

SECTOR IN-DEPTH

28 May 2025



TABLE OF CONTENTS

Summary	1
Hard currency bond issuances momentum will remain in the medium-term despite investor concerns over recent political instability	2
Moderating hard currency borrowing rates will support more debt issuances	4
The credit ratings of some Turkish companies have improved following sovereign rating actions, but exporters' competitive advantage is declining	6
A return to more orthodox policies in Turkiye fosters a more stable operating environment for companies, though challenges persist	7

Contacts

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

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

Rehan Akbar, CFA +971.4.237.9565
Associate Managing Director
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

Nonfinancial Corporates – Turkiye

Turkiye corporate bond issuance to remain elevated but economic and geopolitical risks mount

Summary

The momentum of hard currency bond issuances from [Turkiye](#) (B1 positive) non-financial corporates will remain in the medium-term despite investor concerns over recent political instability. Falling global rates make the relatively higher yields on Turkish corporate bonds increasingly attractive and we expect improving operating conditions in the coming years. A return to orthodox economic policy has fostered a more stable environment for companies though tightening economic policy is hurting internal demand.

- » **Hard currency bond issuances momentum will remain in the medium-term despite investor concerns over recent political instability.** Hard currency bond issuance reached around \$7.8 billion in 2024, up from \$2.8 billion in 2023 and \$500 million in 2022. After a period of constrained international market access and negative real domestic interest rates, companies returned to hard currency borrowing in 2024. We expect high interest rates for lira borrowings and a more stable lira to make hard currency borrowing relatively more attractive, but economic and geopolitical risks have increased.
- » **Moderating hard currency borrowing rates will support more debt issuances.** The ongoing decline in US dollar and euro borrowing rates and prediction of further reductions in 2025 will support further hard currency debt issuance. Hard currency bond and loan transactions soared to 35 in 2024, from 22 the previous year. Turkish corporate debt issuance will also benefit as the market's relatively high yields stimulate investor interest in a declining global interest rate environment.
- » **The credit ratings of some Turkish companies has improved following sovereign rating actions, but export companies' competitive advantage is declining.** The average credit quality of rated Turkish companies is lower than for the companies we rate across EMEA as a whole, but has improved in the past two years. Despite the turbulent global economic environment and Turkiye's difficult economic conditions, Turkish companies remain resilient with relatively stable credit metrics, benefiting from export revenue in hard currencies. However, sustained real exchange rate appreciation would reduce Turkish exporters' competitiveness.
- » **A return to more orthodox policies in Turkiye fosters a more stable operating environment for companies, though challenges persist.** The tightened monetary and fiscal policies will continue to dampen inflationary pressures and improve the corporate operating environment. Inflation has fallen from its peak at 75.4% in May 2024 to 37.9% in April 2025. However, Turkish internal demand will continue to weaken, largely because of the lagged effects of tightening economic policies.

Hard currency bond issuances momentum will remain in the medium-term despite investor concerns over recent political instability

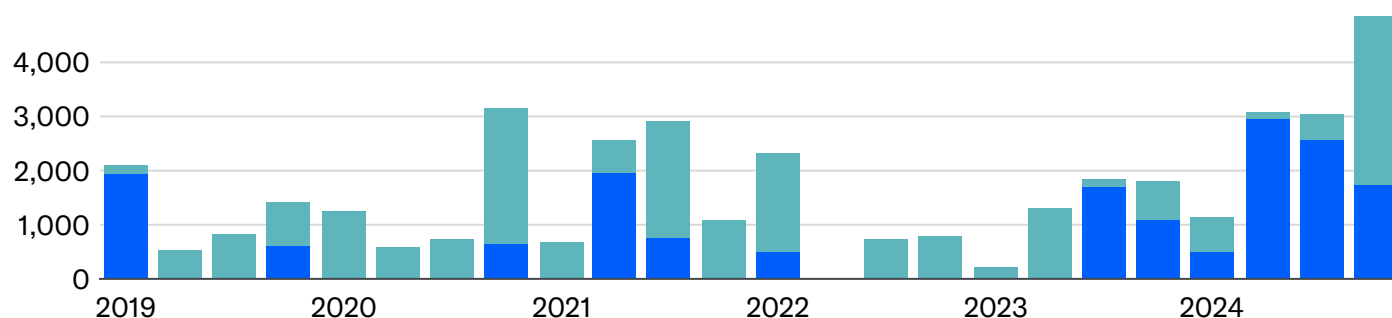
We expect Turkish hard currency debt issuance by nonfinancial companies to remain high in the coming 12 to 18 months. Improving macroeconomic data in Türkiye in late 2024 and 2025 compared to 2022 and 2023, coupled with more orthodox monetary policies, will support high levels of hard currency notes issuance. Falling global interest rates will support this trend. However, economic and geopolitical risks as well as weaker international sentiment towards investments in Türkiye remain a risk, particularly following a recent spate in anti-government protests in March-April 2025 that attracted international attention.

