

Q4 2025

The evolution of the U.S. Treasury CLOB



CONTENTS

- 2 Executive summary
- 3 Introduction
- 4 How the CLOB is used
- 4 What impacts CLOB activity?
- 6 The CLOB landscape today
- 7 Do aggregated streams = CLOB?
- 8 Other competition
- 8 CLOB evolution
- 9 Conclusion

Kevin McPartland is the Head of Research for Market Structure & Technology at Crisil Coalition Greenwich.



Executive summary

The U.S. Treasury central limit order book (CLOB) has been a cornerstone of the U.S. Treasury market for three decades, providing a platform for buyers and sellers to trade with anonymity, firm prices and instant execution. Amid the U.S. Treasury market's dramatic evolution over time, the CLOB continues to set the market's benchmark price and serves as a critical measure of market liquidity. Its user base has expanded beyond primary dealers to include nonbank market makers, hedge funds and asset managers, who value its pre-trade transparency and firm prices.

While the core strengths of the CLOB have stood the test of time, these trading venues have continued to evolve to meet the changing needs of market participants. Smaller tick sizes, tighter integration into the broader interest-rate trading ecosystem, and technology that supports more systematic trading have all kept existing users engaged and encourage new market participants to enter the fray.

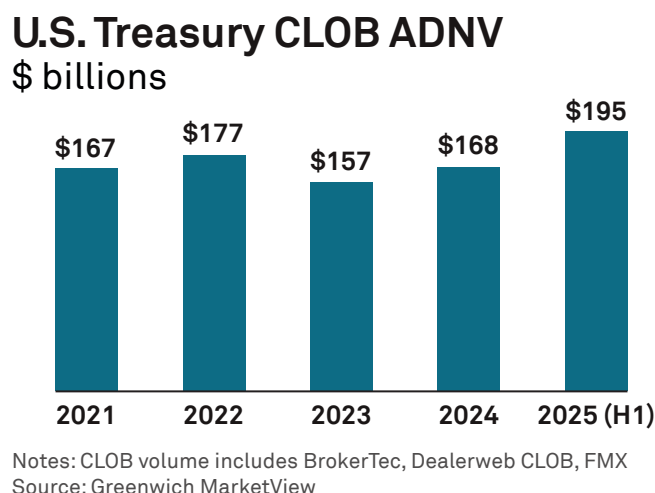
Utilizing Crisil Coalition Greenwich data examining electronic trading in the U.S. Treasury market, alongside insights gathered from conversations with platform operators, hedge funds, nonbank liquidity providers, and top-tier banks, this research examines the history of CLOBs in the U.S. Treasury market, the current competitive landscape, the market's evolution, and its likely path forward.

METHODOLOGY

This research is based on an analysis of Crisil Coalition Greenwich data examining electronic trading in the U.S. Treasury market. In addition, we spoke with platform operators, hedge funds, nonbank liquidity providers, and top-tier banks in the third quarter of 2025 to gain insights into the current competitive landscape and future outlook.

Introduction

Electronic trading of U.S. Treasuries began with the central limit order book (CLOB) 30 years ago. Today, trading via CLOB continues to determine the market's benchmark price and acts as a critical measure of market liquidity. In the first half of 2025, U.S. Treasury CLOBs handled an average of \$195 billion of trading per day, an increase of 16% compared to full-year 2024. That is nearly as much as the total daily volume of the U.S. Treasury market when the first CLOB was launched in 1996 and today equates to over 40% of dealer-to-dealer trading.



While the fundamental operation of a CLOB has remained intact since its launch—continuous bids and ask, anonymity, firm prices, instant execution—the major CLOB trading venues have adapted their offerings to reflect today's market structure, current and potential market participants, and the latest technology. Originally designed for interdealer brokers to manually enter client orders, and then for point-and-click trading between primary dealers, CLOBs now also count principal trading firms, hedge funds and even some asset managers as users. And not only do CLOB providers compete with one another, they now also compete with myriad other trading protocols (e.g., auctions, direct streaming) and products for transferring risk (e.g., futures, exchange-traded funds (ETFs)).

