December 2025

citi

Moving America

Mortgages, Mobility and Unlocking the American Dream

Citi Institute

Global Perspectives & Solutions

Authors

Paul Goody

Head of Balance Sheet Strategy and In-Business Risk, Treasury, Citi

Anuj Gangahar

Editor-in-Chief, Citi Institute

Citi Contributors

Paul Monaghan

Managing Director, US Residential Loan Product and Portfolio Management, Citi

Srinivas Iyer

Managing Director, Balance Street Strategy, Treasury, Citi

Edward Skyler

Head of Enterprise Services and Public Affairs, Citi

With thanks to

Andrew Hollenhorst and Ankur Mehta of Citi Research

© 2025 Citigroup

> Quality, affordable housing is out of reach for many Americans. This isn't a new problem, and it won't have an instant solution. We need partnerships across industries and sectors and creative ideas that address the root causes. The 'Whole Loan Portfolio Strategy' is one way to help ease the burden of mortgage lock-in. It can free up housing inventory, creating a more robust and affordable housing market and enabling families to move more easily.
>
> *Edward Skyler, Head of Enterprise Services and Public Affairs, Citi*

Contents

© 2025 Citigroup

Moving America

Mortgages, Mobility and Unlocking the American Dream

The American dream of home ownership, long a symbol of stability and upward mobility, has been out of reach for many in recent years as interest rate volatility has created something of a paradox: the so called “mortgage lock-in” effect.

It goes like this: Millions of homeowners feel compelled to remain in their current homes to preserve the financial advantage of their low interest rates. This effectively locks them into a property that may no longer serve their changing needs. At the same time, many mortgage lenders currently hold large portfolios of loans earning below market rates.

This Citi Institute GPS report considers a pragmatic approach that could benefit both borrowers and lenders by easing this constraint on the U.S. housing market, offering a solution to the gridlock.

Mortgage lock-in is no mere inconvenience for lenders and borrowers. Instead, it represents a significant drag on the broader economy, hurting the ability of workers to move, hindering efficient housing supply, and ultimately constraining individual potential and choice.

The approach laid out in these pages looks at allowing borrowers to transfer part of the benefit of their existing affordable mortgage to a new home loan. This could help reinvigorate the U.S. housing market, foster greater workforce mobility and ultimately restore the promise of the American Dream for all.

Lenders benefit as existing lower rate loans are replaced with higher ones at an increased pace, increasing income and shortening expected loan life. And housing supply also increases, benefiting the broader market and economy.

Put simply, lenders who continue to hold a loan can offer their borrowers the opportunity to enter a new mortgage at an interest rate between their existing rate and the current market rate.

The rate is set at a level that balances the lender’s benefit from achieving a higher interest rate, against the borrower’s willingness to pay this higher rate for the opportunity to move homes. This achieves an outcome where the lender benefits from a higher rate and the borrower can move from their home at an affordable rate.

This approach is currently only feasible when there is an existing relationship between borrower and lender.

As policymakers reexamine the role of government sponsored enterprises (GSEs), we think they could go further and significantly reduce the harmful effects of mortgage lock-in on the economy.

© 2025 Citigroup

Key Takeaways

1 **"Mortgage Lock-in" is a Significant Economic Problem:** Millions of homeowners are trapped in homes by low interest rates, hindering their mobility, stifling housing supply, and creating a substantial drag on the U.S. economy.

2 **Shared Economic Benefit Could be the Solution:** The report considers a new approach where lenders offer borrowers new mortgages at a rate between their existing low rate and current market rates, allowing both parties to share the economic benefits.

3 **Win-Win for Borrowers and Lenders:** This strategy would free borrowers to move without losing their advantageous mortgage rates, while lenders benefit from replacing lower-rate loans with higher-yielding ones, improving their portfolios.

4 **Reinvigorating the Housing Market and Workforce Mobility:** By easing the mortgage lock-in, the proposed framework aims to boost housing supply, foster greater workforce mobility and contribute to overall economic vitality.

5 **Widespread Implementation Requires Legislative and Technological Change:** Extending this solution, particularly to the securitized loan market, would require legislative changes (e.g., defeasance), regulatory agreements and the leverage of new technologies like blockchain and tokenization to overcome complexities.

18%

The estimated decrease in the probability of a house sale with a fixed-rate mortgage for every percentage point the current mortgage rate is above the borrower's existing mortgage rate.[1]

3%

Many conventional 30-year fixed-rate mortgages are at or below 3%, while current market rates typically range from 6-7%. This stark difference is the primary driver of the mortgage lock-in effect.