Hard currency notes issuance by Turkish nonfinancial corporates as well as project and infrastructure companies was up by 278% year-on-year in 2024 to close to \$7.8 billion from \$2.8 billion in 2023 and \$500 million in 2022. Hard currency bank loans increased by 84% during 2024 to \$4.3 billion from \$2.4 billion the year before (Exhibit 1). Furthermore, the Q1 issuance of hard currency notes surpassed \$1.6 billion compared to \$500 million in Q1 2024.

Exhibit 1

Increase in hard currency issuances is expected in the coming years following the strong trend observed in 2024
Türkiye quarterly corporate hard currency debt issuance (in USD million)

■ Bonds ■ Loans



[1] Excludes \$7.1 billion loan issued in 2021 as project financing for the IGA airport.

Source: Dealogic and Moody's Ratings

The appetite for corporate bond issuance has increased with the strengthening of Türkiye's sovereign credit profile. Although the improving conditions remain fragile - and we note in particular that elevated political risks are a long-standing feature of Türkiye's sovereign credit profile - investors expect macroeconomic conditions will continue to improve with lower inflation levels and decreasing rates.

Hard currency borrowings are currently relatively more attractive as the Turkish lira debt market continues to experience high interest rates and the currency is becoming more stable against the dollar. This contrasts with the 2022-2023 period which saw much lower hard currency issuance because lira real interest rates were negative and companies saw an advantage to borrow in lira, converting it to hard currency, and then paying back a lower amount over time.

We see an incentive for issuers to secure hard currency issuance in the months ahead as the lira could continue to appreciate in real terms and local currency rates are high (Exhibit 2). The lira closed 2024 with its smallest annual decline against the dollar since 2020.

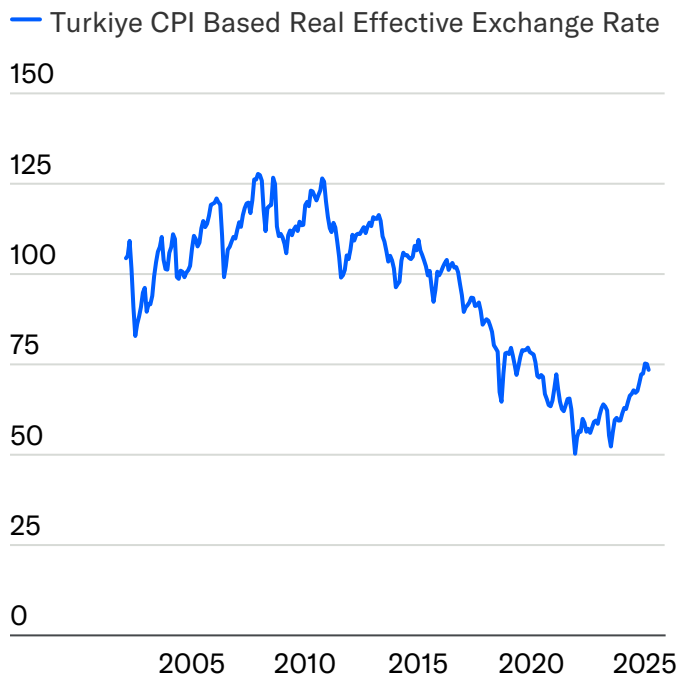
Elevated political risks are a long-standing feature of Türkiye's sovereign credit profile, captured by its "b" political risk assessment. As it has been in the past, renewed political instability, such as anti-government protests in March, could be a driver for negative market reaction and reduced hard currency market access for Turkish corporates. This has also triggered negative movement in the risk

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's.com> for the most updated credit rating action information and rating history.

premium of Turkish bonds. But absent any significant shock to the Turkish economy, we would expect the current trends to continue as the authorities push to further reduce inflation.

