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CREDIT OPINION
13 December 2023

Update

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RATINGS

thyssenkrupp AG

Domicile	Essen, Germany
Long Term Rating	Ba3
Type	LT Corporate Family Ratings
Outlook	Positive

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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thyssenkrupp AG

Update following the change of the outlook to positive

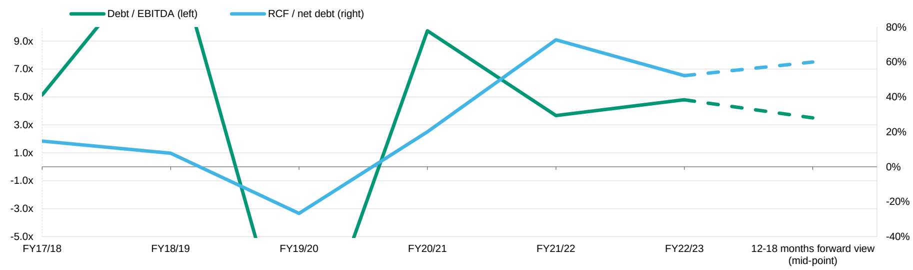
Summary

On 11 December 2023, we changed the outlook on thyssenkrupp AG (tk) to positive from stable to recognise the ongoing discipline in the company's capital allocation with further evidence of an operational turnaround. The rating action did not factor in any transaction related to a sale or a partnership for its Steel Europe and Marine Systems businesses, which is an event risk.

tk's Ba3 corporate family rating (CFR) mainly recognises the company's significant scale, global footprint and diversified revenue streams; its very good liquidity profile with sizeable cash balances well exceeding the amount of reported debt; and its strategy focusing on profitability improvements and a return to sustained positive free cash flow (FCF). Conversely, the CFR's key constraints include tk's exposure to volatile steel and other raw materials prices and cyclical industries, such as the automotive; still-weak profitability of some of its businesses; a limited track record of positive FCF generation; and uncertainties about its future operational setup and capital structure.

Exhibit 1

We expect tk's gross leverage to decline and RCF/ net debt to improve further



Both ratios are based on adjusted financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations.
Forward view is our view and does not assume any transactions related to a sale or a partnership for tk's Steel Europe and Marine Systems businesses. For simplicity, it assumes that scheduled debt maturities will be repaid without refinancing, although some or all of them may be refinanced.
Source: Moody's Financial Metrics™

Credit strengths

» Large scale and a diversified product portfolio with several leading positions and global presence

» Very good liquidity with sizeable excess cash well exceeding its reported debt

» Strategy focusing on profitability improvements and a sustained positive FCF

Credit challenges

» Uncertainties about future operational setup and capital structure

» Relatively weak profitability in some of the businesses

» Rather limited track record of positive FCF generation

» A high share of revenues from cyclical end-markets and exposure to volatile steel prices

Rating outlook

The positive outlook mainly reflects an increasing likelihood that over the next 12-18 months tk will be able to further strengthen its margins without a return to meaningful negative FCF, while maintaining discipline in capital allocation.

Factors that could lead to an upgrade

» Moody's-adjusted gross debt/EBITDA sustainably below 4.5x

» Moody's-adjusted retained cash flow (RCF)/net debt above 40% on a sustained basis

» Further evidence of a structural improvement in the company's Moody's-adjusted EBITA margin towards mid-single digit in % terms without a return to meaningful negative Moody's-adjusted FCF

Factors that could lead to a downgrade

» Moody's-adjusted gross debt/EBITDA sustainably above 5.0x. We would tolerate a higher gross leverage in a cyclical downturn if mitigated by excess cash.