<50%

For homeowners with low fixed-rate mortgages (around 3%) facing current market rates (6-7%), the probability of selling their home is less than 50% compared to those with mortgages at current rates.[2]

© 2025 Citigroup

Mortgage Lock-in

The impact of mortgage lock-in can be wide reaching. The Federal Housing Finance Agency (FHFA) published a working paper entitled The Lock-in Effect of Rising Mortgage Rates[3] which sets out these effects with supporting analyses.

© 2025 Citigroup

The mortgage lock-in effect also has broader implications. Academic research, such as Mortgage Lock-in, Lifecycle Migration, and the Welfare Effects of Housing Market Liquidity[4] and The Impacts of Neighborhoods on Intergenerational Mobility I: Childhood Exposure Effects[5], aim to demonstrate that mortgage lock-ins directly reduce geographical mobility, keeping families in lower opportunity areas for longer. This burden disproportionally impacts younger, lower income households by compounding opportunity loss, restricting upward mobility and limiting generational wealth potential.

The FHFA working paper estimates that the probability of a house sale with a fixed rate mortgage decreases by over 18%[6] for every percentage point the current mortgage rate is above the borrower's existing mortgage rate. With many conventional 30-year fixed rate mortgages at or below 3% and current mortgage rates in the 6-7% range, the FHFA analysis suggests the probability of such borrowers selling their home is less than 50% of that for homeowners with a mortgage at current rates.

This conclusion seems intuitive given that a conventional 6.5% mortgage payment (assuming a 20% downpayment) is about one and a half times that of a 3% mortgage. The FHFA identifies potential solutions as either mortgage portability (i.e. taking the existing loan to a new property) or assumption (i.e. transferring the loan on sale of the home to the purchaser). The FHFA report authors point out that portability would presumably be more attractive to both the servicer and owner of the debt because only the asset, not the borrower, would change. However, in the U.S., borrowers' rights to execute either solution are limited and often subject to lender consent. Either approach would extend the expected tenor (duration) of the loan, at below market rate, disincentivizing lenders from consenting.

The economic benefit of a loan to the borrower can be summarized as the difference between their current rate and the rate a lender will offer them for a new loan, multiplied by the size of the loan and aggregated over the expected remaining life of the loan. Two strategies serve as bookends:

i. The status quo where lenders offer full current market interest rates, requiring borrowers to give up one hundred percent of their existing loan's economic benefit; or

ii. Borrowers who would like lenders to allow them to transfer one hundred percent of their current loan's economic benefit to a new home (i.e. agree to mortgage portability).

In i) the lender assumes all the benefit and in ii) the borrower.

Unsurprisingly, once a loan has significant economic value, very few transactions occur in either strategy. If instead the borrower and the lender agreed to share the economic benefits, a favorable outcome can be achieved for both.

© 2025 Citigroup

Whole Loan Portfolio Strategy

A simple approach for mortgage lenders who continue to hold the loan, is to offer their borrowers the opportunity to enter a new mortgage at an interest rate between their existing rate and the current market rate.

