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CREDIT OPINION
29 September 2023

Update

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RATINGS

ZF Friedrichshafen AG

Domicile	Friedrichshafen, Germany
Long Term Rating	Ba1
Type	LT Corporate Family Ratings
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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ZF Friedrichshafen AG

Update to credit analysis

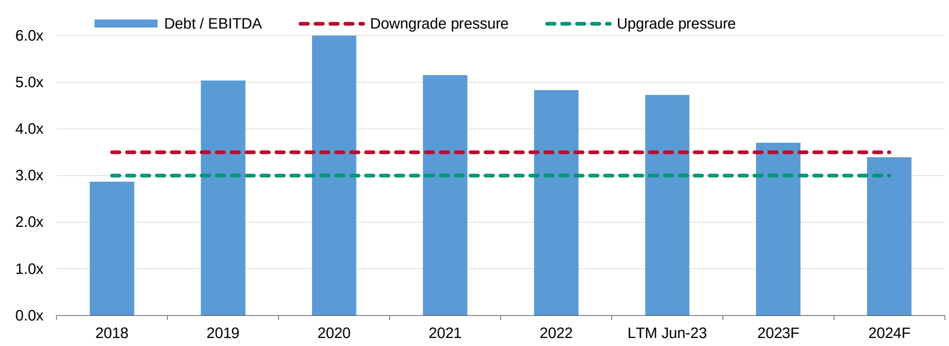
Summary

ZF Friedrichshafen AG's (ZF) Ba1 ratings with a stable outlook reflect the company's leading market position as one of the largest tier 1 global automotive suppliers, combined with its sizeable industry-facing operations, and regional and customer diversification; clear focus on innovation and new product development; positive strategic alignment to address the disruptive trends of automotive electrification and autonomous driving; relatively conservative financial policy, reflected in its moderate dividend payments, which emphasises debt reduction and cash flow generation; and good liquidity.

However, ZF's ratings also reflect the company's still high leverage, with debt/EBITDA (Moody's adjusted) of 4.7x as of the 12 months that ended June 2023; its modest operating profitability, with an EBITA margin of 4.4% as of the 12 months that ended June 2023, although broadly in line with the industry average; ZF's continued high capital and R&D spending, reflecting the group's focus on innovation; and the exposure to the global automotive industry, which is cyclical and highly competitive.

Exhibit 1

ZF's leverage is likely to further decrease, driven by profitability recovery and debt repayments
Gross debt/EBITDA (Moody's-adjusted)



Note: y-axis capped at 6.0x, 2020 actual was 11.4x
Source: Moody's Investors Service

Credit strengths

» Leading market position as one of the largest tier 1 global automotive suppliers

» ZF's favourable positioning, given the disruptive trends, such as alternative fuels or autonomous driving, affecting the auto sector

» Substantial free cash flow (FCF), leading to decreasing leverage in a healthy sector environment

Credit challenges

» Uncertain consumer sentiment in an environment of slowing economic growth and persistent cost inflation

» Exposure to cyclicality of the automotive industry

» Modest operating profitability

» Leverage reduction following the debt-funded acquisition of Wabco in 2020

» Ownership structure, which prevents ZF from accessing equity markets if needed

Rating outlook

The stable outlook reflects Moody's expectations that ZF will return to metrics in line with the Ba1 rating category such as Moody's-adjusted Debt / EBITDA below 3.5x and EBITA margin above 5.0% in the next 12-18 months on the back of operational improvements and further debt reduction supported by assets sales if necessary. We expect cash flow generation to remain robust, evidenced in RCF/ Net debt metrics above 15%. Moody's expects ZF to continue their strong liquidity management and conservative financial policy.

Factors that could lead to an upgrade

An upgrade to Baa3 would be conditional to ZF achieving the following metrics (Moody's adjusted):

» an improvement in its EBITA margin to above 7%,

» a reduction in its leverage, as reflected by debt/EBITDA moving towards 3.0x,

» retained cash flow (RCF)/net debt above 25% on a sustained basis, and

» FCF above €500 million a year.

Factors that could lead to a downgrade

ZF's ratings might be downgraded if:

» EBITA margin remains below 5%,

» debt/EBITDA is above 3.5x on a sustained basis,

» retained cash flow (RCF)/net debt is below mid teen percentage level or

» FCF is less than €500 million a year.

