

## CREDIT OPINION

26 January 2024

### Update



Send Your Feedback

### RATINGS

#### Koc Holding A.S.

Domicile	Turkiye
Long Term Rating	B2
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.

### Contacts

Iker Ballesterro +971.4.237.9521  
Barrutia, CFA  
Analyst  
iker.barrutia@moodys.com

Ali Amin, CFA +971.4.237.9524  
Sr Ratings Associate  
ali.amin@moodys.com

Rehan Akbar, CFA +971.4.237.9565  
Senior Vice President  
rehan.akbar@moodys.com

### CLIENT SERVICES

Americas 1-212-553-1653

Asia Pacific 852-3551-3077

Japan 81-3-5408-4100

EMEA 44-20-7772-5454

## Koc Holding A.S.

Update following upgrade to B2 positive

### Summary

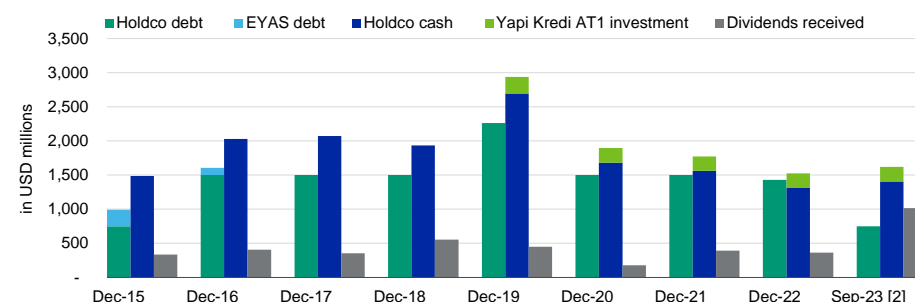
On 19 January 2024, we upgraded the ratings of [Koc Holding A.S.](#) (Koc Holding) to B2 from B3 and changed the outlook to positive from stable. The rating action is a direct consequence of the ratings affirmation of the Government of Türkiye's B3 long-term issuer rating, upgrade of the foreign currency ceiling to B2 from B3 and change in outlook to positive on 12 January 2024.

Koc Holding's B2 Corporate Family Rating (CFR) reflects the company's strong financial profile and balanced portfolio of investments in mature and high-growth companies, which diversify the entity's dividend income. The holding company has a track record of maintaining a net cash position and follows a prudent approach in managing its investment portfolio. As of 30 September 2023, Koc Holding has a net cash position of \$632 million (including a \$206 million YKB AT1 investment). This position will be enhanced with Q4 2023 dividends from Ford Otosan and EYAS.

The rating takes into account the geographic concentration of investments to [Türkiye](#) (B3 positive) and the volatility in the Turkish equity market. Koc Holding benefits from a degree of natural hedge against the depreciation of the Turkish lira because of the exposure of various operating companies to US dollar- and euro-linked cash flow. Nevertheless, the exposure to the country's political, legal, fiscal and regulatory environment constrains Koc Holding's ratings at Türkiye's foreign currency bond ceiling of B2.

Exhibit 1

**Strong financial profile is supported by significant cash balances at holding level and steady dividends from a diversified investment portfolio**



[1] Debt at intermediate EYAS SPV is non-recourse to Koc Holding and was fully paid in April 2017.

[2] Holdco cash as of 30 September 2023 is adjusted for dividend income received from Ford Otosan and EYAS and capital contribution paid to MAALT after September.

Sources: Moody's Investors Service, Company data

## Credit strengths

- » Diversified investments across sectors and companies, each having varying sensitivity to the Turkish economy through differences in cyclicity of business and capex needs
- » Highly transparent investment portfolio, with over 90% of the investment value listed
- » Conservative approach to investments, with a track record of financial discipline and adherence to internal leverage targets

## Credit challenges

- » High geographic concentration of investments, as all core companies are domiciled in Türkiye with significant asset exposure to domestic market
- » Heightened regional geopolitical risks may make operating environment more difficult

## Rating outlook

The positive outlook mirrors that of the Government of Türkiye and reflects Koc Holding's exposure to the country's political, legal, fiscal and regulatory environment.