Exhibit 2

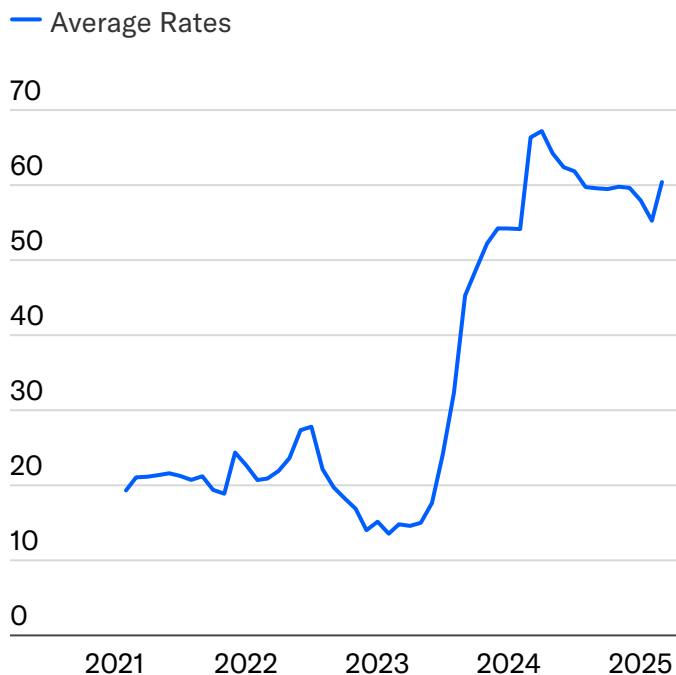
Turkiye CPI Based Real Effective Exchange Rate



Source: CBRT

Exhibit 3

Turkish banks weighted average rate on commercial loans (% p.a.)



Source: CBRT

The average pricing of new hard currency bonds issued in Türkiye in 2024 was relatively high at around 8.75%. Pricing differentiation between companies went from as low as 7.125% for \$500 million five-year notes for auto manufacturer Ford Otomotiv Sanayi AS issued in April 2024 to as high as 11% for \$800 million of five and half year notes for energy group [Zorlu Enerji Elektrik Uretim A.S.](#) (B3 positive) issued in October 2024. Zorlu raised an additional \$200 million notes in November with the same terms and conditions.

2024 began very positively with glass manufacturer [Turkiye Sise ve Cam Fabrikalari A.S.](#) (Sisecam, B2 negative) issuing \$1.1 billion in two tranches for five and eight years at 8.25% and 8.625% respectively (Exhibit 4). Sisecam's issuance was followed weeks later by a \$400 million add on, making it a \$1.5 billion issuance. This was the largest issuance in Turkish private corporate history and attracted nearly \$5 billion in total demand. The issuance rally followed with [Eregli Demir ve Celik Fabrikalar TAS](#) (Erdemir, B2 stable), [Limak Cimento Sanayi ve Ticaret A.S.](#) (B2 stable), [GDZ Elektrik Dagitim A.S.](#) (B2 stable) and the previously mentioned Zorlu, issuing a combined total of \$2.9 billion. All the transactions shown below were in US dollars and since 2019 all 34 hard currency bond issuances were in dollars, with the exception of one euro issuance in 2021.