Key indicators

Exhibit 2

Key Indicators for ZF Friedrichshafen AG[1][2][3]

	Dec-18	Dec-19	Dec-20	Dec-21	Dec-22	LTM Jun-23	2023F	2024F
Revenue (EUR million)	36,929	36,518	32,611	38,313	43,801	45,872	46,408	47,475
EBITA Margin %	5.3%	4.0%	0.7%	5.1%	4.0%	4.4%	5.2%	5.4%
Debt / EBITDA	2.9x	5.0x	11.4x	5.2x	4.8x	4.7x	3.7x	3.4x
EBITA / Interest Expense	4.3x	3.4x	0.4x	3.3x	2.6x	2.8x	3.2x	3.4x
RCF / Net Debt	28.3%	22.7%	8.8%	18.3%	17.5%	17.8%	25.7%	27.8%

[1] All figures and ratios are calculated using Moody's estimates and standard adjustments.
[2]Periods are Financial Year-End unless indicated. LTM = Last Twelve Months.
[3] Moody's Forecasts (f) or Projections (proj.) are Moody's opinion and do not represent the views of the issuer.
Source: Moody's Investors Service

Profile

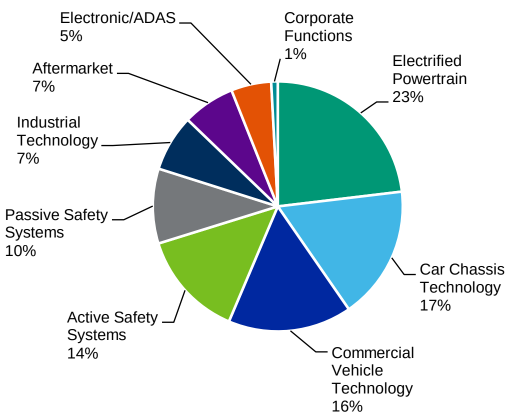
ZF Friedrichshafen AG (ZF), headquartered in Friedrichshafen, Germany, is a leading global automotive technology company specialised in driveline and chassis technology, and active and passive safety technology. The company generates most of its revenue from the passenger car and commercial vehicle industries but delivers to other markets as well, including the construction, wind-power and agricultural machinery sector. ZF is one of the largest automotive suppliers on a global scale, with revenue of €46 billion as of the 12 months that ended June 2023, similar in size to Robert Bosch GmbH, Denso Corporation (A2 stable) and Magna International Inc. (A3 stable). ZF, which is owned by two foundations, employs more than 165,000 people and is represented at about 168 production locations in 32 countries and 19 development locations in 9 countries.

ZF is geographically well diversified. Europe is the most important region, followed by North America, its second largest region. A material share of revenues stems from the Asia Pacific region (including China), while the revenue shares of South America and Africa are negligible.

Exhibit 3

ZF's high degree of product diversification

Mix of revenues (2022)

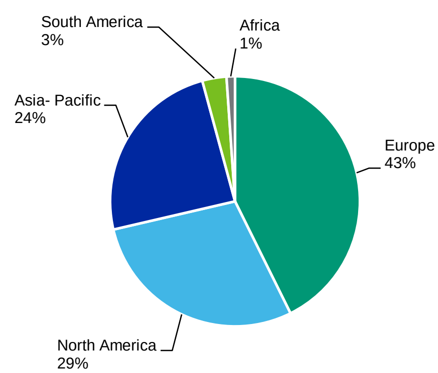


External revenue, excluding corporate functions and consolidation effects.
Sources: Company information, Moody's calculation

Exhibit 4

ZF's geographical diversification

Mix of revenues (LTM June 2023)