## Factors that could lead to an upgrade

The ratings of Koc Holding is constrained at one notch above the rating of the Government of Türkiye and also by the foreign currency ceiling. We would consider an upgrade if both the rating of the Government of Türkiye and the foreign currency ceiling are raised. This would also require no material deterioration in the company's operating and financial performance and liquidity.

## Factors that could lead to a downgrade

Koc Holding's ratings could be downgraded in case of a downgrade of Türkiye's sovereign rating and a lowering of the foreign-currency bond ceiling. In addition, downward rating pressure could arise if there are signs of a significant deterioration in liquidity or if government imposed measures were to have an adverse impact on corporate credit quality.

## Key indicators

Exhibit 2

Koc Holding A.S. [1]							
	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21	Dec-22	Dec-23
Market Capitalisation (USD bn)	12.4	6.8	8.7	7.2	5.4	8.3	12.2
Portfolio Value (USD bn) [2]	12.1	6.8	8.3	9.4	8.3	17.4	17.3
Cash (USD bn)	2.1	1.9	2.7	1.7	1.5	1.3	1.6
Market Leverage [3]	-4.7%	-6.2%	-5.2%	-1.7%	-0.7%	0.8%	-2.3%
Asset Concentration [4]	49.5%	49.3%	44.8%	47.6%	47.6%	55.4%	57.9%
(FFO + Interest Expense)/Interest Expense [5]	7.0x	10.4x	6.7x	2.3x	5.5x	4.5x	14.8x

[1] Calculations are based on parent level (standalone) financials and include Moody's adjustments. All values are as of year end except for Dec-23 numbers where we use market cap of listed investments as of 31 December 2023, internal company valuations of unlisted investments and investment properties as of 30 June 2023, cash as of as of 30 September 2023 adjusted for major cash inflows/outflows received/paid after September and before year-end, and debt (outstanding eurobond) as of 31 December 2023.

[2] Portfolio value is based on market cap of listed investments and NAV of unlisted investments and excludes cash. For Dec-23 numbers, listed investments are based on market cap as of 31 December 2023 while unlisted investments and investment properties are based on the company's internal valuations as of 30 June 2023 from Koc Holding's earnings presentation.

[3] ((Net Debt) / (value of investment portfolio)); Net debt historically included non-recourse financial debt at EYAS level which was repaid in April 2017.

[4] (Top 3 investments) / (value of investment portfolio + cash at holding company level).

[5] FFO at parent level for Koc Holding is calculated as sum of management fees, dividend, interest, and rental income less opex, interest and tax paid. For Dec-23, FFO coverage is based on Moody's estimate for the full year.

Source: Moody's Investors Service

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody.com> for the most updated credit rating action information and rating history.

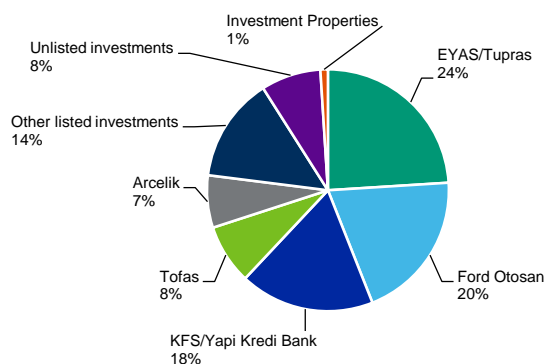
## Profile

Founded in 1926, Koc Group is one of Türkiye's most prominent business groups, with investments in various sectors including energy, automotive, consumer durables and finance. Koc Holding A.S. was established in 1963 to house and centrally manage the group's diverse investment portfolio. The Koc family members directly and indirectly own 63.8% of the holding company while another 26.6% is listed on Borsa Istanbul.

For the nine months ending 30 September 2023, Koc Holding reported consolidated revenue of TL886 billion and an operating profit of TL157 billion.