Nevertheless, the CLOB's place in the U.S. Treasury market ecosystem is cemented for the foreseeable future as smaller tick and order sizes, reduced latency execution and new linkages to the broader interest-rate ecosystem increase its usefulness and attract new market participants. Mandatory central clearing will further streamline access to these liquidity pools in the years ahead.

This report lays out the current state of CLOBs in the U.S. Treasury market, the competitive landscape and the coming changes to these marketplaces intended to deepen their liquidity and usefulness for a broad array of traders and investors.

How the CLOB is used

The first CLOBs were created as an extension of the interdealer broker market and were used by primary dealers to manage positions obtained via trading with clients. Bonds bought from an asset manager could then be sold to another dealer to neutralize the risk. This use case remains today, although dealers are now often trading with nonbank market makers in the CLOB, and also look to the futures market or internalization (matching buy and sell interest between trading desks at the same bank) to offload risk.

In fact, nonbank market makers are now the largest liquidity providers in CLOB markets, generating nearly \$300 million per year in market-making revenue, according to Crisil Coalition Greenwich data. These fully automated strategies profit from capturing the bid-ask spread and ensure a constant, tradeable price. This pre-trade transparency is in large part why the current price on the CLOB, particularly BrokerTec, is still viewed as the market's current price. Further, the depth of book—or how much volume is currently available to trade at different prices—is used as a metric of overall market liquidity, with the majority of trading between investors and dealers still executed through privately negotiated (albeit electronic) transactions.

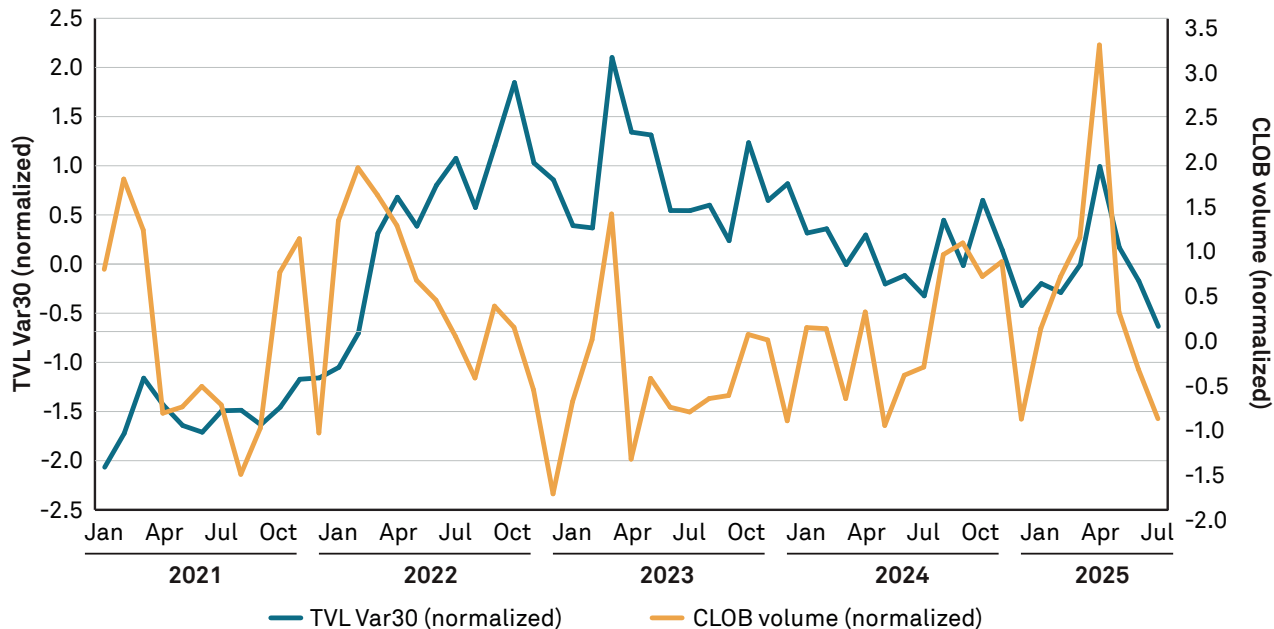
The resulting liquidity and price transparency creates numerous opportunities for dealers, market makers and investors alike. The now famous basis trade, where traders look to profit from small discrepancies in price between Treasury futures and Treasury bonds, often relies on CLOB pricing and liquidity to ensure the future and bond legs can be executed simultaneously. The pre-trade price transparency also helps dealers to provide quotes for client inquiries and for clients to benchmark the prices they receive from their dealers. And while trade automation has found its way into all e-trading protocols, the CLOB's transparency and firm prices make it the most amenable to algorithmic trading.