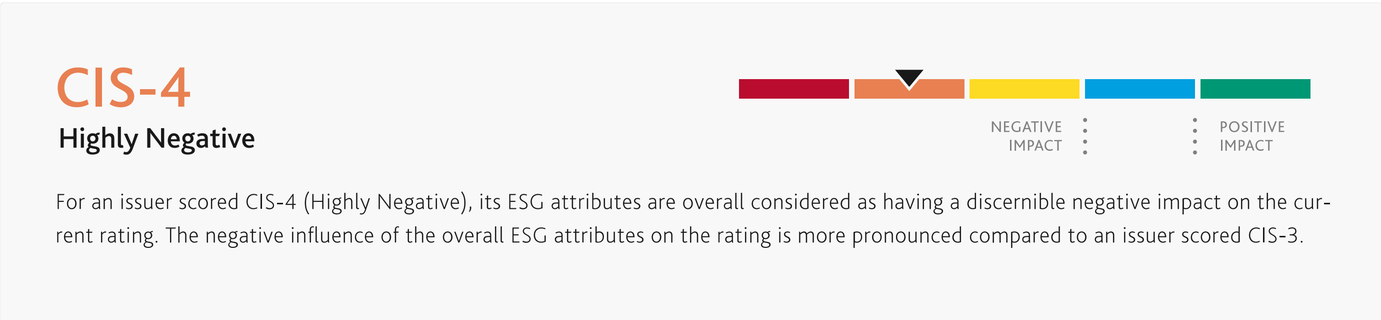


Sources: Company information, Moody's calculation

ESG considerations

ZF Friedrichshafen AG's ESG Credit Impact Score is Highly Negative CIS-4

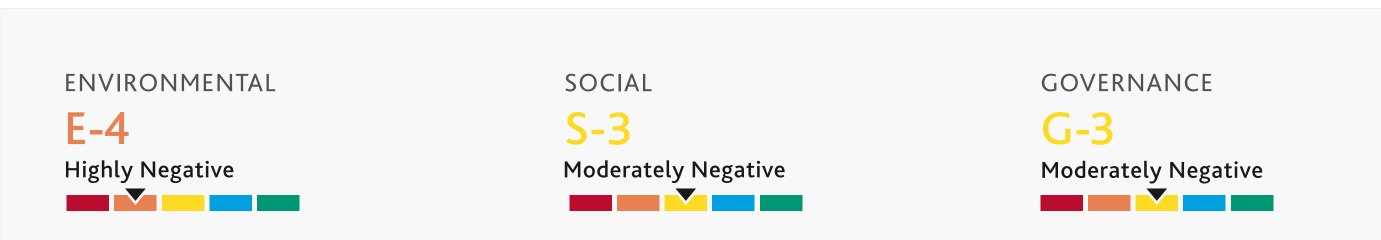
Exhibit 5
ESG Credit Impact Score



Source: Moody's Investors Service

ZF's **CIS-4** indicates the rating is lower than it would have been if ESG risk exposures did not exist. Environmental risks are high, especially in the context of electrification of passenger cars and commercial vehicles. Moderate levels of Social and Governance risks are also negatively reflected in the rating.

Exhibit 6
ESG Issuer Profile Scores



Source: Moody's Investors Service

Environmental

ZF's **E-4** is driven by high carbon transition risks within its own product portfolio and, more generally, at the level of its OEM customers. Some of ZF's products, especially in terms of gear boxes, are negatively exposed to stricter regulation of CO2 emissions of passenger cars and commercial vehicles and the trend towards electrification. This results in lower demand and profit margins for existing products.

Social

ZF's **S-3** reflects social risks, which are similar to other automotive parts suppliers. Main risks arise from ZF's need to meet the safety and quality requirements of its original equipment manufacturer (OEM) customers, requiring high standards in terms of responsible production. The company has a very diverse global manufacturing network which mitigates issues related to retaining skilled labor and potential localized union disputes, which are the key human capital risks. There are moderate level of risks related to upkeep employee safety and thereby resources required to provide protection to its factory workforce.

Governance

ZF's **G-3** is mainly driven by the company's ownership structure: The company is owned by two foundations, which is a positive from a governance perspective, because it guarantees the company's independence. However, a negative aspect is the lack of access to equity capital markets. In October 2017, ZF's shareholders implemented a dividend policy, which is now based on a payout ratio of 18% on net profit. ZF has a relatively conservative financial policy, including maintenance of good liquidity and the objective to achieve an investment grade rating. Given the strategic importance of the Wabco acquisition for ZF's product portfolio, the company has, however, temporarily compromised this rating objective. The ownership structure also leads to less detailed and less frequent financial reporting compared to publicly listed companies.

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.

Detailed credit considerations

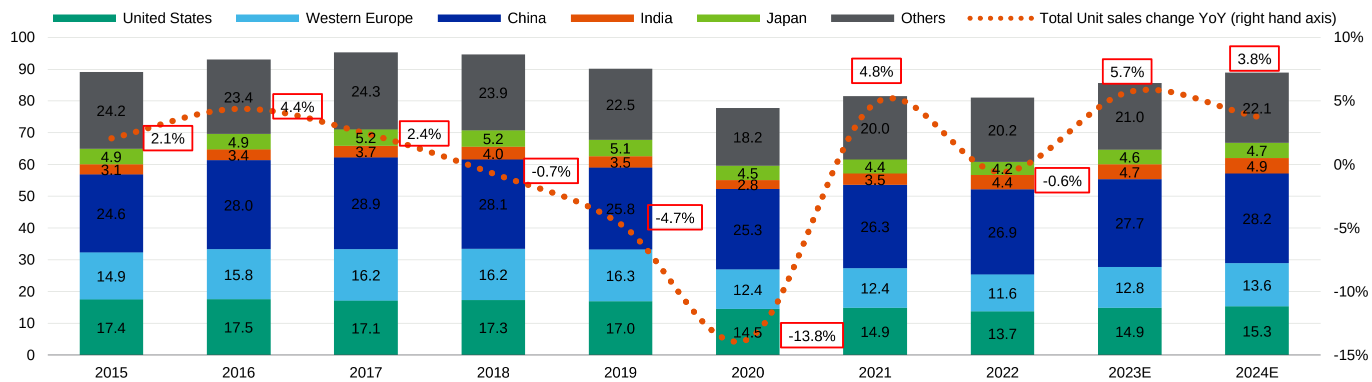
Cyclicality of automotive production a key driver of credit risk

ZF, like most global auto suppliers, has a strong reliance on the production rates of light vehicles by OEMs and thus is exposed to the high 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 5% to around 90 million units, driven mainly by an 8% decline in China. Global light vehicle sales plummeted 14% in 2020 because of the pandemic and recovered by only around 5% in 2021, as production was constrained by a global shortage of semiconductors. In 2022, global sales declined again by less than 1%, driven by soft demand in US and Europe in the context of elevated inflations and uncertain consumer sentiments, while partially compensated by APAC, namely China and India.