» A sustained reduction in the company's margins

» A return to a sustained meaningful negative Moody's-adjusted FCF

» Substantial weakening of liquidity

Key indicators

Exhibit 2
Key indicators for tk

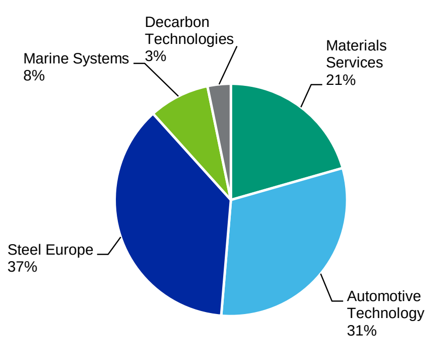
	Sep-18	Sep-19	Sep-20	Sep-21	Sep-22	Sep-23	12-18 months forward view
Revenue (in $ billion equivalent)	49.4	38.4	32.4	40.7	44.6	40.1	40 - 42
EBITA Margin %	2.8%	-1.0%	-7.4%	1.2%	4.6%	2.7%	3% - 4%
EBITA / Interest Expense	2.2x	-0.6x	-3.4x	0.8x	3.0x	1.8x	2.5x - 3.0x
Debt / EBITDA	5.2x	16.4x	-16.1x	9.7x	3.7x	4.8x	3.0x - 3.8x
RCF / Net Debt	14.8%	7.8%	-26.7%	20.0%	72.7%	52.2%	50% - 70%
FCF / Debt	-2.6%	-7.7%	-30.1%	-11.8%	-8.6%	1.8%	-2% - 2%

The ratios are based on adjusted financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations.
Forward view is our view and does not assume any transactions related to a sale or a partnership for tk's Steel Europe and Marine Systems businesses. For simplicity, it assumes that scheduled debt maturities will be repaid without refinancing, although some or all of them may be refinanced.
Source: Moody's Financial Metrics[TM]

Profile

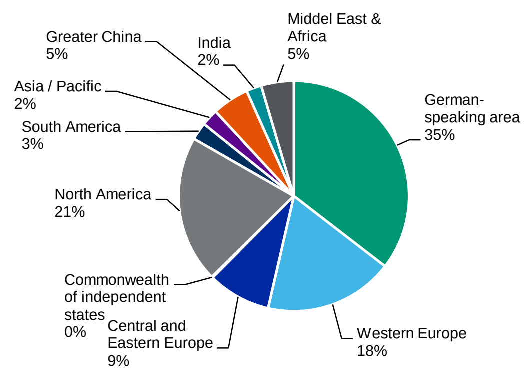
Headquartered in Essen, Germany, thyssenkrupp AG (tk) is a diversified industrial conglomerate operating in almost 50 countries. In FY22/23, it reported revenue of around €38 billion with workforce of around 100,000 employees at the end of the financial year. The company is mainly active in production of steel (segment Steel Europe, SE) as well as various components and systems to automotive industry (Automotive Technology, AT); supply of marine technology (Marine Systems, MS); and distribution of various metals and materials and related services (Materials Services, MX). Starting FY23/24 tk established Decarbon Technologies (DT) segment, bundling its technologies for green transformation, including slewing bearings for wind turbines and its hydrogen electrolysis business (thyssekrupp nucera AG).

Exhibit 3
The company's-adjusted EBIT by segment
FY22/23



Pro-forma reflecting segment structure starting FY23/24 and excluding Reconciliation and Corporate Headquarter items
Source: Company

Exhibit 4
External revenue per geography
FY22/23



Source: Company

tk is a publicly listed company with market capitalisation of around €4.1 billion as of 7 December 2023. Its largest shareholder is the Alfried Krupp von Bohlen und Halbach Foundation, which holds around 21% of the voting rights, with the remainder being largely in free float.

Detailed credit considerations

Large scale with a diversified portfolio of market leading businesses, but uncertainties about its future evolution

One of tk's key credit strengths is its scale and a diversified business profile containing several businesses with differing underlying demand drivers. In addition, tk is among market leaders for many of these businesses, benefitting from established relationships with the key customers in the respective end markets. For instance, MX is a leading distributor of various metals, including carbon and stainless steel, with market leading position in Germany and in Europe and the third largest position in the US based on volumes. SE is the second largest flat steel producer in the EU, with a strong position in premium automotive segment. tk also holds leading positions for several niche products in its AT segment, such as steering columns and semi active dampers, and it is also a global leader for large slewing bearings and conventional submarines, among other products.