What impacts CLOB activity?

Trading activity on CLOB markets ebbs and flows with the macro environment. CLOB markets often shine during periods of market volatility, when dealers are more actively managing their own risk and liquidity, and nonbank market makers ramp up trading to capture the additional bid-ask spread created by quickly moving prices. This can be seen via a correlation analysis between CLOB volumes and market volatility.¹ While correlation holds up over time, various market dynamics can drive that correlation lower, sometimes going negative.

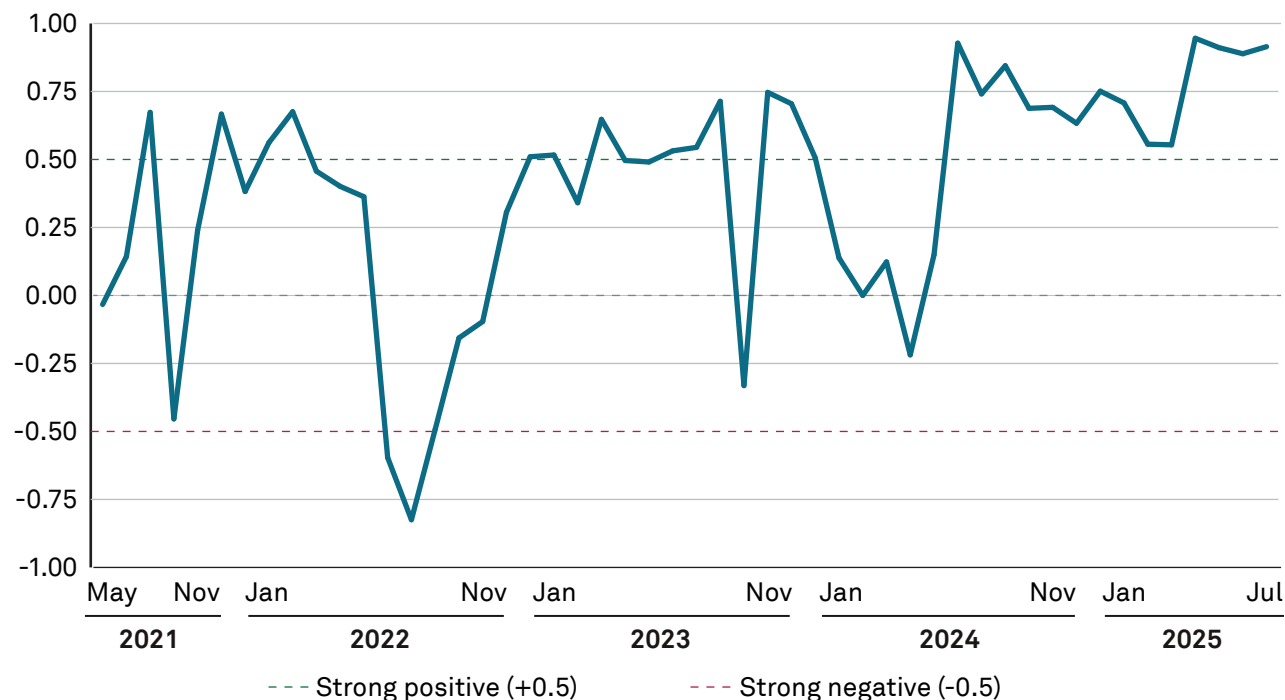
¹ As measured by CME Group's CVOL index for Treasuries (TVL) - <https://www.cmegroup.com/market-data/cme-group-benchmark-administration/cme-group-volatility-indexes.html>

