1 : Business Profile (40%)	**Measure**	**Score**	**Measure**	**Score**
a) Trend in Global Unit Share Over Three Years	Baa	Baa	Baa	Baa
b) Market Position and Product Breadth/Strength	A	A	A	A
Factor 2 : Profitability and Efficiency (20%)				
a) EBITA Margin	6.4%	Ba	6.0% - 7.0%	Ba
Factor 3 : Leverage and Coverage (30%)				
a) Debt / EBITDA	1.7x	A	1.3x - 1.5x	Aa
b) (Cash + Marketable Securities) / Debt	102.7%	A	85% - 95%	A
c) RCF / Debt	34.7%	Baa	40% - 45%	A
d) FCF / Debt	1.2%	B	-5% - 0%	Caa
e) EBITA / Interest Expense	6.2x	A	6.0x - 7.5x	A
Factor 4 : Financial Policy (10%)				
a) Financial Policy	A	A	A	A
Rating:				
a) Scorecard-Indicated Outcome		Baa1		Baa1
b) Actual Rating Assigned				(P)A3

All figures and ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. LTM = 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

Appendix

Exhibit 15

Peer comparison

Volkswagen Aktiengesellschaft

	Volkswagen Aktiengesellschaft (P)A3 Stable			Toyota Motor Corporation A1 Positive			Bayerische Motoren Werke Aktiengesellschaft (P)A2 Stable			Mercedes-Benz Group AG A2 Stable			Stellantis N.V. Baa1 Stable		
(in $ billions)	FY Dec-22	FY Dec-23	LTM Mar-24	FY Mar-21	FY Mar-22	FY Mar-23	FY Dec-21	FY Dec-22	FY Dec-23	FY Dec-22	FY Dec-23	LTM Mar-24	FY Dec-21	FY Dec-22	FY Dec-23
Revenue	244.9	290.0	287.9	236.8	259.3	254.7	116.2	133.6	146.5	129.7	136.8	135.2	176.8	189.3	205.0
Total Debt	47.9	50.9	52.1	44.4	29.7	28.5	5.6	5.0	5.3	1.3	1.2	1.1	50.4	37.9	39.4
Cash + Marketable Securities	59.7	56.2	53.5	63.8	52.1	48.1	19.3	18.1	18.2	21.4	21.0	22.4	58.6	54.2	55.8
EBITA Margin %	7.5%	6.8%	6.4%	9.3%	11.3%	10.4%	10.0%	10.0%	10.6%	14.5%	14.0%	13.2%	9.9%	10.9%	12.1%
EBITA / Interest Expense	6.1x	6.6x	6.2x	34.5x	48.4x	35.8x	72.2x	49.8x	68.4x	88.0x	200.1x	183.5x	13.2x	11.3x	12.5x
(Cash + Marketable Securities) / Debt	124.5%	110.4%	102.7%	143.7%	175.6%	168.9%	341.7%	359.8%	341.6%	1625.9%	1818.6%	1989.0%	116.3%	142.8%	141.6%
Debt / EBITDA	1.4x	1.6x	1.7x	1.6x	0.9x	0.8x	0.3x	0.3x	0.2x	0.1x	0.0x	0.1x	2.4x	1.5x	1.3x
FCF / Debt	-17.8%	13.4%	1.2%	10.2%	23.4%	29.1%	94.9%	-8.9%	-30.5%	232.7%	439.6%	492.0%	6.7%	21.9%	24.6%
RCF / Debt	14.7%	43.3%	34.7%	42.2%	76.2%	63.1%	203.3%	187.4%	229.1%	858.8%	917.0%	851.5%	22.2%	49.0%	56.2%

All figures and ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. LTM = Last 12 months.
Source: Moody's Financial Metrics™

Exhibit 16

Moody's-adjusted debt reconciliation

Volkswagen Aktiengesellschaft

(in € millions)	2019	2020	2021	2022	2023	LTM Mar-24
As reported debt	**10,280.0**	**12,831.0**	**14,402.0**	**10,918.0**	**9,409.0**	**11,518.0**
Pensions	38,195.4	44,853.0	40,750.0	26,916.0	29,122.0	29,122.0
Hybrid Securities	6,331.5	7,856.5	7,219.5	7,060.5	7,577.5	7,566.5
Non-Standard Adjustments	574.0	-	-	-	-	-
Moody's-adjusted debt	**55,380.9**	**65,540.5**	**62,371.5**	**44,894.5**	**46,108.5**	**48,206.5**