Exhibit 7

Recovery of global auto market in 2023 and 2024

Global light vehicle sales



European Automobile Manufacturers' Association (ACEA), China Association of Automobile Manufacturers (CAAM), LMC Automotive, Korean Ministry of Trade, Industry and Energy and
Source: Moody's estimates: see Moody's global automotive sector outlook, published 14 June 2022

Moody's forecasts 2.5% G-20 real GDP growth for 2023 and 2.1% for 2024, suffering from central banks' restrictive policy and China's growth challenges (see Global Macro Outlook 2023-24 [August 2023 update]). For the auto sector, although Moody's forecasts higher growth in 2023 and 2024 as supply chain issues are easing, unit sales will still remain well below the pre-pandemic level, see our Global Automotive Industry Outlook, published in June 2023).

We expect ZF to outperform the market (measured by global light vehicle sales), reflecting its strong positioning in active and passive safety systems, and powertrain technology. Additionally, the company's industrial and commercial vehicle technologies, and aftermarket business mitigate somewhat the cyclicality in the auto OEM market.

Ability to generate substantial FCF and reduce leverage depends on a positive sector environment

ZF's credit metrics have improved but leverage is still outside of the range commensurate with the Ba1 rating, following the debt-funded acquisition of Wabco in Q2 2020 and the ongoing weak volumes in the global automotive industry. In the next 12-18 month, alongside the gradual pick-up of global light vehicle sales, as well as ZF's ongoing execution of strategies, we expect ZF to further improve credit metrics and further reduce its leverage towards 3.5x.

ZF has historically demonstrated its deleveraging capabilities in a favorable market environment. Following the debt-funded acquisition of TRW in 2015, as global light vehicle sales increased, ZF managed to reduce its Moody's-adjusted gross debt/EBITDA to around 2.6x in 2017 from around 4.1x in 2015. The reduction was driven by ZF's ability to generate substantial positive FCF (€1.5 billion in 2016 and €1.3 billion in 2017), complemented by moderate dividend payments. Since 2018, when global light vehicle sales started to decline, ZF's FCF has deteriorated but has remained positive even in the difficult 2020 (€0.3 billion on average between 2018-2021) thanks to measures taken including some reduction of capex and skipped dividend payments in 2021.

In 2022, ZF's revenue recorded another strong growth by 14.3% (9.3% excluding FX effects), following the 17.5% increase in 2021 which had brought top line back above the pre-pandemic level already. In H1 2023, the momentum continued as sales were fueled by easing supply chain conditions, and boosted another 10% y-o-y organic growth. Additionally, the strong results in 2022 and H1 2023 were also driven by ZF's outperformance versus the market, and the acceleration of electronics and E-mobility products.

In 2022, cost inflation was compressing margins, alongside supply chain issues and other factors reducing Moody's adjusted EBITA from 5.1% in 2021 to 4.0% in 2022. On top of that, ZF also increased capex investments and upfront payments, and as a result Moody's adjusted FCF turned negative in 2022 and continued to remain negative during the seasonally weak H1 2023.

As supply chain issues are resolving, and higher cost are increasingly passed on to OEM customers, we expect ZF to continue its growth momentum and improve its margins in the second half of 2023, notwithstanding continued salary inflation. For the full year, we expect Moody's EBITA margin above 5% and a positive FCF, allowing for some debt reduction. We also expect ZF's capital spending to remain high, given the company's innovation requirement and the outsourcing trend by auto manufacturers. Because of ZF's limited ability to access equity markets, a conservative dividend payout is necessary to maintain a sufficient equity buffer in the current cyclical downturn and the ongoing investments in new technologies.

We expect debt/EBITDA to decrease towards 3.5x at the end of 2023, and improve further in 2024, driven by profitability improvement as well as positive free cash flow generation and assets disposals supporting gross debt reduction.

ZF's favourable positioning, given the disruptive trends affecting the auto sector

ZF has positive exposure to the two main disruptive trends affecting the automotive sector: electrification and rollout of alternative fuel vehicles; and advanced driving assistance (ADAS) and fully autonomous driving in both, passenger cars and commercial vehicles.