UST volatility (TVL) and CLOB volume (normalized)



Note: Volatility as measured by CME Group Volatility Index (TVL). CLOB volume includes BrokerTec, Dealerweb CLOB and FMX.
 Source: Crisil Coalition Greenwich, CME Group

6-month rolling correlation: UST volatility (TVL) vs. CLOB volume



Note: Volatility as measured by CME Group Volatility Index (TVL). CLOB volume includes BrokerTec, Dealerweb CLOB and FMX.
 Source: Crisil Coalition Greenwich, CME Group

For instance, persistent upside-inflation surprises, coupled with constant Fed rate-hiking, created a volatile environment where dealers and market makers were less willing to take on risk, while clients looked to request-for-quote (RFQ) markets to adjust their market exposure. Conversely, the failure of Silicon Valley Bank in March 2023 saw CLOB activity rise alongside volatility as electronic market makers capitalized on the market's uncertainty.

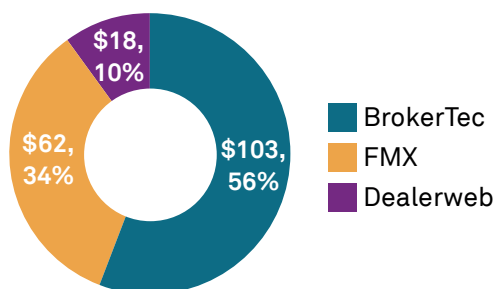
More recently, CLOB volume and volatility has remained correlated, since volatility spiked due to the yen carry trade in August 2024 and Liberation Day in April 2025, even as volatility has declined in the spring and summer of 2025. In short, CLOB activity is highly correlated to short-term market stress in status-quo periods, but that correlation breaks down when the volatility is prolonged.

The CLOB landscape today

The first CLOBs were used by voice interdealer brokers who manually entered trades received over the phone from their bank clients. The modern U.S. Treasury CLOB landscape truly began when eSpeed was launched in 1996, followed shortly thereafter by BrokerTec in 1999. The former is now part of Tradeweb and branded Dealerweb CLOB, and the latter is operated by CME Group. In 2018, the FENICS U.S. Treasuries platform was launched, now operating as FMX.

BrokerTec has remained the market-share leader for the last decade, handling 56% of CLOB-executed notional volume in 2025, with FMX and Dealerweb handling the balance. These CLOBs handle nearly all electronic, wholesale trading of on-the-run Treasuries. While at a high level these platforms compete for the same order flow, their models are notably different and important to understanding the landscape.

CLOB market share by ADNV traded



Note: 2025 YTD September. ADNV in billions.
Source: Greenwich MarketView

BrokerTec offers an anonymous CLOB in which all counterparties on the platform can see all prices and trade with one another. They recently launched BrokerTec Chicago, a second order book based near the Aurora, IL data center to complement the original order book in New York, looking to attract traders of the futures and cash markets with both matching engines living in the same data center.