Over the past few years tk's portfolio has undergone several changes and is likely to evolve further. A major milestone was the sale of the majority of its elevator business closed in FY19/20 - TK Elevator Holdco GmbH (TKE, B2 negative) - which resulted in around €15 billion reduction in tk's net financial debt, but weakened its business profile. Since then tk has sold several smaller businesses for a total of roughly €0.9 billion and, in July 2023, it listed its hydrogen electrolysis business (tk nucera) generating gross proceeds of around €0.5 billion, which it plans to reinvest into the business. We expect that tk will for now retain its majority 50.2% stake in tk nucera, market capitalisation of which reached around €2.0 billion as of 7 December, fully consolidating it in its books. The business requires sizeable investments to capture its strong growth potential and will therefore unlikely pay dividends in the coming two financial years.

Uncertainties about tk's future operational setup is a key credit challenge weighing on its ratings. The company has been looking for a sale or a partnership for its SE and MS segments for several years now and talks are ongoing. Furthermore, it still intends to sell its smaller Automation Engineering and Springs & Stabilisers businesses, now included in its AT segment, and we also expect it to eventually monetise its remaining 19% stake in TKE, the value of which is not reflected in our metrics.

Ongoing efforts to improve profitability

Over the past few years, tk has struggled with profitability in some of its businesses and did not even generate positive Moody's-adjusted EBITA in FY18/19 and FY19/20. To address this concern, in October 2019 it initiated a sizeable restructuring program that targeted a reduction of almost 13,000 employees, back then representing more than 10% of its total workforce. tk estimates total costs to reach around €0.9 billion, aiming to achieve cumulative cost savings in a high three-digit € million range. By the end of FY22/23 it already achieved a reduction of roughly 11,0000 with cumulative savings of around mid-to-high three digit € million. The costs of the program have been largely provided for by now, with remaining low three-digit € million still to be paid.

tk has also achieved profitability improvements through various operational efficiencies. For instance, MX segment has optimised its distribution network, having closed roughly a quarter of its locations, while modernising several of the key ones. Meanwhile, AT segment has progressively increased the share of headcount and production in lower cost locations. The closure of the loss making heavy plate business in 2021 also supported tk's overall profitability.

During 2023 tk started a new performance improvement program (APEX) focusing on various efficiency and productivity measures across the organization, targeting an EBIT uplift of up to €2 billion. A successful delivery could accelerate the earnings and the margin expansion towards the company's ambition of 4-6% EBIT margin in FY24/25 (as adjusted by tk, up from 1.9% in FY22/23).

tk operates in a highly competitive environment and its earnings are inherently volatile

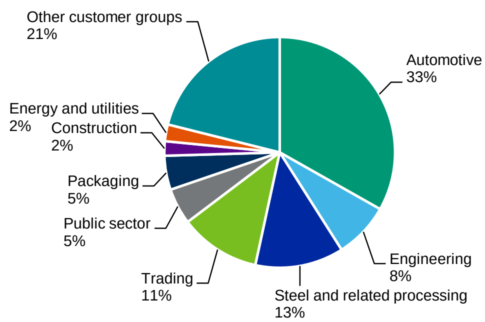
tk operates in a highly competitive environment serving customers with substantial pricing power, such as large automakers. In SE, it also competes with exports from lower cost countries mostly in Asia, while facing sizeable investment needs to reduce the operations' carbon footprint amid rising demand for less carbon intensive steel mainly from customers in mature markets.

Despite its diversified business profile, tk's earnings are also inherently volatile. The company is exposed to the volatility of prices of raw materials, in particular steel, but also to several cyclical end markets. These include automotive industry, tk's largest end market where it generated around one third of its external revenue in FY22/23.