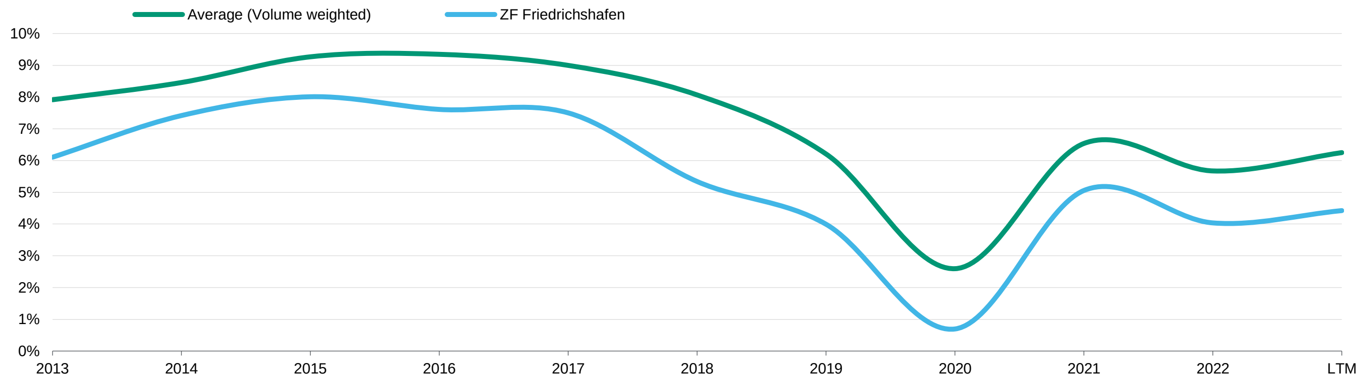
The growing adoption of alternative fuel vehicles with hybrid or all-electric powertrains reflects a combination of tougher carbon emissions regulations applied to automotive OEMs and the falling cost of key technologies, most notably batteries. ZF, along with Valeo S.E. (Baa3 negative), Continental AG (Continental, Baa2 stable) and GKN Holdings (Ba1 stable), stands to benefit from electrification for two key reasons. Firstly, the internal combustion engine is one of the few parts within a car that is not subject to outsourcing. Although some OEMs may opt to manufacture the key equipment themselves, powertrain-focused suppliers such as ZF will play a much bigger role in the future. Secondly, the integration of hybridisation equipment with the transmission system (including the control units) will be critical in optimising the powertrain. Therefore, ZF is well positioned because of its long pedigree in transmission systems. Arguably, ZF is able to accommodate all technology pathways for hybrids and fully electric vehicles, depending on the requirements of its OEM customers. For mild hybrids, the group offers a modular motor unit, which connects the engine and gearbox. For full hybrids, ZF integrates a high-powered motor into its standard 8-speed automatic gearbox. Finally, for fully electric vehicles, the group manufactures axle drives, with the motor integrated directly into the axle.

ZF also has access to a number of key technologies, which will likely underpin the transition to fully autonomous driving. The time horizon for this development is somewhat longer than that for fully electric vehicles. Nevertheless, the trend has already started, with new executive saloons having increased the number of sensors and driver assistance functions than was previously the case. This provides an opportunity for suppliers such as ZF. In terms of these technologies, ZF has an emerging product portfolio, which includes front-facing cameras and a 77-gigahertz radar, both of which will likely be employed on autonomous vehicles. In addition, ZF (along with many other auto suppliers) is forming partnerships to address gaps in its product portfolio. In June 2017, the group announced new strategic relationships with HELLA GmbH & Co. KGaA (Hella, Baa3 stable), which will contribute its expertise in software solutions, and NVIDIA Corporation (A1 stable), a semiconductor manufacturer and provider of artificial intelligence technologies.

Modest operating profitability

ZF's EBITA margin eroded since a peak in 2015-17, when global automotive production was historically high. The company's margin is still below the average of EMEA-based auto suppliers. ZF's peers, such as Hella or Continental, which had to cope with the same industrial environment, were able to generate stronger margins during the period. To some extent, this is a result of ZF's product mix, which comprises products with very high technological content and high profitability, especially in its commercial vehicles segment, and products with lower market entry barriers such as axle systems. Margins in these segments are also rather low because of the high outsourcing of production, which, however, would provide for a rather high return on the capital employed. As of the 12 months that ended June 2023, ZF's Moody's-adjusted EBITA margin improved to 4.4%, exceeding pre-pandemic levels of 2019.

Exhibit 8
ZF's EBITA margin has historically been below the EMEA automotive supplier sector average



EBITA margin reflects Moody's adjustments. Average numbers relate to those of similar companies we rate.
For issuers whose financials as of the 12 months that ended June 2023 were unavailable, those as of the 12 months that ended March 2023 or December 2022 were taken into consideration.
Source: Moody's Financial Metrics™

Despite the pandemic, ZF managed to generate a positive EBITA margin of 0.5% in 2020, following a negative margin of 5.7% in H1 2020. ZF generated a 4.4% EBITA margin as of the 12 months that ended June 2023, despite the still high cost inflation. ZF confirmed their guidance for 2023 (4.7%-5.2% company-adjusted EBIT margin). We expect the company to manage to gradually recover its margins above 5% in 2023, supported by positive pricing and cost effects in the second half, notwithstanding continued salary inflation. In light of ZF's history of high R&D spending, around 7% historically (6.4% in 2022), we recognise the company's above-sector-average flexibility to manage its cost base.