Dealerweb's CLOB also allows for anonymous executions between all market participants but operates alongside streaming liquidity ("Actives"), auction ("Sweep") and workup protocols that can involve a voice element. FMX's

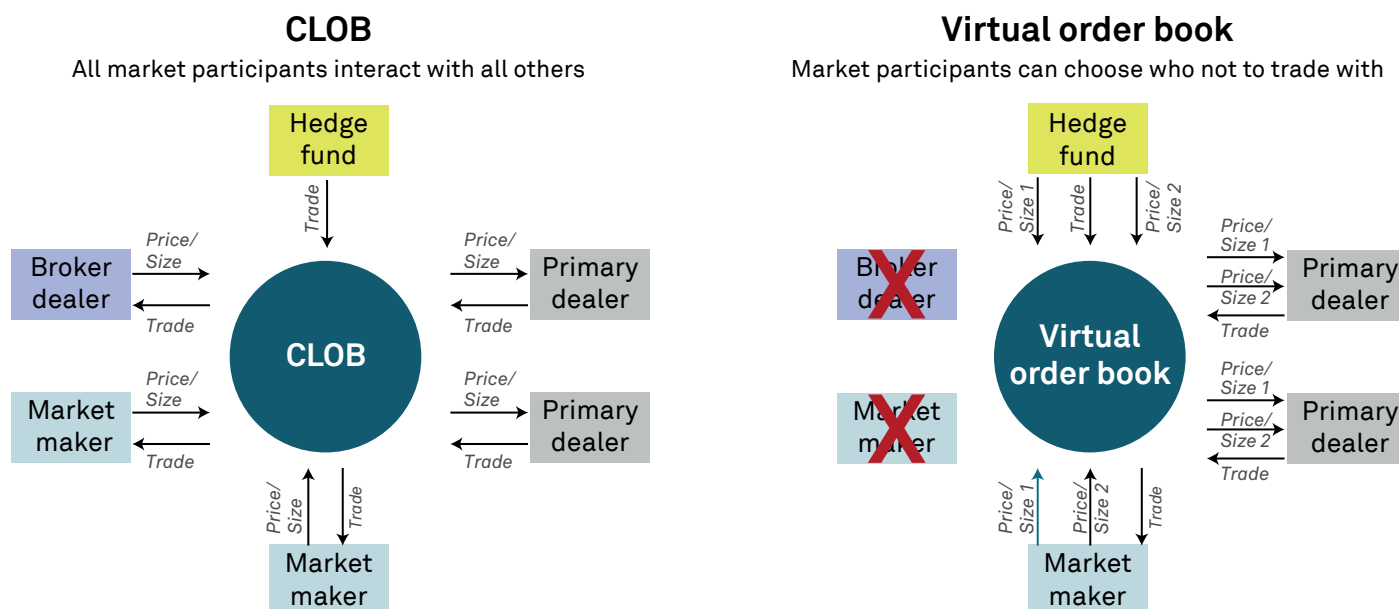
offering (referred to as PCLOB) allows market participants to choose who they do and do not want to trade with by counterparty profile (not by firm name), which results in an order book of curated pricing streams that is unique to each user.

Do aggregated streams = CLOB?

On that note, the growing use of streaming price solutions has created a gray area in the CLOB landscape. Dealers and market makers utilize algorithms to generate the current prices and sizes at which they'll buy or sell U.S. Treasuries. In a traditional anonymous CLOB, these price/size combinations are streamed into the order book with millisecond latency.

Streaming solutions allow liquidity providers to stream prices tailored to a specific client or tier of client— anonymously or name-disclosed, depending on the solution—often generated via the same algorithm used to create prices for the order book. The liquidity consumer, in turn, aggregates these streams into a virtual or customized order book of prices and sizes tailored for them from only the counterparties they chose.

CLOB vs. aggregated streams: Hedge fund use case



Source: Crisil Coalition Greenwich

An aggregation of streams looks and acts like a CLOB, particularly when these streams are anonymous, but many argue these markets are not “central,” as prices and sizes are not made available to everyone. While on the surface this might seem like only semantics, the ultimately liquid profile of both solutions can prove quite different.