Exhibit 4

2024 and 2025 hard currency corporate notes issuance

Issuance Date	Company Name	Rating	Outlook	Issued Amount (\$ million)	Coupon	Maturity
09-May-25	Cimko Cimento	B2	Stable	300	10.750%	21-May-30
12-Feb-25	Limak Yenilenebilir Enerji AS	B2	Stable	75	9.625%	12-Aug-30
10-Feb-25	GDZ Elektrik Dagitim AS	B2	Stable	119	9.000%	15-Oct-29
05-Feb-25	Limak Yenilenebilir Enerji AS	B2	Stable	450	9.625%	12-Aug-30
16-Jan-25	Turkcell Iletisim Hizmetleri AS	B1	Positive	500	7.650%	24-Jan-32
16-Jan-25	Turkcell Iletisim Hizmetleri AS	B1	Positive	500	7.450%	24-Jan-30
04-Nov-24	Zorlu Enerji Elektrik Uretim AS	B3	Positive	200	11.000%	23-Apr-30
18-Oct-24	Zorlu Enerji Elektrik Uretim AS	B3	Positive	800	11.000%	23-Apr-30
07-Oct-24	GDZ Elektrik Dagitim AS	B2	Stable	400	9.000%	15-Oct-29
07-Oct-24	Ronesans Holding	Unrated	Unrated	350	8.500%	7-Oct-29
04-Sep-24	Pegasus	Unrated	Unrated	500	8.000%	11-Sep-31
29-Jul-24	Eregli Demir ve Celik Fabrikalar TAS	B2	Stable	200	8.375%	23-Jul-29
18-Jul-24	Limak Cimento	B2	Stable	575	9.750%	25-Jul-29
16-Jul-24	Eregli Demir ve Celik Fabrikalar TAS	B2	Stable	750	8.375%	23-Jul-29
01-Jul-24	Ulker Biskuvi Sanayi AS	Unrated	Unrated	550	7.875%	08-Jul-31
14-May-24	Sisecam Group	B2	Negative	175	8.250%	02-May-29
14-May-24	Sisecam Group	B2	Negative	225	8.625%	02-May-32
13-May-24	Turk Telekomunikasyon AS	Unrated	Unrated	500	7.375%	20-May-29
08-May-24	Vestel Elektronik Sanayi ve Ticaret AS	Caa1	Negative	450	9.750%	15-May-29
24-Apr-24	Sisecam Group	B2	Negative	500	8.250%	02-May-29
24-Apr-24	Sisecam Group	B2	Negative	600	8.625%	02-May-32
18-Apr-24	Ford Otomotiv Sanayi AS	Unrated	Unrated	500	7.125%	25-Apr-29
14-Feb-24	We Soda Investments Holding	Unrated	Unrated	500	9.375%	14-Feb-31

Ratings as of May 2025.

Source: Dealogic

The first months of 2025 have seen a continuation of 2024's high issuance. At the start of the year [Turkcell Iletisim Hizmetleri A.S.](#) (Turkcell, B1 positive) issued two \$500 million tranches at 7.65% (seven year maturity) and 7.45% (five year maturity). [Limak Yenilenebilir Enerji](#) (B2 stable), Limak group's renewable energy business, issued a five and a half year \$450 million bond at 9.625% to refinance its capital structure and fund upcoming capital expenditure projects. Issuance in March and April was muted, however in May, [Cimko Cimento](#) (B2 stable) issued \$300 million with a 10.75% coupon to refinance its capital structure and partly fund capital expenditure projects.

Despite a strong performance up to May 2025, with nearly \$2 billion in hard currency bond issuance (compared to \$3.4 billion in the same period of 2024), market volatility has increased. This uncertainty arises from unresolved political tensions and concerns over weakening performance among Turkish issuers with large exposure to international trade, such as Vestel and Sisecam, as the recent appreciation of the Lira affects exporters' profits. US Tariff effects also remain uncertain. Though we continue to take a positive view of underlying market momentum, the effects of these disruptive forces could cause overall issuance in 2025 to remain muted.

Moderating hard currency borrowing rates will support more debt issuances

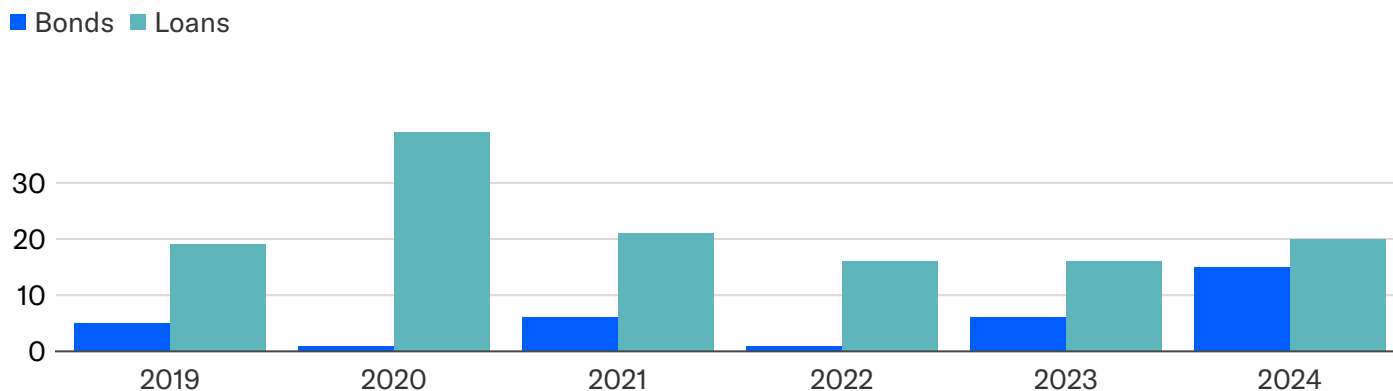
Further reductions in global policy interest rates will be a driver for higher hard currency debt issuance during 2025, although the timing of reductions remains uncertain. The relatively higher yields for Turkish corporate debt continue to attract investor interest, particularly as yields declined further in developed markets during 2024. This will allow leading Turkish companies to reduce both borrowing costs and refinancing risks.