Acquisition of Wabco strengthend ZF's business profile but increased leverage

In May 2020, ZF closed the acquisition of automotive supplier Wabco for $7.0 billion in cash, leading to an enterprise value of $8.5 billion or €7.4 billion. Wabco is a global automotive supplier in the areas of advanced driver assistance, braking, stability control, suspension, transmission automation and aerodynamics for trucks, buses, trailers, cars and off-highway vehicles. Wabco generated sales of $3.8 billion in 2018.

The acquisition of Wabco strengthened ZF's business profile as a leading global automotive supplier, added around 10% to the company's revenue, and strengthened its product portfolio in the area of autonomous driving systems, where brake systems form an essential part. However, the acquisition was fully debt funded and increased ZF's financial debt accordingly. We note that ZF reduced its leverage very quickly after its last major acquisition of TRW in 2015 from more than 4x in 2015 to 2.6x as of year-end 2017, supported by its high FCF, asset disposals and commitment to debt reduction. The deleveraging post the Wabco acquisition was delayed by the corona crisis, however we expect similar actions from ZF to delever in a normalized market environment.

The current challenges of the softening macroeconomic environment and consumer sentiment especially in Europe together with further cost inflation driven by increased energy prices or potential gas disruptions might delay ZF's deleveraging. However, we expect ZF to be resilient also in a more challenging environment due to ZF's exposure to new technologies, their diversified production footprint together with the ability to protect free cash flow generation and liquidity.

Liquidity analysis

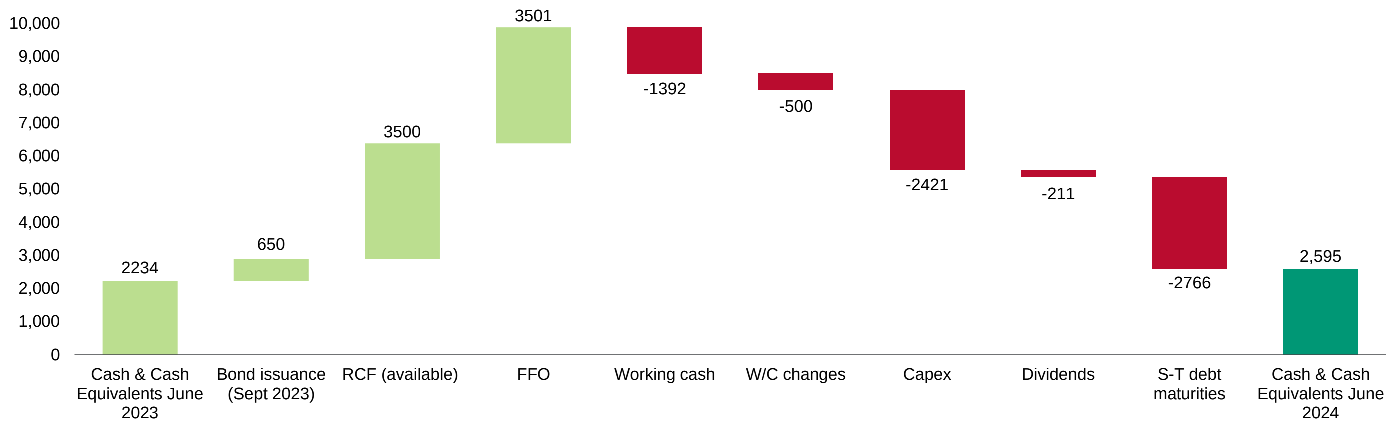
ZF has good liquidity over the next 12 months. As of 30 June 2023, the company had €2.2 billion in cash and cash equivalents, and €3.5 billion available under its revolving credit facility agreements due 2028. In September, the company also issued €650 million senior unsecured notes. We expect ZF to generate FFO of around €3.5 billion over the next 12 months, which will bring its total liquidity sources to nearly €10 billion.

This expected liquidity will be sufficient to cover cash uses of around €7.3 billion, comprising short-term debt maturities of €2.8 billion; estimated capital spending of €2.4 billion; an estimated dividends (including minorities) of around €200 million; and working cash needs of €1.4 billion.

