

August 2023

# The Curious Strength of the US Economy: Can It Last?

**Andrew Hollenhorst<sup>AC</sup>**[andrew.hollenhorst@citi.com](mailto:andrew.hollenhorst@citi.com)

212-816-0325

**Veronica Clark<sup>AC</sup>**[veronica1.clark@citi.com](mailto:veronica1.clark@citi.com)

212-816-8830

**Gisela Hoxha<sup>AC</sup>**[gisela.hoxha@citi.com](mailto:gisela.hoxha@citi.com)

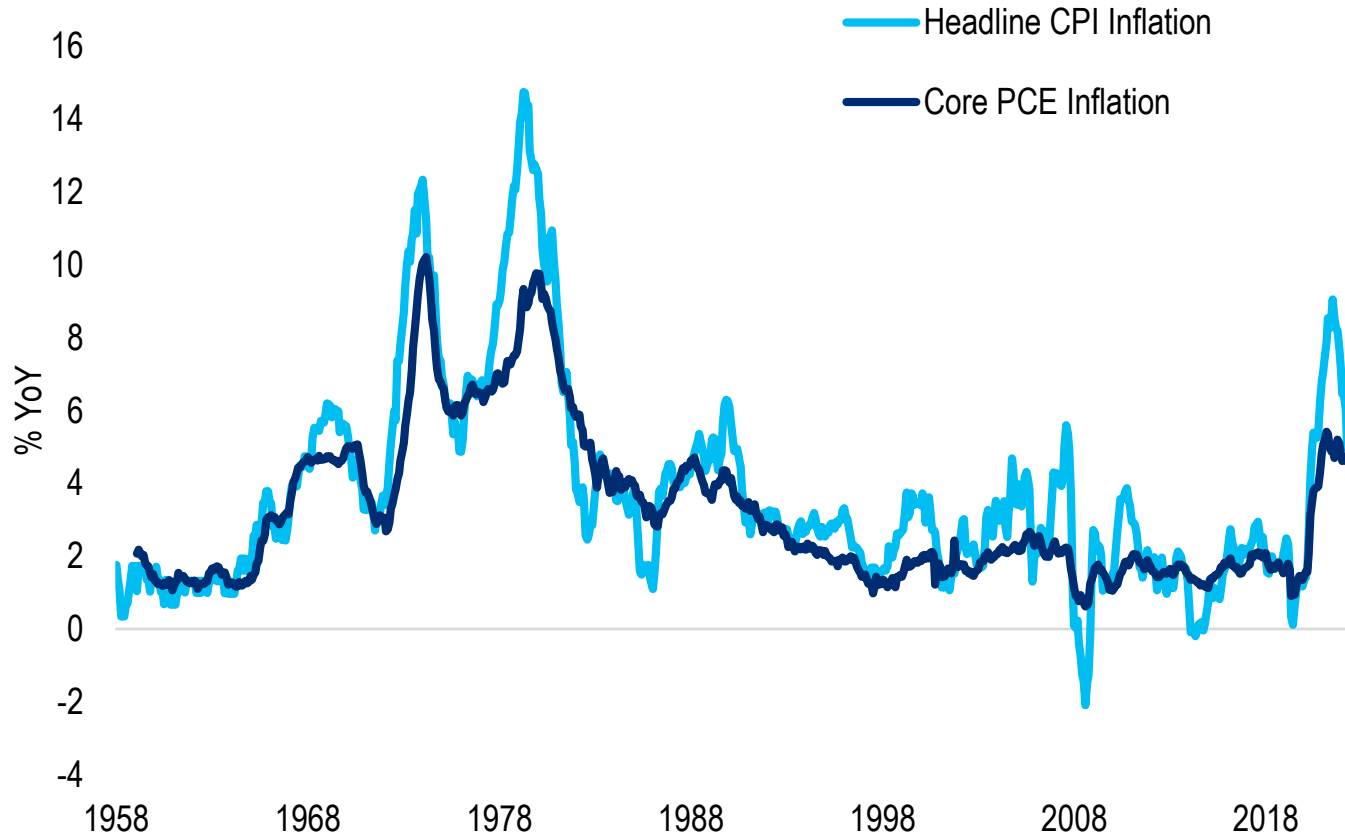
212-816-8349

**See Appendix A-1 for Analyst Certification, Important Disclosures and Research Analyst Affiliations.**

Citi Research is a division of Citigroup Global Markets Inc. (the "Firm"), which does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the Firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. Certain products (not inconsistent with the author's published research) are available only on Citi's portals. This presentation was approved for distribution on 8 August 2023; the disclosures in Appendix A1 are current as of the same date.