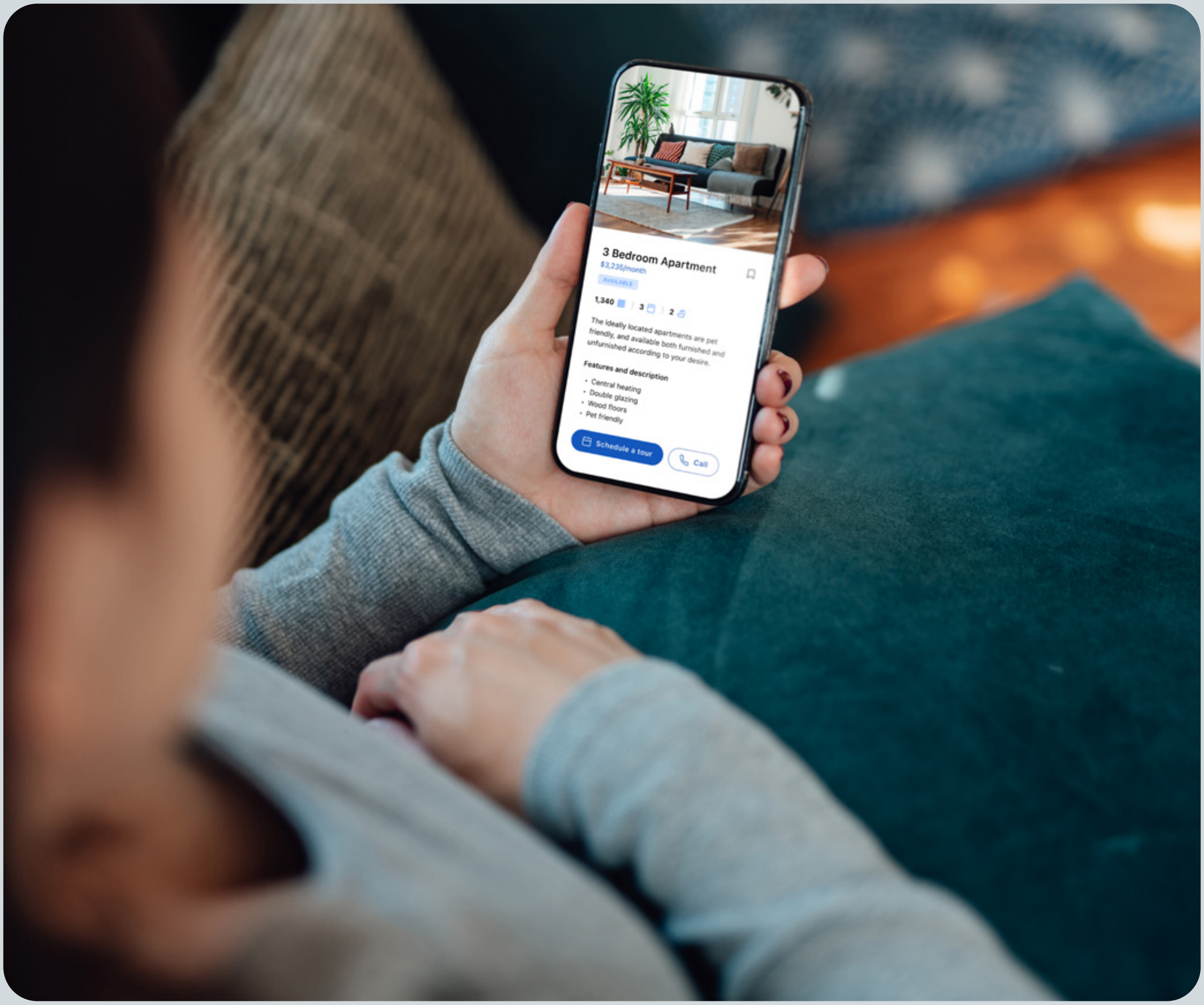
For example, consider a highly simplified world as follows:

1. Current new mortgage rates are **6%**
2. A 5% mortgage loan is worth **95% of loan value**
3. A 4% mortgage loan is worth **90% of loan value**

- If a mortgage borrower repays their existing 4% loan the lender makes an economic gain of 10% and the borrower loses all the benefit of their low rate.
- If instead the borrower repays their existing 4% loan, and their lender makes them a new loan at 5%, the lender makes a 5% economic gain, but the borrower retains 5% of value in their new, below market rate, mortgage. i.e. the value of the original low-rate mortgage is shared between the lender and the borrower.

Without delving into the complex world of mortgage modelling, the lender could off-set the rate they offer to balance their expected gains from an increase in interest income against the opportunity cost of borrowers who would have moved from their home even at the full market rate. When market rates are 3% or more above existing loan rates, we expect relatively few such borrowers, so there is little opportunity cost. This is supported by the FHFA Working Paper analysis, particularly if the analysis were to be adjusted for mortgage repayments where a new mortgage is not taken out (for life events such as retirement).[7]

© 2025 Citigroup



Impediments to the Wider Pursuit of this Strategy

The simple whole loan portfolio strategy can only be deployed by a lender making loans to borrowers in their existing portfolio of whole loans. The strategy cannot be directly followed where the original lender and the new lender are different. Without a transfer of economic value between the lenders, the new lender would not be motivated to lend below the current market rate.

© 2025 Citigroup

The Lender Perspective

Using our simplified example:

1. Current new mortgage rates are **6%**
2. A 5% mortgage loan is worth **95% of loan value**
3. A 4% mortgage loan is worth **90% of loan value**

- If Lender A owns a 4% loan which is repaid, they make an economic gain of 10%
- If Lender B makes a new loan at 5%, they take an economic loss of 5%

Together Lender A and B made a 5% economic gain, which is great if they are the same entity, but Lender B on its own will not proceed unless there is an economic transfer from the original Lender A. In this example, Lender A would need to pay Lender B 7.5% of loan value, such that both lenders each make a net 2.5% economic gain.