Exhibit 3

### Majority of investments are listed on Borsa Istanbul providing a high degree of analytical visibility



The above chart is based on total portfolio value split by listed and unlisted investments, excluding cash balances. Listed investments are based on market cap as of 31 December 2023 while unlisted investments and investment properties are based on the company's internal valuations as of 30 June 2023 from Koc Holding's earnings presentation. NAV is defined as assets minus liabilities for each investment.

Sources: Moody's Investors Service, FactSet, Company presentation

## Detailed credit considerations

### Strong performance and financial flexibility at Holding company level, a credit positive

Functioning solely as an investment holding company, Koc Holding's cash requirements remain low and the company has no material requirements in terms of working capital or committed capex. In March 2023, Koc Holding repaid the \$750 million Eurobond from cash on balance sheet. Historically, the company's ability to cover operational expenses and service debt has been strong and this remains the case, with recurring income generated from investment returns, management fees and interest income. Cash outflows over an investment cycle are primarily linked to principal and interest payments on financial debt, staff and operating costs and capital injections to existing investments. During July 2023, Koc Holding sold a stake of 6.8% [Yapi ve Kredi Bankasi A.S.](#) (Yapi Kredi, B3 positive) for TL6.8 billion which further improved its already strong cash position.

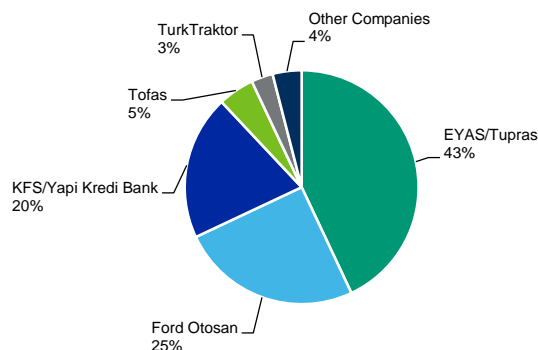
We calculate that Koc Holding's market value leverage (MVL) as of December 2023 is between -4% and -5% (negative given net cash position) which we consider very strong translating into a Aaa rating MVL factor under our investment holding methodology. As of 30 September 2023, the company continued to hold high cash balances and maintained a net cash position of \$632 million (including a \$206 million YKB AT1 investment). Koc Holding's high cash balance equivalent to \$1.4 billion (including YKB AT1 investment) provides good buffer to cover for any potential negative free cash flow, however this is not our base case.

The sector and investment diversification of the investment portfolio will generate, on average, a reliable dividend income stream, which is expected to continue growing as most of the investment programs at the level of key subsidiaries have been completed. Tupras, Türkiye's largest refining company, historically has been a key dividend contributor. During 2020, the company stopped distributing dividends due to the Covid-19 pandemic related to weaker performance and accumulated losses. However, Tupras' dividends were reinstated from 2023 and Koc Holding received TL6.2 billion dividends from Tupras and Eyas during 2023, representing 38% of Koc Holding's dividend income in the first nine months of 2023. Koc Holding's other investments, such as Ford Otosan, Arcelik, Turk Traktor, Tofas and Yapi Kredi, have performed well in 2022 and 2023. As a result, Koc Holding has received TL16.0 billion of

dividend income in the first nine months of 2023, with additional dividends of TL8.0 billion from Ford Otosan and Eyas during Q4 2023.

Exhibit 4

#### Breakdown of 2023 dividend income



Source: Company presentation

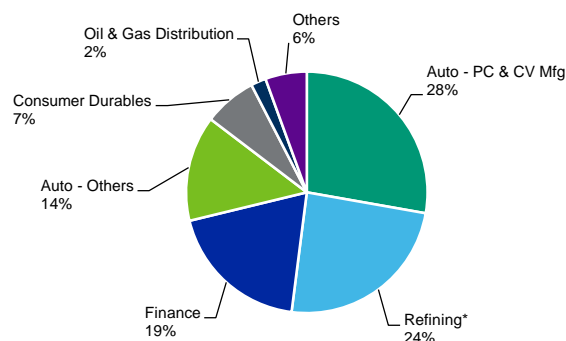
Moody's adjusted interest cover, measured as (FFO + interest expense) / interest expense, remains strong for 2022 at 4.5x but we expect it to improve to above 15x in 2023 due to the repayment of the March 2023 Eurobond and higher level of dividend inflows.