Exhibit 5

tk is exposed to several cyclical end markets

Revenue by customer group in FY22/23



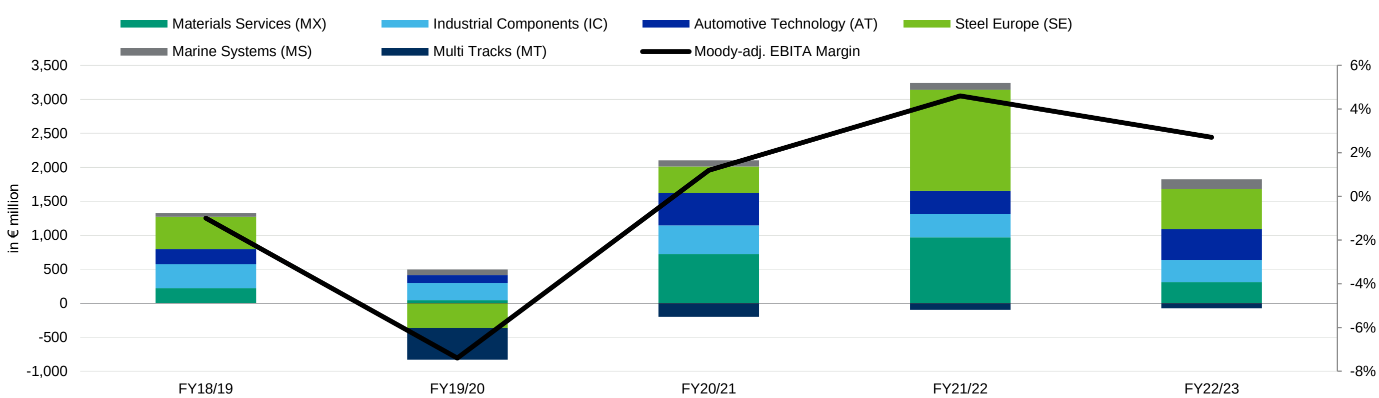
Source: Company

This volatility has been visible in the performance of several of tk's businesses over the past few years, in particular the SE segment, earnings of which are to a large extent a function of steel prices. For instance, very high steel and other raw material prices for the most part of 2022 supported strong earnings in the SE and MX segment in FY21/22, which normalised during FY22/23. For FY23/24 we forecast a low single digit decline in Moody's-adjusted EBITDA amid low or decelerating GDP growth in tk's key geographies, with a potential for a meaningful expansion during FY24/25 depending on the company's success in delivering its APEX program and the speed of the recovery in the GDP growth in 2025.

Exhibit 6

tk's earnings have been volatile in the past few years

EBITDA of tk's segments (as adjusted by tk) on left axis and Moody's-adjusted EBITA margin on right axis



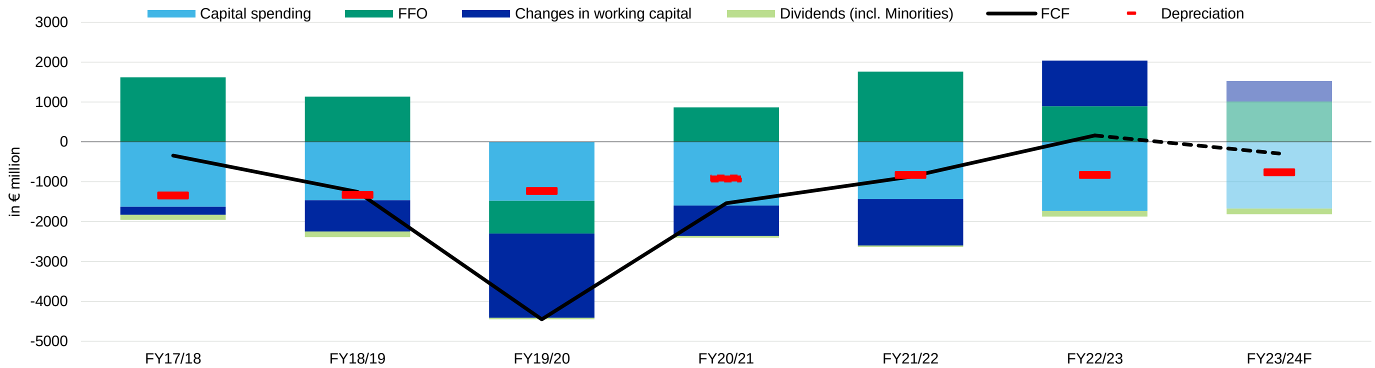
The exhibit reflects segment structure valid at the end of FY22/23. Segment Multi Tracks (MT) was created in FY19/20 to bundle businesses for disposals and then dissolved from FY23/24 onwards.