Hard currency bond and loan transactions in Turkiye soared to 35 in 2024, including 15 bond issuances, from 22 the previous year (Exhibit 5). [We expect the global trend in central bank interest rates reduction](#), particularly from the US, to resume later this year

with additional rate cuts. The simultaneous easing of rates in the eurozone will help bolster economic stability globally but could be countered to some degree by heightened risks to US inflation from policies proposed by the Trump Administration.

Exhibit 5

Loan and bond transactions in hard currency has increased during 2024, particularly for bonds
Turkiye corporate hard currency debt transactions (by number of transactions)

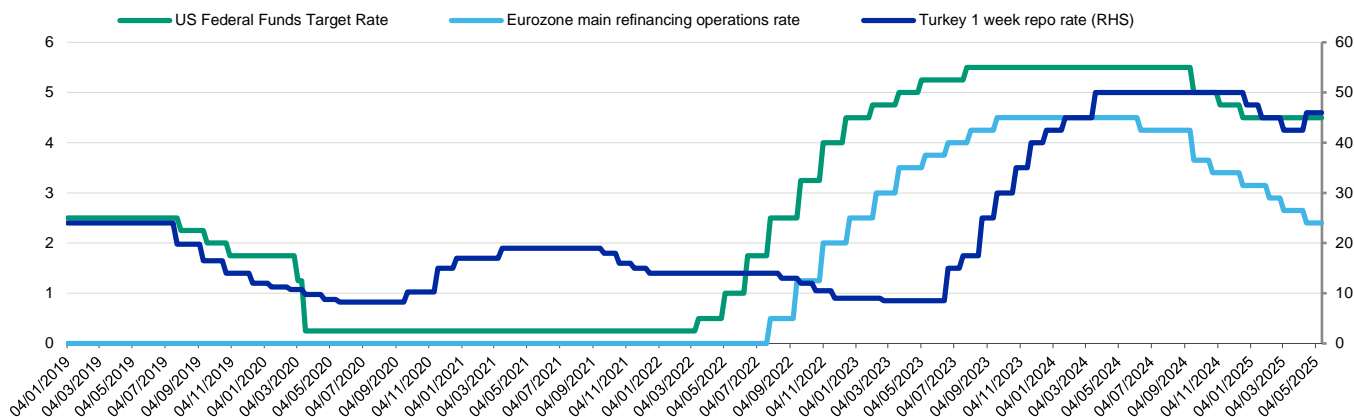


Source: Dealogic and Moody's Ratings

Lower interest rates in developed markets, compared with the 2023-2024 period, will incentivize investors to seek higher yields in markets such as Turkiye (Exhibit 6). Turkish corporate borrowers will therefore benefit from relatively lower rates though remaining exposed to a sovereign risk premium.

Exhibit 6

Central banks' lower rates will continue to drive higher debt issuances in USD
Evolution of ECB, FED and CBRT key policy rates over time (in %)



Source: Factset

Turkish companies taking on hard currency debt will also strengthen their corporate profiles by reducing refinancing risks. This is because Turkish lira debt often has terms of no longer than two years, which is demanded by both investors and borrowers because of the country's extreme recent economic fluctuations.