Through the supportive stance taken by the company's shareholders, both acquisition and investment outflows and dividend payments remain discretionary in nature. Koc Holding has a flexible dividend policy, which can be adjusted downward if necessary. This was demonstrated when Koc Holding lowered its dividend to TL671 million from TL1.2 billion in April 2020 as a result of lower dividends received from its subsidiary companies due to the Covid-19 pandemic, in particular no dividends from Tupras.

#### Diversified investments across sectors but a degree of investment concentration risk remains

Koc Holding's investment portfolio is fairly balanced across the energy, automotive, consumer durables and finance business segments with various additional investments in other sectors (Baa for the Business Diversity sub-factor). However, auto manufacturers and related industries which can be seen as cyclical represent around 42% of Koc Holding's investment portfolio value. We recognise that specific businesses within a given sector have uncorrelated characteristics, such as in the energy sector where the business profile is noticeably different between oil and gas distribution (Aygaz and Opet) and refining (Tupras). We also differentiate between the passenger and commercial vehicle manufacturers (Ford Otosan and Tofas) and the other automotive businesses (Otokar, Turk Traktor and Otokoc). At the same time, in assessing the various businesses, we also consider the materiality of the investment with respect to the total portfolio.

Exhibit 5

**Diversified portfolio across multiple sectors**

The above chart is based on total portfolio value split by industry. Listed investments are based on market cap as of 31 December 2023 while unlisted investments and investment properties are based on Net Asset Value (NAV) as of 30 June 2023 from Koc Holding's earnings presentation. NAV is defined as assets minus liabilities for each investment. \*Refining sector corresponds to Tupras, which includes the value of Opet, where Tupras has a 41.7% stake.

Sources: Moody's Investors Service, FactSet, Company presentation

The portfolio exhibits a moderate degree of investment concentration, with the company's top three investments constituting almost 60% of its invested portfolio (excluding cash balances) plus holding company cash balances (Ba for the Asset Concentration sub-factor). Under our practice for calculating the portfolio value, we use the net asset value or book value of investment at the holding company level for unlisted companies and market-derived value for listed companies. This conservative approach undervalues Koc Holding's portfolio slightly as some of the unlisted investments have a very low cost basis and therefore does not reflect the fair value of the business.

The rating incorporates our expectation that Koc Holding will continue to invest in a meaningful manner when opportunities arise. Strategic growth would reduce the company's asset concentration risk and/or increase its geographic diversification, but we expect that Turkiye will remain the group's largest market.

### Limited geographic diversity of investments partially offset by high degree of international sales exposure to Europe

Koc Holding's rating is constrained as a result of its geographic concentration of investments in Turkiye (B for the Geographic Diversity sub-factor). In addition, all of Koc Holding's core operating companies have high exposure to both the domestic market and to Europe (either directly or indirectly). However, 50% of the total revenues of the first nine months of 2023 were international or had a foreign currency link, which protect the holding against potential downturns in the Turkish economy.

Moody's anticipates the Turkish economy's real GDP to grow 2.6% and 3.0% during 2024 and 2025 respectively, following a slowdown in 2020 and recovery thereafter. However, we expect inflation to remain high, over 50% and potentially dent the country's internal demand. A sustained macroeconomic environment deterioration would lead to a more difficult business and operating environment for the Group's investments. Koc Group's exposure to the Turkish market is partially mitigated by export-oriented companies particularly in the consumer durables and automotive segments. In addition, refined oil-product sales through Tupras are priced off international benchmarks and can be exported, making up a material portion of total group revenue that are less sensitive to domestic demand and currency movements.