Source: Company reports and Moody's Financial Metrics[TM]

Sustainability of positive FCF even with growth investments still needs to be proven

One of tk's key credit challenges has been its weak cash flow generation. After more than 15 years of negative Moody's-adjusted FCF, tk generated around €150 million in FY22/23, despite a resumption of modest common dividends and investments well above deprecation levels. Its growth capital spending will likely remain elevated, a majority of which will continue to relate to the implementation of SE's “Strategy 20-30”. The framework includes a shift to premium grades, realignment of the production network, and green and digital transformation. A €2 billion capital spending subsidy, which the government of Germany approved during FY22/23 for the segment's transformation, will help reduce tk's investment requirements.

Exhibit 7
tk still needs to establish a track record of positive FCF

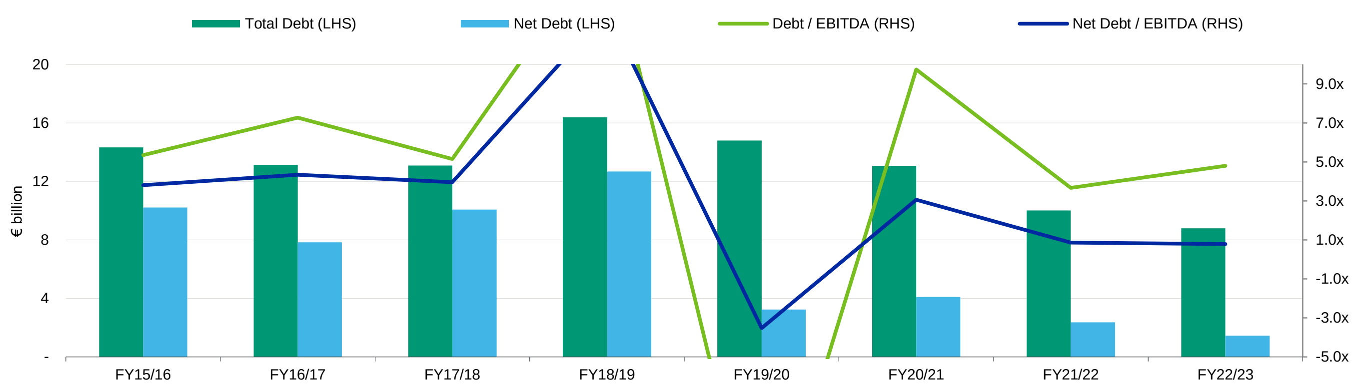


The metrics are based on adjusted financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations.
Forward view is our view and does not assume any transactions related to a sale or a partnership for tk's Steel Europe and Marine Systems businesses. For simplicity, it assumes that scheduled debt maturities will be repaid without refinancing, although some or all of them may be refinanced.
Source: Moody's Financial Metrics^{TM}

Discipline in capital allocation since the TKE sale, but uncertainties about future capital structure remain

Since the TKE sale in FY19/20, tk has remained disciplined in capital allocation, having refrained from excessive shareholder remuneration or transformational M&A. In addition, it has used some of the received cash to repay its debt. Over the past five financial years, its Moody's-adjusted gross debt almost halved to around €8.8 billion at the end of FY22/23, roughly 60% of which represented its pension liability that we view as debt-like, with the company still reporting substantial cash balances well exceeding its reported debt.

Exhibit 8
tk has reduced both its gross and net adjusted debt since the sale of TKE



The metrics are based on adjusted financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations.
Source: Moody's Financial Metrics^{TM}

tk faces large debt maturities in the coming two financial years – around €1.6 billion in FY23/24 and around €0.6 billion in FY24/25 – and although it may refinance some or all of its maturing debt, we consider it likely that its gross debt quantum will continue to decline over the next 12-18 months. This would help reduce its Moody's-adjusted gross leverage further down from 4.8x in FY22/23, with its adjusted net leverage remaining at a low level of around 1.0x (0.8x in FY22/23). However, there are still uncertainties about what capital structure will tk target once it is able to sustain its positive FCF generation and executes the envisaged portfolio changes; another key challenge for its rating.

ESG considerations

tk's ESG Credit Impact Score is Moderately Negative CIS-3

Exhibit 9
ESG Credit Impact Score

CIS-3
Moderately Negative

NEGATIVE IMPACT · POSITIVE IMPACT

For an issuer scored CIS-3 (Moderately Negative), its ESG attributes are overall considered as having a limited impact on the current rating, with greater potential for future negative impact over time. The negative influence of the overall ESG attributes on the rating is more pronounced compared to an issuer scored CIS-2.