Challenge: Different lenders and/or different timing of loan repayment vs the new loan

The economic transfer from old loan to new loan could be straightforward if the original and new lender were the same, but more challenging if they are not as value needs to be transferred between lenders. The simple strategy also relies on the existing loan being repaid (generating the economic gain) and the new loan being made (using some of that economic gain) at the same time. To allow a different timing, a store of value would need to be created. Both issues could be addressed by a transferable token (or a centralized clearing agent such as one of the federal mortgage agencies) which a new lender could redeem against the original lender when a new loan is made (either immediately, or after some finite time thereafter). The borrower could then take that token to a new prospective lender and redeem it to lower their new mortgage rate.

© 2025 Citigroup

Challenge: Accounting – timing of earnings recognition

Lenders are sensitive not only to economics but also to timing of accounting recognition of income. If in the example above, Lender A made the payment to Lender B as its loan is repaid, it is likely that the 7.5% payment would be recognized as a loss immediately. The economic benefit of no longer owning the below-market-rate mortgage would, on the other hand, be realized over time. Lender A may be able to compensate by the early termination of hedging strategies, or other balance sheet actions – but these will be situation specific. That said, if an active market were to be created for the repayment tokens described earlier, statistically an active lender could expect to have significant natural offsets between the losses from paying for their borrower's new lower-rate loans vs the gains paid to them from other lenders that had their loans repaid early because of this lender making a new loan. The difference in timing between accounting realization and economics would be somewhat smoothed out.

Challenge: Mortgage securitization – breaking the link of the economics to the borrower relationship

Mortgage securitizations, particularly those with government agency guarantees, pose unique challenges. The owner of the economics for a loan that has been securitized via an agency has no knowledge of the underlying borrower so is unable to negotiate to share the potential economic benefits with a new lender. Further, the ownership is often distributed among many investors, complicating decision making. A potential solution to unlock existing mortgages would require features such as:

A. Agreement among investors that the repayment of an existing loan is economically attractive, so paying a given amount for that activity is acceptable

B. Agreement among the agencies and servicers to allow changes in the operation of the securitizations to enable such payments

© 2025 Citigroup

One potential solution is for the agencies to be allowed (by statute) to defease such mortgages, with a direct agency obligation to pay the trust principal and interest with the same prepayment schedule that is currently modeled for those loans. Retaining the expected payment profile could maintain the economics for servicers and interest-only mortgage derivatives, both of which would rely on the mortgage remaining outstanding to generate value. The defeasance would provide "credit" for the borrower to use in a subsequent mortgage within a specified time (e.g. a year). The portability of these credits could leverage blockchain and tokenization technology to boost efficiency and scale. Should no new loan be taken out, the credit would expire, and the additional value also be paid through to the original security holder. Such an approach would, however, depend on a common view of the modelled life of a mortgage. Agency mortgage market participants have a range of expectations, and differing interests, which could prove challenging in defining an appropriate defeasance profile to support this approach.

Loan Defeasance

Loan defeasance is a way in which a borrower can exit their obligations on a loan without actually repaying the loan. Instead, the borrower buys a bundle of lower-risk bonds (e.g. US Treasuries, or government agency obligations) that generate the same cash flow as the lender is due to receive under the loan. These bonds are put in a trust for the benefit off the lender and the lender releases the borrower from their obligations under the loan. This capability is common in commercial mortgages and in some other types of lending. The key point for this example, is the portfolio of bonds can be purchased for less than the full notional required to repay the loan. Therefore it could capture the economic benefit of the lower-than-market rate loan.

© 2025 Citigroup

Agencies could go further and avoid future mortgage-lock in issues by introducing the ability for borrowers to defease new mortgages with U.S. Treasuries at a known payment schedule (e.g. 7 years) into the original lending agreement. This would both reduce the convexity of the loan for the borrower (thereby reducing interest rate hedging costs) and introduce a new option to capture the value of their below-market-rate mortgage for their next mortgage. Mortgage originators could then build these features into their modelling and set pricing at origination appropriately. Note this would also align to common practice in commercial real estate lending.

Although mortgage lock-in has been an impediment to borrowers wishing to move, the FHFA working paper authors also highlight it has had an important effect on home prices: "This lock-in prevented 1.72 million transactions from 2022Q2 to 2024Q2 and increased home prices by 7.0%."[8] Mitigating lock-in should drive the reverse, potentially leading to a decline in house prices. This increase in supply and lower prices could benefit first-time buyers, albeit at some cost to consumer wealth and increased loss severity on defaulted mortgages.