Volatility in foreign exchange rates and the Turkish lira depreciation suffered during the last 24 months, in particular after the general elections held in May 2023, and continues to be a risk for companies in Turkiye that have liabilities denominated in hard currencies. For the 2023 financial year, the lira depreciated about 57% (2022:40%) against the dollar with periods of high volatility. Active risk management measures employed by the Koc Group companies provide comfort that in periods of volatile currency markets, the group will prudently manage foreign exchange risk.

### Exposure to Turkiye is a key credit constraint

Koc Holding is domiciled in Turkiye and its investments are mostly concentrated in the country. As such, the company is materially exposed to Turkiye's political, legal, fiscal and regulatory environment. We consider the unpredictable policy shifts, fueled by

unorthodox measures of the government in an attempt to stabilize the currency and restore foreign-currency buffers as a risk for Turkiye's corporates. These risks constrain Koc Holding's rating at Turkiye's foreign currency ceiling of B2. While not anticipated, any change in Turkiye's regulatory framework that causes a financial burden on Koc Holding's investments is likely to weigh on the current rating.

While Koc Holding's revenue comprises mostly local currency denominated dividends, some of the companies in its investment portfolio generate international revenue and hard currency revenue that provide access to foreign currency. The company reported about 28% of combined first nine months of 2023 revenue being exposed to foreign currency and 50% if [Turkiye Petrol Rafinerileri A.S.](#)'s (Tupras, B2 positive) foreign currency linked revenue is included. Moreover, the majority of Koc Holding's dividend income is derived from portfolio companies that have foreign exchange (FX) or FX-linked revenue.

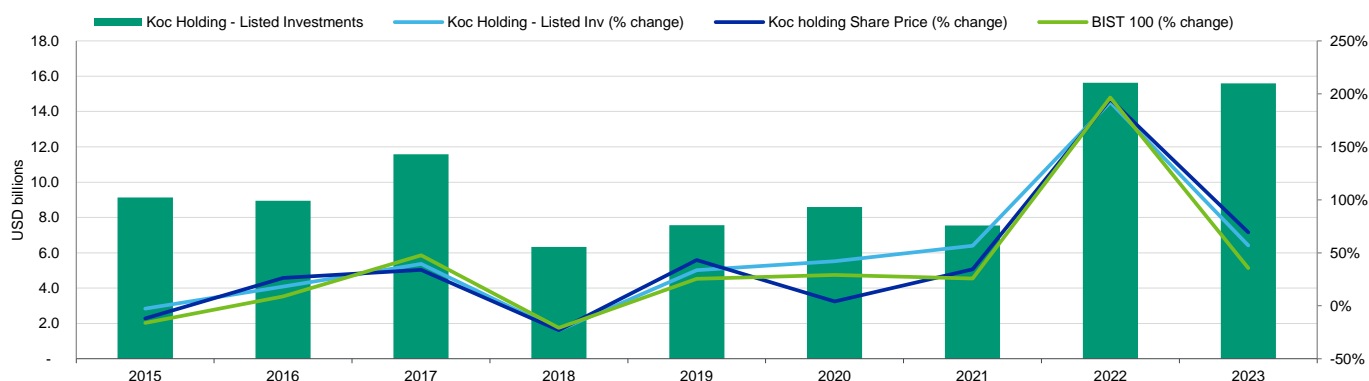
**High portion of listed investments provides high degree of transparency on portfolio values**

Koc Holding's listing on Borsa Istanbul, along with around 90% of its investment portfolio provides a high degree of transparency and is an important tool for assessing the quality of the company's underlying investments. Listed equity stakes help to assess the value of investments and are an additional source of liquidity for the holding company.

The sharp movements in share prices of Koc Holding and its operating companies over the past five years highlight the inherent volatility of the equity markets, as shown in exhibit 6. The current rating provides headroom for material volatility in asset values while incorporating our expectation that internal net leverage targets will be adhered to.