Source: Moody's Investors Service

tk's CIS-3 implies that its ESG attributes are overall considered as having a limited impact on its current rating. tk's key risk exposure relates to carbon transition of its steel business, which is partly mitigated by its prudent financial policy.

Exhibit 10
ESG Issuer Profile Scores

ENVIRONMENTAL	SOCIAL	GOVERNANCE
E-4	S-3	G-3
Highly Negative	Moderately Negative	Moderately Negative

Source: Moody's Investors Service

Environmental

tk's E-4 mainly reflects the high carbon emission intensity of its steel business, which faces above-average carbon transition risk compared to most other rated manufacturing companies. tk is also subject to physical climate risks, waste & pollution and natural capital risks, as a consequence of energy and raw material intensive production processes and rising environmental regulation. tk's measures to reduce the energy consumption in its production processes and to intensify recycling of resources partly mitigate these risks. A €2 billion capital spending subsidy approved by the government of Germany will also support the green transformation of its steel business.

Social

tk's S-3 reflect its exposure to social risks that is broadly in line with the overall manufacturing sector. Ongoing significant organisational changes and restructuring entail some risk of prolonged strikes, as most of tk's German workforce is organised in unions. The company also faces health & safety risks given the use of heavy equipment and machinery in the manufacturing facilities, partly mitigated by the application of stringent health and safety standards.

Governance

tk's G-3 mainly factors in its relatively complex group structure and evolving business model as some activities are considered for sale or future independence; and several top management changes and strategic shifts in recent years, partly reflecting diverging interests of its diverse shareholder base in the past. The company's prudent financial policies partly mitigate these challenges.

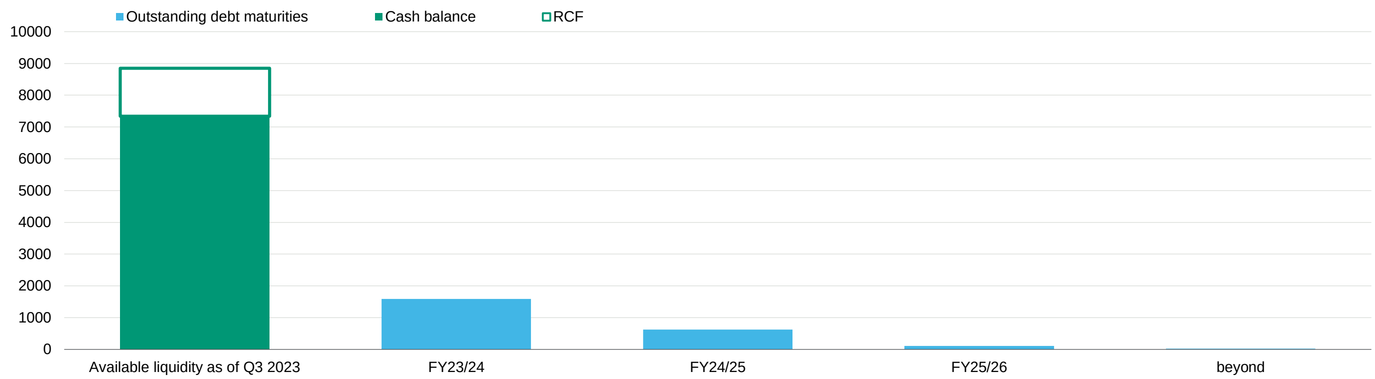
ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moodys.com. In order to view the latest scores, please click here to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

Liquidity analysis

tk's liquidity is very good, which supports its Ba3 CFR. At the end of FY22/23 it reported around €7.3 billion of cash and cash equivalents, although a part of it was in countries with currency restrictions. tk has also access to undrawn committed facilities totaling around €1.5 billion without covenants. Its debt maturities in FY23/24 and in FY24/25 amount to around €1.6 billion and around €0.6 billion, respectively.