Exhibit 9

ZF's liquidity is good

Development of liquidity over the next four quarters to June 2024 (in EURm)



Source: Company data, Moody's estimates

Structural considerations

The Ba1 ratings of ZF's senior unsecured notes is in line with the corporate family rating. Most of the group's industrial financial debt (around €14 billion as of June 2023, including the bonds and the bank facilities) and the committed credit lines are sitting at the parent company level or at financing subsidiaries, which are guaranteed by ZF. There is some structural subordination compared with liabilities sitting at the operating subsidiaries. These are, however, predominantly operating liabilities in the form of trade payables (€6.8 billion).

Methodology and scorecard

The principal methodology used to arrive at ZF's ratings is our global Automotive Suppliers rating methodology, published in May 2021. The scorecard-indicated outcome based on a 12-18-month forward-looking view is Baa3, one notch above the actual assigned rating. The difference is explained by the relatively low scores for margins and leverage, which are the main constraining factors to the rating.

Exhibit 10
Rating Factors
ZF Friedrichshafen AG

Automotive Supplier Industry Scorecard [1][2]	Current LTM 6/30/2023		Moody's 12-18 Month Forward View As of 9/28/2023 [3]	
Factor 1 : Scale (10%)	**Measure**	**Score**	**Measure**	**Score**
a) Revenue (USD Billion)	$48.0	Aa	$49 - $50	Aa
Factor 2 : Business Profile (15%)				
a) Business Profile	A	A	A	A
Factor 3 : Profitability and Efficiency (25%)				
a) EBITA Margin	4.4%	Caa	5.2% - 5.4%	B
b) Expected Free Cash Flow Stability	Baa	Baa	Baa	Baa
Factor 4 : Leverage and Coverage (30%)				
a) Debt / EBITDA	4.7x	B	3.4x - 3.7x	B
b) EBITA / Interest Expense	2.8x	B	3.2x - 3.4x	Ba
c) Retained Cash Flow / Net Debt	17.8%	Ba	25% - 30%	Baa
Factor 5 : Financial Policy (20%)				
a) Financial Policy	Baa	Baa	Baa	Baa
Rating:				
a) Scorecard-Indicated Outcome		Ba1		Baa3
b) Actual Rating Assigned				Ba1

(1) All ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
(2) As of 6/30/2023.
(3) This represents Moody's forward view; not the view of the issuer, unless noted in the text, does not incorporate significant acquisitions or divestitures.
Source: Moody's Financial Metrics™

Ratings

Exhibit 11

Category	Moody's Rating
ZF FRIEDRICHSHAFEN AG	
Outlook	Stable
Corporate Family Rating	Ba1
Sr Unsec Bank Credit Facility -Dom Curr	Ba1/LGD4
Senior Unsecured MTN -Dom Curr	(P)Ba1
ZF FINANCE GMBH	
Outlook	Stable
Bkd Senior Unsecured -Dom Curr	Ba1/LGD4
ZF EUROPE FINANCE B.V.	
Outlook	Stable
Bkd Senior Unsecured -Dom Curr	Ba1/LGD4
TRW AUTOMOTIVE INC.	
Outlook	Stable
Bkd Senior Unsecured	Ba1/LGD4

Source: Moody's Investors Service

Appendix

Exhibit 12
Peer comparison

	ZF Friedrichshafen AG Ba1 Stable			Continental AG Baa2 Stable			Lear Corporation Baa2 Stable			Schaeffler AG Baa3 Stable			Valeo S.E. Baa3 Negative		
(in USD million)	FYE Dec-21	FYE Dec-22	LTM Jun-23	FYE Dec-21	FYE Dec-22	LTM Jun-23	FYE Dec-21	FYE Dec-22	LTM Jun-23	FYE Dec-21	FYE Dec-22	LTM Jun-23	FYE Dec-21	FYE Dec-22	LTM Jun-23
Revenue	45,330	46,163	48,038	39,950	41,534	43,375	19,263	20,892	22,457	16,389	16,662	17,247	20,424	21,118	22,861
EBITDA	4,142	3,567	3,813	4,627	4,174	4,509	1,418	1,374	1,632	2,629	2,076	2,169	1,781	1,781	1,878
Total Debt	20,521	17,458	18,802	11,994	10,560	11,754	3,555	3,478	3,670	7,429	5,589	6,274	8,097	8,932	7,940
Cash & Cash Equivalents	2,652	2,687	2,437	2,272	2,605	1,933	1,318	1,115	902	1,821	877	383	2,746	3,553	1,918
EBITA Margin %	5.1%	4.0%	4.4%	5.4%	5.0%	5.7%	4.0%	3.5%	4.3%	9.3%	6.4%	6.7%	3.0%	3.1%	2.9%
EBITA / Interest Expense	3.3x	2.6x	2.8x	8.2x	6.7x	6.8x	6.6x	5.4x	7.2x	6.1x	4.2x	4.6x	3.4x	2.5x	2.1x
Debt / EBITDA	5.2x	4.8x	4.7x	2.7x	2.5x	2.5x	2.5x	2.5x	2.2x	2.9x	2.7x	2.8x	4.7x	5.0x	4.1x
Net Debt / Net Capitalization	66.8%	60.0%	62.8%	40.1%	35.1%	39.1%	31.7%	32.9%	35.2%	59.7%	50.5%	56.1%	64.2%	65.4%	55.7%
RCF / Debt	16.0%	14.8%	15.5%	36.9%	25.6%	26.0%	27.9%	24.5%	29.7%	24.4%	21.9%	20.8%	16.6%	9.4%	10.8%