Exhibit 6

**Listed market values have heightened volatility**



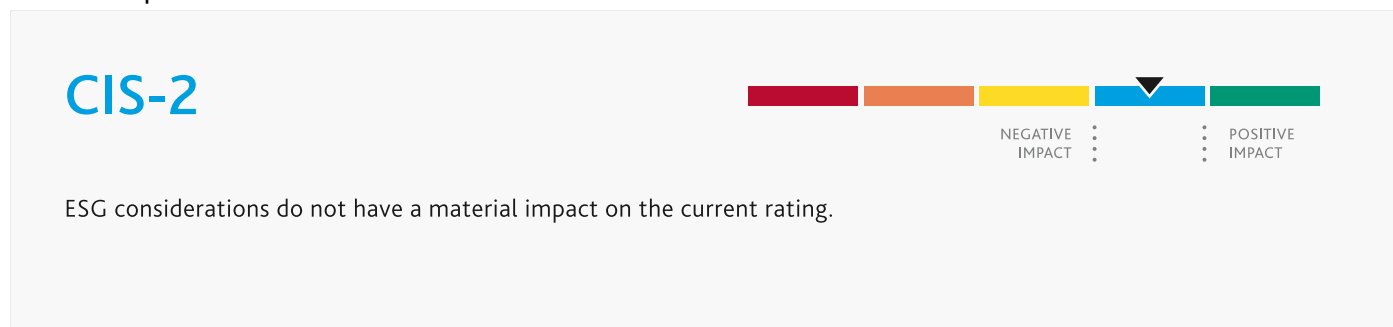
Source: Moody's Investors Service, FactSet, Company presentation