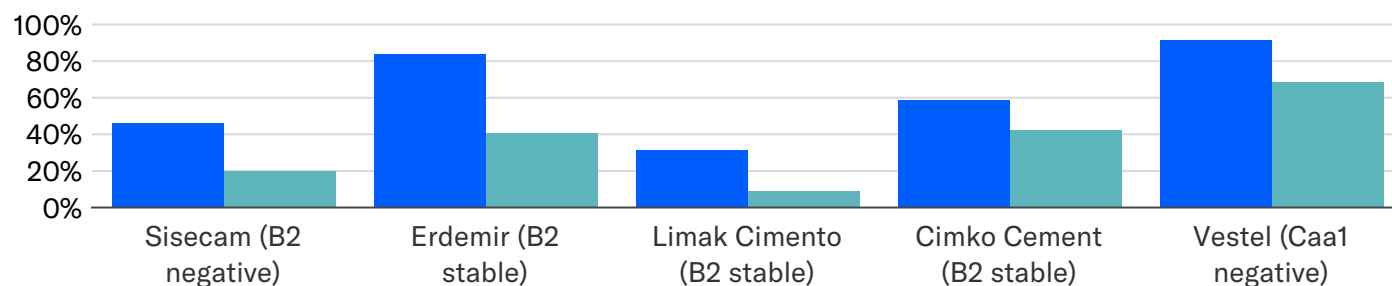
Industry leading companies such as Sisecam, Limak Cement, Erdemir and Turk Telekom issued hard currency bonds in 2024 to refinance bank debt as well as notes that had 2025 and 2026 maturities. Dependence on short term financing and debt rollover has consequently reduced for many Moody's rated Turkish corporates (Exhibit 7).

Exhibit 7

Recent hard currency issuances will reduce reliance on bank debt

Short term debt as % of total debt

■ FY2023 ■ Post-debt issuance



Source: Moody's Financial Metrics

The overall liquidity profiles, including access to capital, of Turkish companies have improved as a result of large recent hard currency note issuances. Hard currency bond issuances momentum will remain in the medium-term despite recent weaker investor confidence in Turkish corporates, we believe, because of the access to affordable hard currency financing and the high Turkish lira interest rate environment.

However, if a fresh political crisis led to a sustained depreciation in the Lira's value, most of the Turkish companies we rate that primarily have lira revenue but issue hard currency debt would face a growing currency mismatch on their balance sheets. The imbalance could negatively impact some issuers if they are unable to adjust their product prices to offset FX losses on their hard currency debt, especially if adverse changes in the operating environment occur. Despite the risks, most Turkish issuers do not make use of derivatives to hedge their debt but instead rely on natural hedging. Furthermore, smaller issuers refinancing their entire capital structure with a single bullet bond may encounter refinancing risks when these bonds mature. This risk is heightened if they do not manage their liquidity carefully as the maturity date approaches, given the potential volatility of capital markets.

The credit ratings of some Turkish companies have improved following sovereign rating actions, but exporters' competitive advantage is declining

The credit ratings of some Turkish companies has improved following the upgrade of the Turkish Government's rating by two notches in 2024. Credit metrics of many issuers have been resilient during a long period of difficult conditions and have improved in the past two years.¹ However, continued real Turkish lira appreciation will have negative consequences for exporters' competitiveness in the years ahead.

Companies such as Turkcell, Erdemir and Turkish Airlines have seen their credit ratings upgraded in the past year after the Government of Turkiye was upgraded to B1 from B3. These upgrades reflected their strong business profiles with resilience to economic volatility, strong financial policies, stable balance sheets, and diversified revenue streams, including significant export revenue for some. Additionally, the overall liquidity position of some companies we rate improved as a result of debt refinancings.

Sustained real Turkish lira appreciation, particularly since late 2023, is an important support for the disinflation efforts of the Central Bank of Republic of Turkiye's (CBRT) but will negatively impact Turkish exporters' competitiveness as Turkish products become less attractive in global markets. Moreover, macroeconomic data from Europe, a crucial export market for Turkiye, remains weak and global geopolitical tensions could yet trigger a negative supply shock, leading to higher energy costs. Added to these concerns, cost inflation will continue to put pressure on profitability metrics for Turkish companies, particularly exporters. In this context, businesses are concentrating on reducing costs and enhancing operational efficiency while leveraging better market access to extend debt maturities.

We do not foresee an improvement in profitability levels for Turkish companies in 2025 because Turkiye's internal demand will continue to encounter challenges partly because of necessary macroeconomic stabilisation policies. Weaker internal demand coupled

with a sustained real exchange rate appreciation will negatively impact the competitiveness of Turkish companies catering to both domestic and international markets.