Exhibit 11

tk's liquidity at the end of FY22/23 well covers the company's reported debt
in € million



Excluding roughly €0.7 billion of lease liabilities
Source: Company

Rating methodology and scorecard factors

We use Manufacturing rating methodology as the primary rating methodology for tk. The methodology scorecard indicates a Baa3 outcome for our 12-18 months forward-looking view. A limited track record of tk operating sustainably with gross leverage commensurate with a higher rating with positive FCF generation explains the difference to the assigned Ba3 rating, which is now strongly positioned. We also note that the methodology is not fully suited for tk's unique business profile, which for instance include a sizeable high-volume pass-through distribution business (MX) that has structurally lower profitability but also lower asset intensity than an average manufacturing company.

Exhibit 12

Methodology scorecard for tk

Manufacturing Industry Scorecard	Current FY 09/30/2023		Moody's 12-18 Month Forward View As of 12/06/2023	
Factor 1 : Scale (20%)	**Measure**	**Score**	**Measure**	**Score**
a) Revenue ($ billion equivalent)	$40.1	Aa	$40 - $42	Aa
Factor 2 : Business Profile (25%)				
a) Business Profile	Ba	Ba	Ba	Ba
Factor 3 : Profitability and Efficiency (5%)				
a) EBITA Margin	2.7%	B	3% - 4%	B
Factor 4 : Leverage and Coverage (35%)				
a) Debt / EBITDA	4.8x	B	3x - 3.8x	Ba
b) Retained Cash Flow / Net Debt	52.2%	Aa	50% - 70%	Aa
c) Free Cash Flow / Debt	1.8%	B	-2% - 2%	B
d) EBITA / Interest Expense	1.8x	B	2.5x - 3.0x	B
Factor 5 : Financial Policy (15%)				
a) Financial Policy	Ba	Ba	Ba	Ba
Rating:				
a) Scorecard-Indicated Outcome		Baa3		Baa3
b) Actual Rating Assigned				Ba3

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Source: Moody's Financial Metrics™

Ratings

Exhibit 13

Category	Moody's Rating
THYSSENKRUPP AG	
Outlook	Positive
Corporate Family Rating	Ba3
Senior Unsecured	Ba3/LGD4
Commercial Paper -Dom Curr	NP
Other Short Term -Dom Curr	(P)NP

Source: Moody's Investors Service

Appendix

Exhibit 14

Peer comparison

	thyssenkrupp AG Ba3 Positive			CNH Industrial N.V. Baa2 Stable			ArcelorMittal Baa3 Stable			Schaeffler AG Baa3 Stable			Ryerson Holding Corporation Ba3 Stable		
(in $ million)	FYE Sep-21	FYE Sep-22	FYE Sep-23	FYE Dec-21	FYE Dec-22	LTM Sep-23	FYE Dec-21	FYE Dec-22	LTM Sep-23	FYE Dec-21	FYE Dec-22	LTM Sep-23	FYE Dec-21	FYE Dec-22	LTM Sep-23
Revenue	40,658	44,629	40,062	17,802	21,541	22,414	76,571	79,844	70,614	16,389	16,662	17,385	5,675	6,324	5,285
EBITDA	1,604	2,958	1,955	2,140	2,937	3,334	21,458	15,502	9,175	2,629	2,076	2,134	526	678	264
Total Debt	15,149	9,805	9,300	5,924	4,556	4,093	21,127	24,048	21,677	7,429	5,589	6,158	974	701	699
Cash & Cash Equivalents	10,400	7,483	7,770	4,386	3,802	2,458	4,215	9,300	6,289	1,821	877	601	51	39	37
EBITA margin %	1.2%	4.6%	2.7%	10.5%	12.4%	13.6%	24.8%	16.3%	9.4%	9.3%	6.4%	6.3%	8.0%	9.5%	3.5%
EBITA / Interest Expense	0.8x	3.0x	1.8x	9.1x	11.1x	11.0x	35.6x	18.9x	9.8x	6.1x	4.2x	4.2x	7.3x	12.9x	4.0x
Debt / EBITDA	9.7x	3.7x	4.8x	2.8x	1.6x	1.2x	1.0x	1.6x	2.4x	2.9x	2.7x	2.9x	1.9x	1.0x	2.6x
RCF / Net Debt	20.0%	72.7%	52.2%	170.5%	255.6%	95.3%	92.9%	75.0%	41.3%	32.3%	25.9%	20.8%	43.4%	71.7%	27.9%
FCF / Debt	-11.8%	-8.6%	1.8%	43.4%	25.0%	28.9%	22.3%	24.1%	18.7%	6.4%	-1.4%	1.4%	-2.2%	53.0%	42.9%