**ESG considerations**

**Koc Holding A.S.'s ESG credit impact score is CIS-2**

Exhibit 7

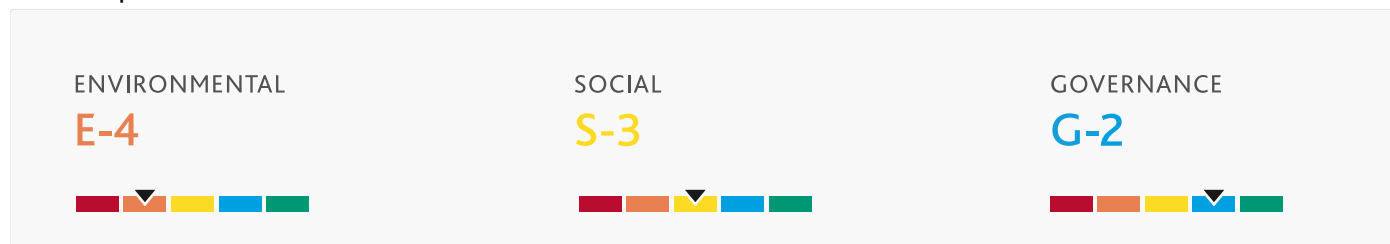
**ESG credit impact score**



Source: Moody's Investors Service

Exhibit 8

## ESG issuer profile scores

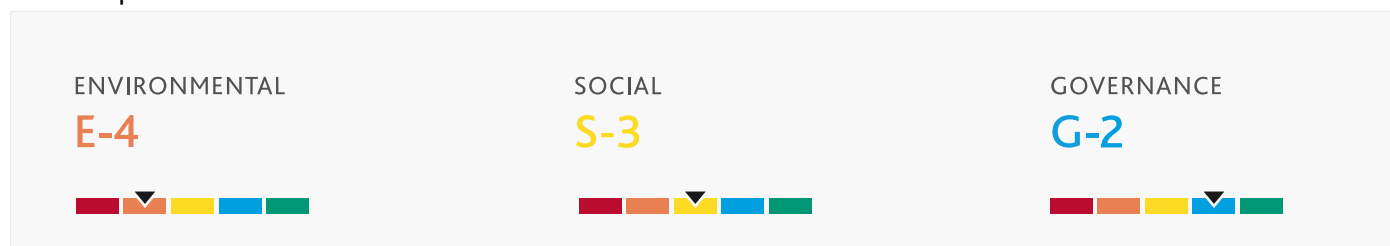


Source: Moody's Investors Service

Koc Holding A.S.'s **CIS-2** indicates that ESG considerations do not have a material impact on the current credit rating, which is constrained by the sovereign rating of Turkiye (B3 positive). Koc Holding has set proactive financial and risk management policies across its portfolio of companies to manage key business and credit risks. This oversight across its portfolio of companies is an additional layer of risk mitigation for the operating companies it has invested in and which we expect will strengthen the value of investments over the long term. In addition, event and execution risks associated with past acquisitions and investments are mitigated by the prudent approach the company has followed in managing its credit profile and avoiding financial over-leverage. We expect the company to maintain MVL below 15% and a normalised FFO interest coverage above 4.0x following any debt-financed acquisition.

Exhibit 9

## ESG issuer profile scores



Source: Moody's Investors Service

### Environmental

Koc Holding's **E-4** environmental issuer profile score reflects its indirect exposure to environmental risks through its investee companies, chief among which are Tupras and Aygaz which account to nearly 26% of Koc Holding's portfolio. Tupras' E-5 is driven by its exposure to carbon transition risk. Aygaz's E-5 is driven by the fact that, as a company exposed to the oil & gas industry, the company may face many regulations, which can weigh on costs and its ability to pay dividends in the future.

### Social

Koc Holding's **S-3** social issuer profile score reflects the company's indirect exposure to social risks through its investee companies. Koc Holding's high exposure to Demographic and Societal Trends and, Responsible Production risks, reflect the company's exposure to Tupras and the oil and gas and automotive sector, which accounts for over 60% of Koc Holding's portfolio.

### Governance

Koc Holding's **G-2** governance issuer profile score is linked primarily to the company's conservative financial policies and track record of maintaining a net cash position with a prudent approach in managing its investment portfolio. The company has a strong MVL ratio and manages its investments conservatively. The **G-2** score also reflects Koc Holding's concentrated ownership structure through a direct or indirect investment by the Koc Family. Additionally, four of the twelve board directors are independent.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moody's.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

Koc Holding's liquidity profile over the next 12 months is expected to be strong. As of 30 September 2023, Koc Holding had a cash balance of around TL37.9 billion (\$1.4 billion including YKB AT1 investment of \$206 million). We understand around 95% is held in foreign currency, both in domestic and international banks, which reduces its counterparty risk, in Moody's view, to the weaker credit quality of Turkiye-based financial institutions.

Koc Holding's liquidity profile over the next 12 months is supported by projected cash inflows from dividend income, rental income, interest income on cash balances and management fees. We expect cash inflows will improve the company's strong liquidity position and will be sufficient to pay cash outflows from head office costs and interest expenses for 2024 and 2025.



## Rating methodology and scorecard factors

We view Koc Holding as having certain characteristics of a conglomerate, with the company as a shareholder remaining committed to its key investments while actively defining and managing the risk profile of individual operating companies by maintaining majority or joint control through joint venture partners. However, the decentralised approach to managing individual operations and the holding company's policy to clearly separate financing between the holding and operating company levels (with non-recourse debt and absence of guarantees) supports the investment holding methodology approach for our credit analysis.

The scorecard-indicated outcome for Koc Holding is A3 with the forward looking view at A2, with strong financial metrics. The multi-notch difference to the actual assigned rating of B2 is due to the Türkiye's foreign currency ceiling of B2 and B3 sovereign rating, constraining the rating.

Exhibit 10

Investment Holding Companies Industry [1][2]	Current LTM 9/30/2023		Moody's 12-18 Month Forward View	
Factor 1 : Investment Strategy (10%)	Measure	Score	Measure	Score
a) Investment Strategy	Baa	Baa	Baa	Baa
Factor 2 : Asset Quality (40%)				
a) Asset Concentration	Ba	Ba	Ba	Ba
b) Geographic Diversity	B	B	B	B
c) Business Diversity	Baa	Baa	Baa	Baa
d) Investment Portfolio Transparency	A	A	A	A
Factor 3 : Financial Policy (10%)				
a) Financial Policy	A	A	A	A
Factor 4 : Estimated Market Value-based Leverage (MVL) (20%)				
a) Estimated Market Value-Based Leverage	Aaa	Aaa	Aaa	Aaa
Factor 5 : Debt Coverage and Liquidity (20%)				
a) (FFO + Interest Expense) / Interest Expense	4.5x	A	15x - 27x	Aaa
b) Liquidity	Aaa	Aaa	Aaa	Aaa
Rating:				
a) Scorecard-Indicated Outcome		A3		A2
b) Actual Rating Assigned				B2