These options would require legislative change but if the benefits are believed to outweigh the costs, may be timely given the broader effort to reform the GSEs.

© 2025 Citigroup

A New Way Forward

The phenomenon of mortgage lock-in, exacerbated by fluctuating interest rates, has not only tethered millions of homeowners to properties that no longer suit their evolving lifestyles. It has also created a significant drag on the nation’s economic vitality and individual potential, and locked would-be homeowners out of the market due to reduced housing supply.

The dimensions of this problem are multifaceted.

© 2025 Citigroup

On one side, homeowners are effectively tied to their advantageous mortgages, reluctant to enter a new market where rates are considerably higher. This inertia extends far beyond personal finance, manifesting as a critical impediment to geographical and workforce mobility, thereby stifling economic dynamism. It disproportionately impacts younger and lower-income families, perpetuating cycles of limited opportunity and constraining efficient housing supply. The issue is further complicated by structural impediments, including the complexities of transferring economic value between different lenders, the timing of accounting recognition, and the intricate nature of mortgage securitization which obscures the direct link between borrower and lender.

On the other side, mortgage lenders find themselves holding vast portfolios of long-term loans yielding below current market rates, impeding their financial agility.

This Citi Institute GPS report considers a pragmatic and transformative approach to dismantle these barriers, with a new path forward that could redefine the relationship between borrowers, lenders and the broader housing market.

At its core, the "Whole Loan Portfolio Strategy" could allow lenders who retain existing loans to offer borrowers new mortgages at a rate strategically positioned between their original low rate and the prevailing market rate. This innovative approach fosters a win-win scenario: lenders benefit from increased income and shortened loan life as older, lower-rate loans are retired, while borrowers gain the freedom to move without forfeiting the entire economic benefit of their existing mortgage.

Moreover, the paper envisions extending this solution to the wider securitized agency loan market, acknowledging the need for more complex mechanisms like transferable tokens or agency-led defeasance. These extensions, while requiring significant legislative, industry and agency engagement, could unlock the full potential of this strategy, leveraging technological advancements like blockchain and tokenization to enhance efficiency and scale.

By addressing the current inflexibility of the mortgage system, this proposed framework not only seeks to alleviate the immediate financial and personal burdens of mortgage lock-in but also aims to help reinvigorate the U.S. housing market and broader economy.

This would represent not merely a policy adjustment but a fundamental re-evaluation of how we enable homeownership and ensure its continued role as a catalyst for prosperity and progress.

© 2025 Citigroup

Endnotes

1 The Lock-in Effect of Rising Mortgage Rates, FHFA Staff Working Paper 24-03, 2024, https://www.fhfa.gov/document/wp2403.pdf

2 The Lock-in Effect of Rising Mortgage Rates, FHFA Staff Working Paper 24-03, 2024, https://www.fhfa.gov/document/wp2403.pdf

3 The Lock-in Effect of Rising Mortgage Rates, FHFA Staff Working Paper 24-03, 2024, https://www.fhfa.gov/document/wp2403.pdf

4 Gerardi, Kristopher S. and Qian, Franklin and Zhang, David, Mortgage Lock-in, Lifecycle Migration, and the Welfare Effects of Housing Market Liquidity (July 28, 2024). Available at SSRN: https://ssrn.com/abstract=4933879 or http://dx.doi.org/10.2139/ssrn.4933879

5 Chetty, Raj, and Hendren, Nathaniel, The Impacts of Neighborhoods on Intergenerational Mobility I: Childhood Exposure Effects, 2018. Quarterly Journal of Economics 113 (3). https://academic.oup.com/qje/article-abstract/133/3/1107/4850660.

6 The Lock-in Effect of Rising Mortgage Rates, FHFA Staff Working Paper 24-03, 2024, https://www.fhfa.gov/document/wp2403.pdf

7 The Lock-in Effect of Rising Mortgage Rates, FHFA Staff Working Paper 24-03, 2024, https://www.fhfa.gov/document/wp2403.pdf

8 The Lock-in Effect of Rising Mortgage Rates, FHFA Staff Working Paper 24-03, 2024, https://www.fhfa.gov/document/wp2403.pdf

© 2025 Citigroup

For digital accessibility support, please contact your Citi Team for immediate queries, or email accessibility@citi.com. You may visit Accessibility at Citi | Citi.com for more information.