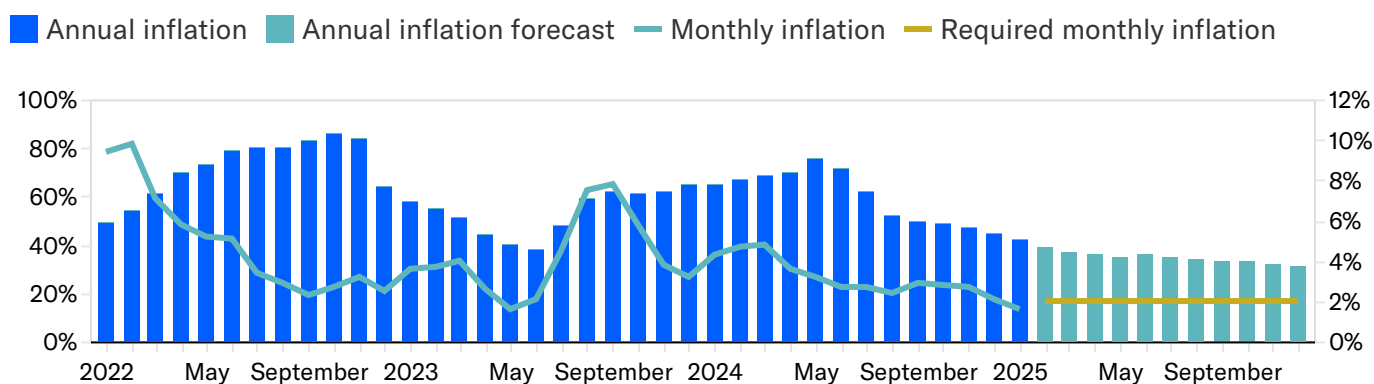
On 11 March 2025, we downgraded Sisecam to B2 from B1 and changed the outlook to negative from stable. This followed sustained performance deterioration and weaker than expected sales volumes with negative pricing pressures in most of their end markets. Sisecam's profitability has been eroded by higher costs and the loss of its competitive advantage in the export business as a result of the real appreciation of the Turkish lira. In April 2025, we also downgraded Vestel to Caa1 with a negative outlook from B3 stable. The downgrade reflects our concerns about the company's weakening liquidity position. It also reflects Vestel's weak operating performance in 2024 that has substantially weakened the company's credit metrics and highlighted its vulnerability to macroeconomic volatility and competition.

A return to more orthodox policies in Turkiye fosters a more stable operating environment for companies, though challenges persist

The Turkish government's reversion to more orthodox economic policies will continue to improve the operating environment for Turkish companies over the long run and improve their access to capital markets. However, [economic policies designed to rein in inflation and rebalance the economy from unsustainably strong domestic demand will slow growth further in 2025](#) (Exhibit 8).

Exhibit 8

Both monthly and annual inflation rates have come off their peaks and are trending down



[1] Annual inflation data is shown on the left axis, while monthly inflation data is shown on the right axis

[2] Monthly inflation required refers to monthly inflation required to reach the CBRT 2025 targets.

Sources: Turkish Statistical Institute and Moody's Ratings

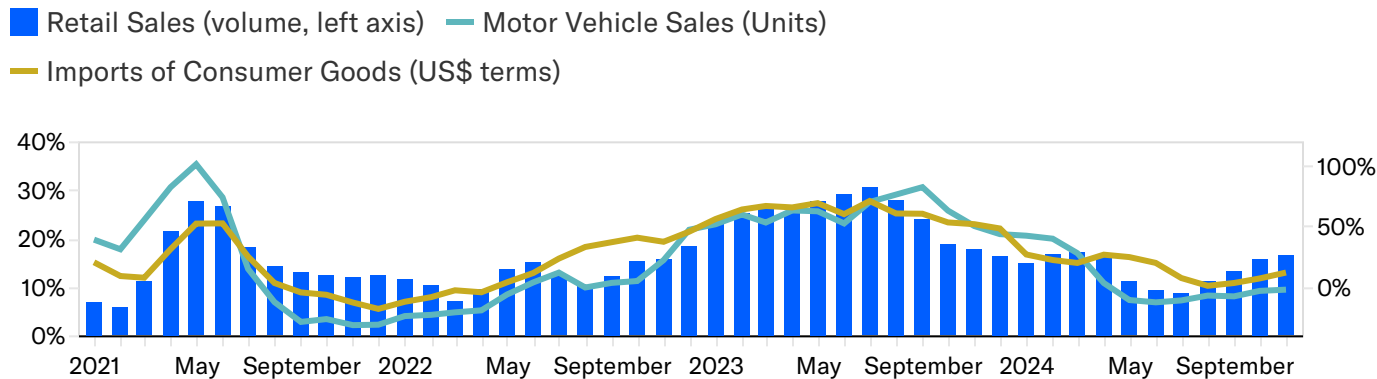
The CBRT's return to orthodox monetary policies since June 2023 has cut the country's inflation by almost half in the past year and we expect it to reduce further, assuming there is no increase in geopolitical and social risks. Lower inflation levels coupled with a more stable lira will reduce cost strain and uncertainty for Turkish companies. It will also improve investor confidence, thereby enhancing access to both domestic and international capital markets, as seen during 2024.