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

Exhibit 15

Reconciliation of Moody's-adjusted debt

(in € million)	FY17/18	FY18/19	FY19/20	FY20/21	FY21/22	FY22/23
As Reported Total Debt	**5,376**	**7,415**	**6,502**	**5,424**	**3,981**	**3,025**
Pensions	6,523	7,616	8,274	7,647	5,573	5,294
Operating Leases	924	1,093	0	0	0	0
Securitization [1]	248	246	6	0	455	465
Non-Standard Adjustments	18	17	16	0	0	0
Moody's Adjusted Total Debt	**13,089**	**16,387**	**14,798**	**13,071**	**10,009**	**8,784**

[1] In FY22/23 the company changed disclosures related to securitisation of its receivables. Data for FY21/22 were changed accordingly.
Source: Moody's Financial Metrics™

Exhibit 16

Reconciliation of Moody's-adjusted EBITDA

(in € million)	FY17/18	FY18/19	FY19/20	FY20/21	FY21/22	FY22/23
As Reported EBITDA	**2,030**	**602**	**(1,193)**	**1,257**	**2,946**	**1,814**
Pensions	1	16	(26)	(1)	(20)	3
Operating Leases	307	311	0	0	0	0
Securitization [1]	2	2	1	0	39	35
Unusual Items - Income Statement	205	65	297	86	(238)	0
Non-Standard Adjustments	0	0	0	0	0	(20)
Moody's Adjusted EBITDA	**2,545**	**996**	**(921)**	**1,342**	**2,727**	**1,832**

As reported EBITDA is defined as pretax incone + gross interest expense + D&A (including impairments)
[1] In FY22/23 the company changed disclosures related to securitisation of its receivables. Data for FY21/22 were changed accordingly.
Source: Moody's Financial Metrics™

Exhibit 17

Key metrics for tk

(in € million)	FY17/18	FY18/19	FY19/20	FY20/21	FY21/22	FY22/23
INCOME STATEMENT						
Revenue	41,534	34,036	28,899	34,015	41,140	37,536
EBITDA	2,545	996	(921)	1,342	2,727	1,832
EBIT	1,197	(330)	(2,153)	419	1,806	883
Interest Expense	545	573	633	505	622	565
BALANCE SHEET						
Cash & Cash Equivalents	3,012	3,713	11,555	8,974	7,638	7,339
Total Debt	13,089	16,387	14,798	13,071	10,009	8,784
Net Debt	10,077	12,674	3,243	4,097	2,371	1,445
CASH FLOW						
Funds from Operations (FFO)	1,618	1,135	(826)	863	1,764	898
Cash Flow From Operations (CFO)	1,420	354	(2,935)	98	602	2,034
Capital Expenditures	(1,632)	(1,465)	(1,477)	(1,596)	(1,422)	(1,730)
Dividends	131	148	40	44	40	144
Retained Cash Flow (RCF)	1,487	987	(866)	819	1,724	754
RCF / Debt	11.4%	6.0%	-5.9%	6.3%	17.2%	8.6%
Free Cash Flow (FCF)	(343)	(1,259)	(4,452)	(1,542)	(860)	160
FCF / Debt	-2.6%	-7.7%	-30.1%	-11.8%	-8.6%	1.8%
PROFITABILITY						
EBIT margin %	2.9%	-1.0%	-7.4%	1.2%	4.4%	2.4%
EBITDA margin %	6.1%	2.9%	-3.2%	3.9%	6.6%	4.9%
INTEREST COVERAGE						
(FFO + Interest Expense) / Interest Expense	4.0x	3.0x	-0.3x	2.7x	3.8x	2.6x
EBIT / Interest Expense	2.2x	-0.6x	-3.4x	0.8x	2.9x	1.6x
EBITDA / Interest Expense	4.7x	1.7x	-1.5x	2.7x	4.4x	3.2x
LEVERAGE						
Debt / EBITDA	5.1x	16.4x	-16.1x	9.7x	3.7x	4.8x
Net Debt / EBITDA	4.0x	12.8x	-3.5x	2.8x	0.8x	0.8x

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

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