IMPORTANT DISCLOSURES

This communication has been prepared by Citigroup Global Markets and is distributed by or through its locally authorised affiliates (collectively, the "Firm"). This communication is not intended to constitute "research" as that term is defined by applicable regulations, though it may contain thematic content that has been or may be contained in research reports. Unless otherwise indicated, any reference to a research report or research recommendation is not intended to represent the whole report and is not in itself considered a recommendation or research report. The views expressed by each author herein are their personal views and do not necessarily reflect the views of their employer or any affiliated entity or the other authors, may differ from the views of other personnel at such entities, and may change without notice. You should assume the following: The Firm may be the issuer of, or may trade as principal in, the financial instruments referred to in this communication or other related financial instruments. The author of this communication may have discussed the information contained herein with others within the Firm and the author and such other Firm personnel may have already acted on the basis of this information (including by trading for the Firm's proprietary accounts or communicating the information contained herein to other customers of the Firm). The Firm performs or seeks to perform investment banking and other services for the issuer of any such financial instruments. The Firm, the Firm's personnel (including those with whom the author may have consulted in the preparation of this communication), and other customers of the Firm may be long or short the financial instruments referred to herein, may have acquired such positions at prices and market conditions that are no longer available, and may have interests different or adverse to your interests. This communication is provided for information and discussion purposes only. It does not constitute an offer or solicitation to purchase or sell any financial instruments. The information contained in this communication is based on generally available information and, although obtained from sources believed by the Firm to be reliable, its accuracy and completeness is not guaranteed. Certain personnel or business areas of the Firm may have access to or have acquired material non-public information that may have an impact (positive or negative) on the information contained herein, but that is not available to or known by the author of this communication. The Firm shall have no liability to the user or to third parties, for the quality, accuracy, timeliness, continued availability or completeness of the data nor for any special, direct, indirect, incidental or consequential loss or damage which may be sustained because of the use of the information in this communication or otherwise arising in connection with this communication, provided that this exclusion of liability shall not exclude or limit any liability under any law or regulation applicable to the Firm that may not be excluded or restricted. The provision of information is not based on your individual circumstances and should not be relied upon as an assessment of suitability for you of a particular product or transaction. Even if we possess information as to your objectives in relation to any transaction, series of transactions or trading strategy, this will not be deemed sufficient for any assessment of suitability for you of any transaction, series of transactions or trading strategy. The Firm is not acting as your advisor, fiduciary or agent and is not managing your account. The information herein does not constitute investment advice and the Firm makes no recommendation as to the suitability of any of the products or transactions mentioned. Any trading or investment decisions you take are in reliance on your own analysis and judgment and/or that of your advisors and not in reliance on us. Therefore, prior to entering into any transaction, you should determine, without reliance on the Firm, the economic risks or merits, as well as the legal, tax and accounting characteristics and consequences of the transaction and that you are able to assume these risks. Financial instruments denominated in a foreign currency are subject to exchange rate fluctuations, which may have an adverse effect on the price or value of an investment in such products. Investments in financial instruments carry significant risk, including the possible loss of the principal amount invested. Investors should obtain advice from their own tax, financial, legal and other advisors, and only make investment decisions on the basis of the investor's own objectives, experience and resources. This communication is not intended to forecast or predict future events. Past performance is not a guarantee or indication of future results. Any prices provided herein (other than those that are identified as being historical) are indicative only and do not represent firm quotes as to either price or size. You should contact your local representative directly if you are interested in buying or selling any financial instrument, or pursuing any trading strategy, mentioned herein. No liability is accepted by the Firm for any loss (whether direct, indirect or consequential) that may arise from any use of the information contained herein or derived herefrom. Although the Firm is affiliated with Citibank, N.A. (together with its subsidiaries and branches worldwide, "Citibank"), you should be aware that none of the other financial instruments mentioned in this communication (unless expressly stated otherwise) are (i) insured by the Federal Deposit Insurance Corporation or any other governmental authority, or (ii) deposits or other obligations of, or guaranteed by, Citibank or any other insured depository institution. This communication contains data compilations, writings and information that are proprietary to the Firm and protected under copyright and other intellectual property laws, and may not be redistributed or otherwise transmitted by you to any other person for any purpose. © 2025 Citigroup Global Markets Inc. Member SIPC. All rights reserved. Citi and Citi and Arc Design are trademarks and service marks of Citigroup Inc. or its affiliates and are used and registered throughout the world.

25-6022344C 12/25