However, these improvements remain fragile amid weak investor confidence. The arrest of political opposition leader Ekrem Imamoğlu, triggered a sharp sell-off of Turkish assets. The Turkish lira depreciated by more than 3% on the day, after weakening more than 10% during the trading session, prompting the CBRT to intervene in the foreign-exchange market on 19 March and raise the overnight lending rate 200 basis points to 46% on 20 March to limit market volatility. The CBRT hiked its benchmark rate by 350bps to 46% in its April 2025 meeting to stabilize the Lira devaluation.

Inflation as of April 2025 has decreased to 37.9% year-on-year, down from a May 2024 peak of 75.4%, according to CBRT figures. We expect inflation will decrease to around 33% by the end of 2025 and to 24% in 2026, compared with the CBRT's more ambitious forecast of 24% in 2025 and 12% in 2026. The lira has also relatively stabilised, depreciating 18% against the dollar in 2024, compared with 58% and 40% in 2023 and 2022, respectively based on year end exchange rates.

We expect current tighter financial conditions and ongoing fiscal consolidation to continue constraining household consumption in 2025 (Exhibit 9). We expect consumer real disposable income will continue to deteriorate during 2025 and consumers will prioritise savings. This will have a direct effect on Türkiye's internal demand and therefore the corporate operating environment. Such challenges will be partly offset by a decreasing inflation level and as global economic activity picks up, following stimulus measures in China and easing monetary conditions in many developed economies.

Exhibit 9
Significant slowdown in retail sales and consumer imports
 Year-on-year % change (three-month moving average)



Motor vehicle sales and imports of consumer goods refer to right axis.
 Sources: Turkish Statistical Institute, Automotive Manufacturers Association and Moody's Ratings

Türkiye's economy grew 3.2% in 2024 with a 3.0% year-on-year growth in Q4 2024. Domestic sales for Turkish issuers have weakened on the back of weakened purchasing power and lower consumer spending. Glass manufacturer Sisecam, which generates more than 40% of its revenue domestically (excluding exports from Türkiye), reported a 15% year-on-year drop in its revenue in 2024.

Endnotes

1 Note that credit analysis amid the volatility of recent years remains complex, particularly given the need for hyperinflation accounting (IAS29)

© 2025 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 Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and all MCO entities that issue ratings under the "Moody's Ratings" brand name ("Moody's Ratings"), also maintain policies and procedures to address the independence of Moody's Ratings' 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 ir.moody.com under the heading "Investor Relations — Corporate Governance — Charter and Governance 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 61 003 399 657 AFSL 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 and Net Zero Assessments (as defined in Moody's Ratings Rating Symbols and Definitions): Please note that neither a Second Party Opinion ("SPO") nor a Net Zero Assessment ("NZA") is a "credit rating". The issuance of SPOs and NZAs is not a regulated activity in many jurisdictions, including Singapore. JAPAN: In Japan, development and provision of SPOs and NZAs fall under the category of "Ancillary Businesses", not "Credit Rating Business", and are not subject to the regulations applicable to "Credit Rating Business" under the Financial Instruments and Exchange Act of Japan and its relevant regulation. PRC: Any SPO: (1) does not constitute a PRC Green Bond Assessment as defined under any relevant PRC laws or regulations; (2) cannot be included in any registration statement, offering circular, prospectus or any other documents submitted to the PRC regulatory authorities or otherwise used to satisfy any PRC regulatory disclosure requirement; and (3) cannot be used within the PRC for any regulatory purpose or for any other purpose which is not permitted under relevant PRC laws or regulations. For the purposes of this disclaimer, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.

REPORT NUMBER 1436060

CLIENT SERVICES

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