All figures and ratios calculated using Moody's estimates and standard adjustments.
FYE = Financial year-end. LTM = Last 12 months. RUR* = Ratings under Review, where UPG = for upgrade and DNG = for downgrade.
Source: Moody's Financial Metrics™

Exhibit 13
Moody's-adjusted debt
ZF Friedrichshafen AG

(in EUR million)	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-21	FYE Dec-22	LTM Jun-23
As Reported Total Debt	**5,020**	**9,647**	**13,283**	**12,531**	**12,954**	**13,830**
Pensions	4,161	5,140	6,563	5,514	3,404	3,404
Leases	741	0	0	0	0	0
Non-Standard Adjustments	27	59	0	0	0	0
Moody's Adjusted Total Debt	**9,949**	**14,846**	**19,846**	**18,045**	**16,358**	**17,234**

Adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
Source: Moody's Financial Metrics™

Exhibit 14
Moody's-adjusted EBITDA
ZF Friedrichshafen AG

(in EUR million)	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-21	FYE Dec-22	LTM Jun-23
As Reported EBITDA	**3,333**	**2,888**	**1,779**	**3,728**	**3,341**	**3,573**
Unusual Items - Income Statement	(46)	72	48	4	62	61
Pensions	8	(14)	(210)	(9)	(19)	(19)
Leases	247	0	0	0	0	0
Interest Expense - Discounting	0	0	0	0	0	26
Non-Standard Adjustments	(147)	(43)	124	(225)	0	0
Moody's Adjusted EBITDA	**3,465**	**2,946**	**1,746**	**3,501**	**3,384**	**3,641**

Adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
Source: Moody's Financial Metrics™

Exhibit 15

Summary financials

ZF Friedrichshafen AG

(in EUR million)	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-21	FYE Dec-22	LTM Jun-23
INCOME STATEMENT						
Revenue	36,929	36,518	32,611	38,313	43,801	45,872
EBIT	1,444	907	(394)	1,275	1,050	1,311
EBITA	1,972	1,458	227	1,938	1,768	2,029
EBITDA	3,465	2,946	1,746	3,501	3,384	3,641
BALANCE SHEET						
Cash & Cash Equivalents	922	4,878	2,341	2,332	2,518	2,234
Total Debt	9,949	14,846	19,846	18,045	16,358	17,234
CASH FLOW						
Capital Expenditures	(1,857)	(1,869)	(1,497)	(1,688)	(1,931)	(2,165)
Dividends	235	199	118	59	203	119
Retained Cash Flow (RCF)	2,556	2,265	1,535	2,880	2,418	2,663
RCF / Debt	25.7%	15.3%	7.7%	16.0%	14.8%	15.5%
Free Cash Flow (FCF)	343	122	299	344	(205)	(97)
FCF / Debt	3.4%	0.8%	1.5%	1.9%	-1.3%	-0.6%
PROFITABILITY						
% Change in Sales (YoY)	1.3%	-1.1%	-10.7%	17.5%	14.3%	14.1%
SG&A % of Sales	11.7%	11.9%	12.9%	12.6%	11.8%	11.6%
EBIT margin %	3.9%	2.5%	-1.2%	3.3%	2.4%	2.9%
EBITA margin %	5.3%	4.0%	0.7%	5.1%	4.0%	4.4%
EBITDA margin %	9.4%	8.1%	5.4%	9.1%	7.7%	7.9%
INTEREST COVERAGE						
EBIT / Interest Expense	3.2x	2.1x	-0.7x	2.1x	1.6x	1.8x
EBITA / Interest Expense	4.3x	3.4x	0.4x	3.3x	2.6x	2.8x
EBITDA / Interest Expense	7.6x	6.9x	3.0x	5.9x	5.0x	5.0x
(EBITDA - CAPEX) / Interest Expense	3.5x	2.5x	0.4x	3.0x	2.2x	2.0x
LEVERAGE						
Debt / EBITDA	2.9x	5.0x	11.4x	5.2x	4.8x	4.7x
Debt / (EBITDA - CAPEX)	6.2x	13.8x	79.7x	10.0x	11.3x	11.7x
LIQUIDITY						
(Cash + Marketable Securities) / Debt	9.2%	33.1%	12.2%	13.1%	15.9%	14.1%

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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