[1] Ratios are based on holding level numbers and involves estimation of investment portfolio value.

[2] This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.

[3] FFO at parent level for Koc Holding is calculated as sum of management fees, dividend, interest, and rental income less opex, interest and tax paid. The current (FFO + Interest Expense) / Interest Expense of 4.5x is as of FY2022.

Source: Moody's Investors Service

## Ratings

Exhibit 11

Category	Moody's Rating
<b>KOC HOLDING A.S.</b>	
Outlook	Positive
Corporate Family Rating	B2
Senior Unsecured	B2/LGD4

Source: Moody's Investors Service

© 2024 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved. CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED OR OTHERWISE MADE AVAILABLE BY MOODY'S (COLLECTIVELY, "MATERIALS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S MATERIALS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S MATERIALS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES OR OTHERWISE MAKES AVAILABLE ITS MATERIALS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND MATERIALS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR MATERIALS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. FOR CLARITY, NO INFORMATION CONTAINED HEREIN MAY BE USED TO DEVELOP, IMPROVE, TRAIN OR RETRAIN ANY SOFTWARE PROGRAM OR DATABASE, INCLUDING, BUT NOT LIMITED TO, FOR ANY ARTIFICIAL INTELLIGENCE, MACHINE LEARNING OR NATURAL LANGUAGE PROCESSING SOFTWARE, ALGORITHM, METHODOLOGY AND/OR MODEL.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the credit rating process or in preparing its Materials.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at [www.moody's.com](http://www.moody's.com) under the heading "Investor Relations — Corporate Governance — Charter Documents - Director and Shareholder Affiliation Policy."

Moody's SF Japan K.K., Moody's Local AR Agente de Calificación de Riesgo S.A., Moody's Local BR Agência de Classificação de Risco LTDA, Moody's Local MX S.A. de C.V., I.C.V., Moody's Local PE Clasificadora de Riesgo S.A., and Moody's Local PA Clasificadora de Riesgo S.A. (collectively, the "Moody's Non-NRSRO CRAs") are all indirectly wholly-owned credit rating agency subsidiaries of MCO. None of the Moody's Non-NRSRO CRAs is a Nationally Recognized Statistical Rating Organization.

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for India only: Moody's credit ratings, Assessments, other opinions and Materials are not intended to be and shall not be relied upon or used by any users located in India in relation to securities listed or proposed to be listed on Indian stock exchanges.

Additional terms with respect to Second Party Opinions (as defined in Moody's Investors Service Rating Symbols and Definitions): Please note that a Second Party Opinion ("SPO") is not a "credit rating". The issuance of SPOs is not a regulated activity in many jurisdictions, including Singapore. JAPAN: In Japan, development and provision of SPOs fall under the category of "Ancillary Businesses", not "Credit Rating Business", and are not subject to the regulations applicable to "Credit Rating Business" under the Financial Instruments and Exchange Act of Japan and its relevant regulation. PRC: Any SPO: (1) does not constitute a PRC Green Bond Assessment as defined under any relevant PRC laws or regulations; (2) cannot be included in any registration statement, offering circular, prospectus or any other documents submitted to the PRC regulatory authorities or otherwise used to satisfy any PRC regulatory disclosure requirement; and (3) cannot be used within the PRC for any regulatory purpose or for any other purpose which is not permitted under relevant PRC laws or regulations. For the purposes of this disclaimer, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.

## CLIENT SERVICES

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