Other competition

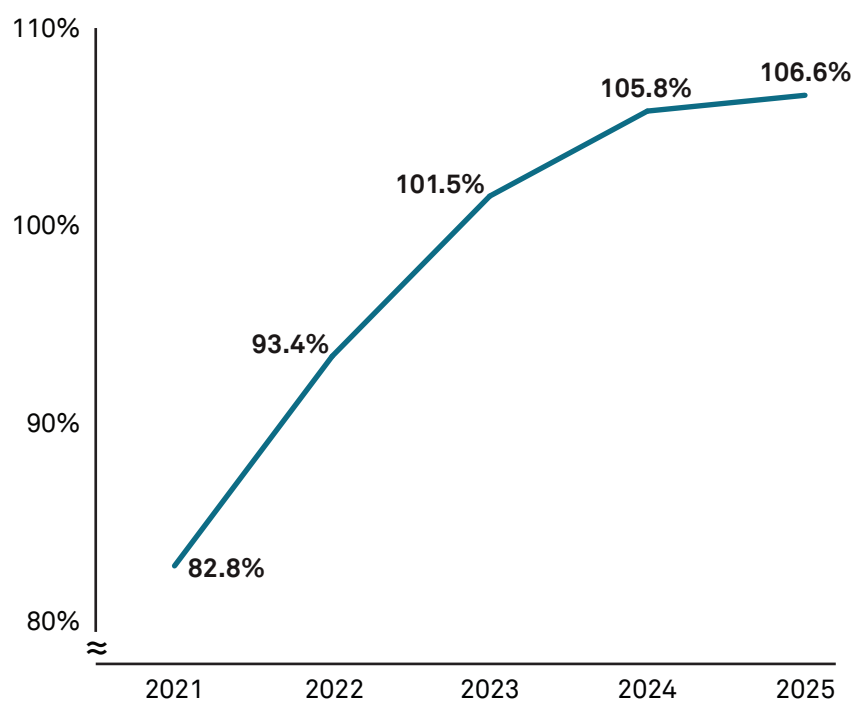
While CLOBs now boast of non-dealer market participants, they primarily still operate as a part of the interdealer wholesale market. In that vein, CLOB competition comes not only from other CLOBs, but also from dealer-to-dealer auctions and the voice market. The common thread among all dealer-to-dealer offerings is anonymity.

While this, of course, presents a competitive threat, it also presents a huge opportunity for growth. Our data shows that 52% of dealer-to-dealer trading still happens through more manual channels, mostly voice brokers.² While history suggests that some portion of the market will also remain in the hands of humans—large, illiquid, off-the-run, and package trades in particular—considerable opportunity exists to bring some of that trading into the order book.

CLOB evolution

Capturing that opportunity will require a multi-pronged approach. The last decade of bond market evolution has shown that trading solutions tend to gain more adoption when part of a broader ecosystem of trading solutions. Whether that be easy access to related instruments, such as futures, swaps and ETFs, or the ability to clear and [cross margin alongside other related positions](#), providing easy workflows attracts trading activity.

Futures-to-cash ratio



Source: Greenwich MarketView

² Trading via primary dealer operated single dealer platforms occurring between the primary dealer and their regional/smaller bank clients is including in this estimate as they are reported to FINRA as dealer-to-dealer trades and not executed via a trading venue.

The interplay between U.S. Treasuries and U.S. Treasury futures is notable, especially among systematic trading firms that frequent CLOB markets. Since 2023, the value of U.S. Treasury futures traded each day is higher on average than the value traded in the underlying bond market. BrokerTec Chicago was designed specifically to support those trading both instruments (i.e., the basis trade). Not only do both bonds and futures trade in the same data center with a lower latency connection between the two markets, but the bonds also trade in the tightest available increments (1/16th). Given that hedge funds are a big part of the basis trade, this and similar offerings could attract more buy-side firms onto the CLOB.