All figures and ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. LTM = Last 12 months.
Source: Moody's Financial Metrics™

Exhibit 17

Moody's-adjusted EBITDA reconciliation

Volkswagen Aktiengesellschaft

(in € millions)	2019	2020	2021	2022	2023	LTM Mar-24
As reported EBITDA	**33,613.0**	**28,957.0**	**34,495.0**	**38,973.0**	**40,738.0**	**40,203.0**
Pensions	(23.0)	(91.0)	(2.0)	22.0	(14.0)	(14.0)
Capital Development Costs	(5,171.0)	(6,473.0)	(7,836.0)	(9,723.0)	(11,142.0)	(11,417.0)
Interest Expense - Discounting	(238.0)	-	-	-	(304.0)	(304.0)
Unusual Items	1,237.0	900.0	(20.0)	2,676.0	-	-
Moody's-adjusted EBITDA	**29,418.0**	**23,293.0**	**26,637.0**	**31,948.0**	**29,278.0**	**28,468.0**

All figures and ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. LTM = Last 12 months.
Source: Moody's Financial Metrics™

Exhibit 18

Overview on selected historical Moody's-adjusted financial data

Volkswagen Aktiengesellschaft

(in € millions)	2019	2020	2021	2022	2023	LTM Mar-24
INCOME STATEMENT						
Revenue	212,473	182,106	206,237	232,392	268,156	265,418
EBIT	16,914	10,009	13,246	16,152	16,669	15,640
EBITA	17,228	10,966	14,221	17,412	18,109	17,080
EBITDA	29,050	23,293	26,637	31,948	29,278	28,468
BALANCE SHEET						
Cash & Cash Equivalents	33,225	41,725	43,165	55,901	50,909	49,523
Total Debt	55,381	65,541	62,372	44,895	46,109	48,207
CASH FLOW						
Capital Expenditures	(15,017)	(12,165)	(11,749)	(13,801)	(15,054)	(15,304)
Dividends	1,295	2,954	3,324	13,863	4,706	4,706
Retained Cash Flow (RCF)	23,795	13,817	17,997	6,590	19,948	16,735
RCF / Debt	43.0%	21.1%	28.9%	14.7%	43.3%	34.7%
Free Cash Flow (FCF)	8,821	2,893	9,205	(7,978)	6,164	591
FCF / Debt	15.9%	4.4%	14.8%	-17.8%	13.4%	1.2%
PROFITABILITY						
% Change in Sales (YoY)	5.7%	-14.3%	13.3%	12.7%	15.4%	8.5%
SG&A % of Sales	12.8%	13.4%	12.6%	11.3%	11.3%	11.6%
EBIT Margin %	8.0%	5.5%	6.4%	7.0%	6.2%	5.9%
EBITA Margin %	8.1%	6.0%	6.9%	7.5%	6.8%	6.4%
EBITDA margin %	13.7%	12.8%	12.9%	13.7%	10.9%	10.7%
INTEREST COVERAGE						
EBIT / Interest Expense	9.8x	6.5x	8.6x	5.6x	6.1x	5.6x
EBITA / Interest Expense	10.0x	7.1x	9.2x	6.1x	6.6x	6.2x
EBITDA / Interest Expense	16.9x	15.1x	17.3x	11.1x	10.7x	10.3x
(EBITDA - CAPEX) / Interest Expense	8.2x	7.2x	9.7x	6.3x	5.2x	4.7x
LEVERAGE						
Debt / EBITDA	1.9x	2.8x	2.3x	1.4x	1.6x	1.7x
Debt / (EBITDA - CAPEX)	3.9x	5.9x	4.2x	2.5x	3.2x	3.7x
LIQUIDITY						
(Cash + Marketable Securities) / Debt	60.0%	63.7%	69.2%	124.5%	110.4%	102.7%