Conclusion

The U.S. Treasury market is well known as one of the deepest and most liquid in the world, and CLOBs play a major role in ensuring it stays that way. This is particularly true for on-the-run U.S. Treasuries, where the limited number of bonds available to trade and their standard nature work together to create a hyper-efficient market for market makers, speculators and hedgers alike. These credentials are particularly clear in times of market volatility, when CLOB activity surges to support the market's liquidity and price-transparency needs.

It is easy to argue that all on-the-run U.S. Treasuries could trade via an order book, centralizing liquidity and creating a market even deeper than we have today. Practical considerations, however, such as the value offered to different market participants by different trading mechanisms and the value of allowing wholesale and client markets to operate separately will keep today's market structure intact. Nevertheless, CLOBs will continue to play a critical role in the coming years, enhanced by smaller tick sizes, tighter integration into the broader interest-rate trading ecosystem, and technology that encourages more systematic trading.

This Document is prepared by Crisil Coalition Greenwich, which is a part of Crisil Ltd, a company of S&P Global. All rights reserved. This Document may contain analysis of commercial data relating to revenues, productivity and headcount of financial services organisations (together with any other commercial information set out in the Document). The Document may also include statements, estimates and projections with respect to the anticipated future performance of certain companies and as to the market for those companies' products and services.

The Document does not constitute (or purport to constitute) an accurate or complete representation of past or future activities of the businesses or companies considered in it but rather is designed to only highlight the trends. This Document is not (and does not purport to be) a comprehensive Document on the financial state of any business or company. The Document represents the views of Crisil Coalition Greenwich as on the date of the Document and Crisil Coalition Greenwich has no obligation to update or change it in the light of new or additional information or changed circumstances after submission of the Document.

This Document is not (and does not purport to be) a credit assessment or investment advice and should not form basis of any lending, investment or credit decision. This Document does not constitute nor form part of an offer or invitation to subscribe for, underwrite or purchase securities in any company. Nor should this Document, or any part of it, form the basis to be relied upon in any way in connection with any contract relating to any securities. The Document is not an investment analysis or research and is not subject to regulatory or legal obligations on the production of, or content of, investment analysis or research.

The data contained in the Document is based upon a particular bank's scope, which reflects a bank's data submission, business structure, and sales revenue Reporting methodology. As a result, any data contained in the Document may not be directly comparable to data presented to another bank. For franchise benchmarking, Crisil Coalition Greenwich has implemented equal ranking logic on aggregate results i.e., when sales revenues are within 5% of at least one competitor ahead, a tie is shown and designated by = (where actual ranks are shown). Entity level data has no equal ranking logic implemented and therefore, on occasion, the differences between rank bands can be very close mathematically.

The data in this Document may reflect the views reported to Crisil Coalition Greenwich by the research participants. Interviewees maybe asked about their use of and demand for financial products and services and about investment practices in relevant financial markets. Crisil Coalition Greenwich compiles the data received, conducts statistical analysis and reviews for presentation purposes to produce the final results.

THE DOCUMENT IS COMPILED FROM SOURCES CRISIL COALITION GREENWICH BELIEVES TO BE RELIABLE. CRISIL COALITION GREENWICH DISCLAIMS ALL REPRESENTATIONS OR WARRANTIES, EXPRESSED OR IMPLIED, WITH RESPECT TO THIS DOCUMENT, INCLUDING AS TO THE VALIDITY, ACCURACY, REASONABLENESS OR COMPLETENESS OF THE INFORMATION, STATEMENTS, ASSESSMENTS, ESTIMATES AND PROJECTIONS, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARISING OUT OF THE USE OF ALL OR ANY OF THIS DOCUMENT. CRISIL COALITION GREENWICH ACCEPTS NO LIABILITY WHATSOEVER FOR ANY DIRECT, INDIRECT OR CONSEQUENTIAL LOSS OR DAMAGE OF ANY KIND ARISING OUT OF THE USE OF ALL OR ANY OF THIS DOCUMENT.

Crisil Coalition Greenwich is a part of Crisil Ltd., an S&P Global company. ©2025 Crisil Ltd. All rights reserved.