All figures and ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. LTM = Last 12 months.
Source: Moody's Financial Metrics™

Ratings

Exhibit 19

Category	Moody's Rating
VOLKSWAGEN AKTIENGESELLSCHAFT	
Outlook	Stable
Issuer Rating	A3
Sr Unsec Bank Credit Facility -Dom Curr	A3
Senior Unsecured MTN -Dom Curr	(P)A3
Commercial Paper -Dom Curr	P-2
VOLKSWAGEN GROUP OF AMERICA FINANCE, LLC	
Outlook	Stable
Bkd Senior Unsecured	A3
Bkd Commercial Paper	P-2
VOLKSWAGEN FINAN. SERVICES AUSTRALIA PTY LTD	
Outlook	Stable
Bkd Senior Unsecured -Dom Curr	A3
Bkd Other Short Term -Dom Curr	(P)P-2
VOLKSWAGEN INTERNATIONAL FINANCE N.V.	
Outlook	Stable
Bkd Senior Unsecured	A3
Bkd Jr Subordinate -Dom Curr	Baa2
Bkd Commercial Paper -Dom Curr	P-2
Bkd Other Short Term -Dom Curr	(P)P-2
VOLKSWAGEN FINANCIAL SERVICES JAPAN LTD.	
Outlook	Stable
Bkd Senior Unsecured -Dom Curr	A3
Bkd Commercial Paper -Dom Curr	P-2
VOLKSWAGEN FINANCIAL SERVICES N.V.	
Outlook	Stable
Bkd Senior Unsecured	A3
Bkd Commercial Paper -Dom Curr	P-2
VW CREDIT, INC.	
Outlook	Stable
Bkd Commercial Paper	P-2
Bkd Other Short Term	(P)P-2
VOLKSWAGEN LEASING GMBH	
Outlook	Stable
Bkd Sr Unsec MTN -Dom Curr	(P)A1
Bkd Commercial Paper -Dom Curr	P-1
Bkd Other Short Term -Dom Curr	(P)P-1
VW CREDIT CANADA, INC.	
Outlook	Stable
Bkd Senior Unsecured -Dom Curr	A3
Bkd Commercial Paper -Dom Curr	P-2
Bkd Other Short Term	(P)P-2
VOLKSWAGEN FINANCIAL SERVICES OVERSEAS AG	
Outlook	Stable
Issuer Rating	A3
Commercial Paper -Dom Curr	P-2
VOLKSWAGEN BANK GMBH	
Outlook	Stable
Bank Deposits	A1/P-1
Issuer Rating	A1
Commercial Paper -Dom Curr	P-1
TRATON FINANCE LUXEMBOURG S.A.	
Outlook	Positive
Bkd Senior Unsecured	Baa2
VOLKSWAGEN FINANCIAL SERVICES AG	

Outlook	Stable
Issuer Rating	A3
Senior Unsecured -Dom Curr	A3
Commercial Paper -Dom Curr	P-2
PORSCHE HOLDING GESELLSCHAFT M.B.H.	
Outlook	No Outlook
Bkd Commercial Paper -Dom Curr	P-2
SKOFIN S.R.O.	
Outlook	No Outlook
Bkd Commercial Paper -Dom Curr	P-2
VOLKSWAGEN INTERNATIONAL LUXEMBURG S.A	
Outlook	No Outlook
Bkd Commercial Paper -Dom Curr	P-2
TRATON SE	
Outlook	Positive
Issuer Rating	Baa2
Senior Unsecured MTN	(P)Baa2
ST Issuer Rating	P-2
VOLKSWAGEN INTERNATIONAL BELGIUM S.A.	
Outlook	No Outlook
Commercial Paper -Dom Curr	P-2
VOLKSWAGEN GROUP CANADA, INC.	
Outlook	No Outlook
Bkd Commercial Paper -Dom Curr	P-2
VOLKSWAGEN GROUP OF AMERICA, INC.	
Outlook	No Outlook
Bkd Commercial Paper	P-2

Source: Moody's Ratings

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CLIENT SERVICES

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