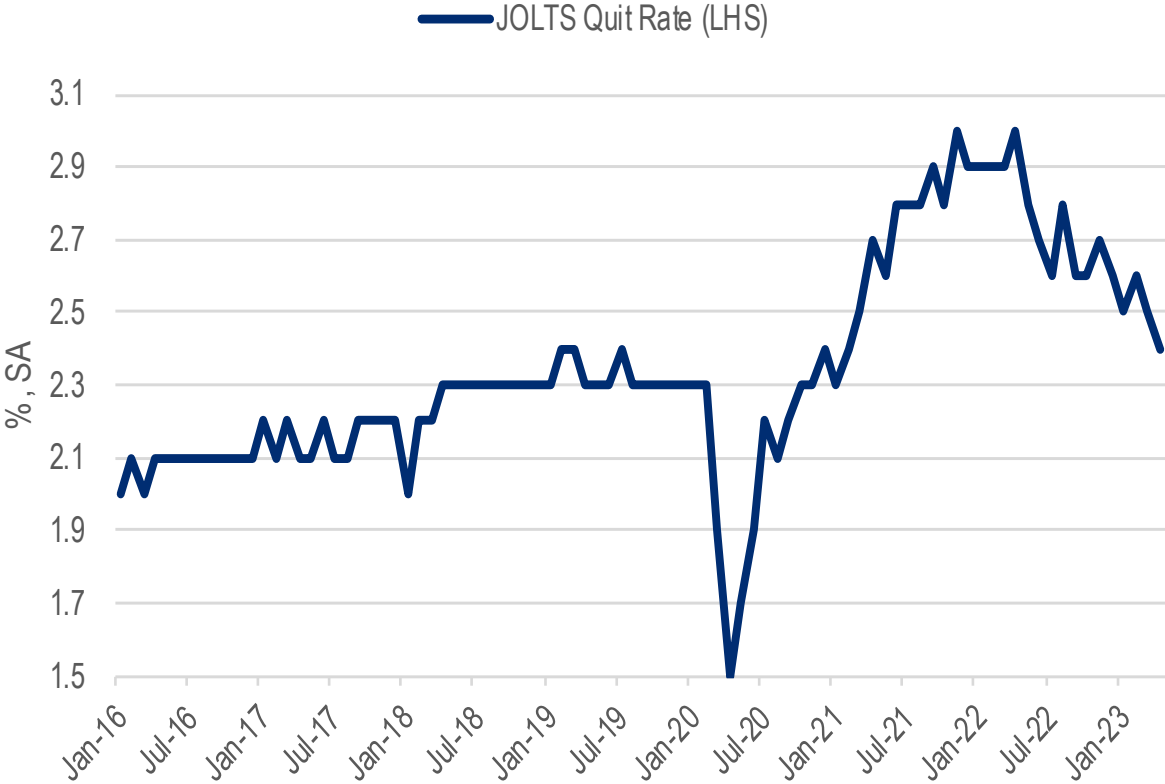
1) Where are we coming from?

# Inflation was very high coming out of the pandemic



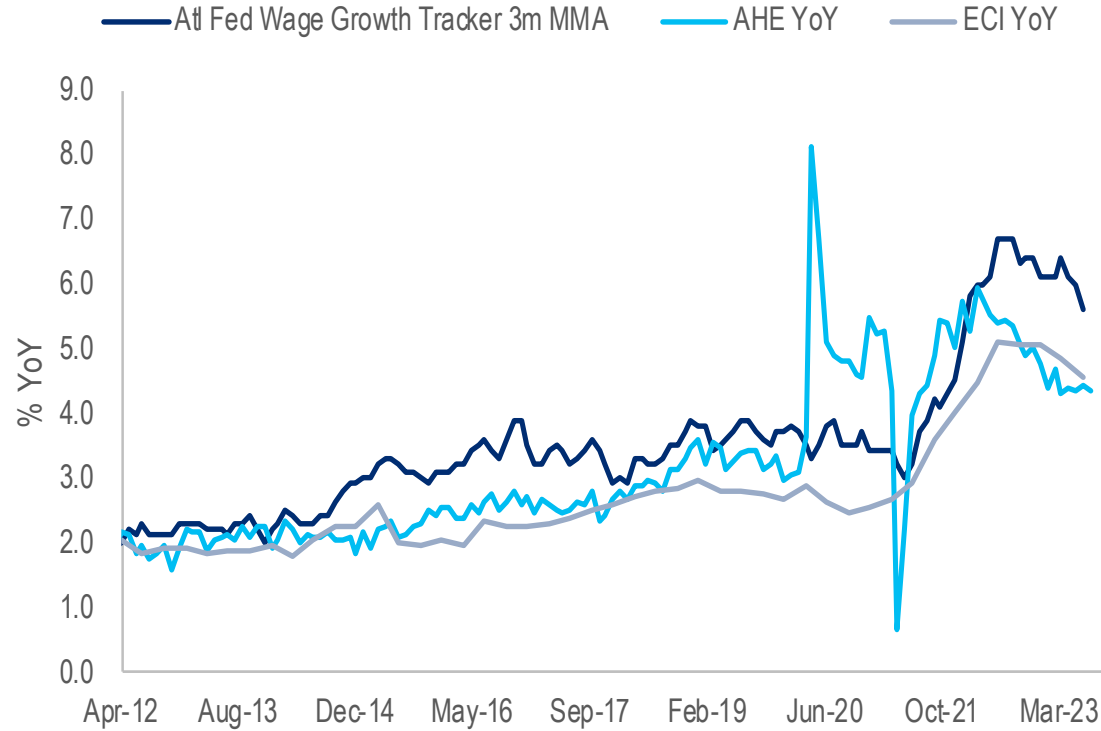
Source: Citi Research, BEA, BLS

# Labor market was very tight



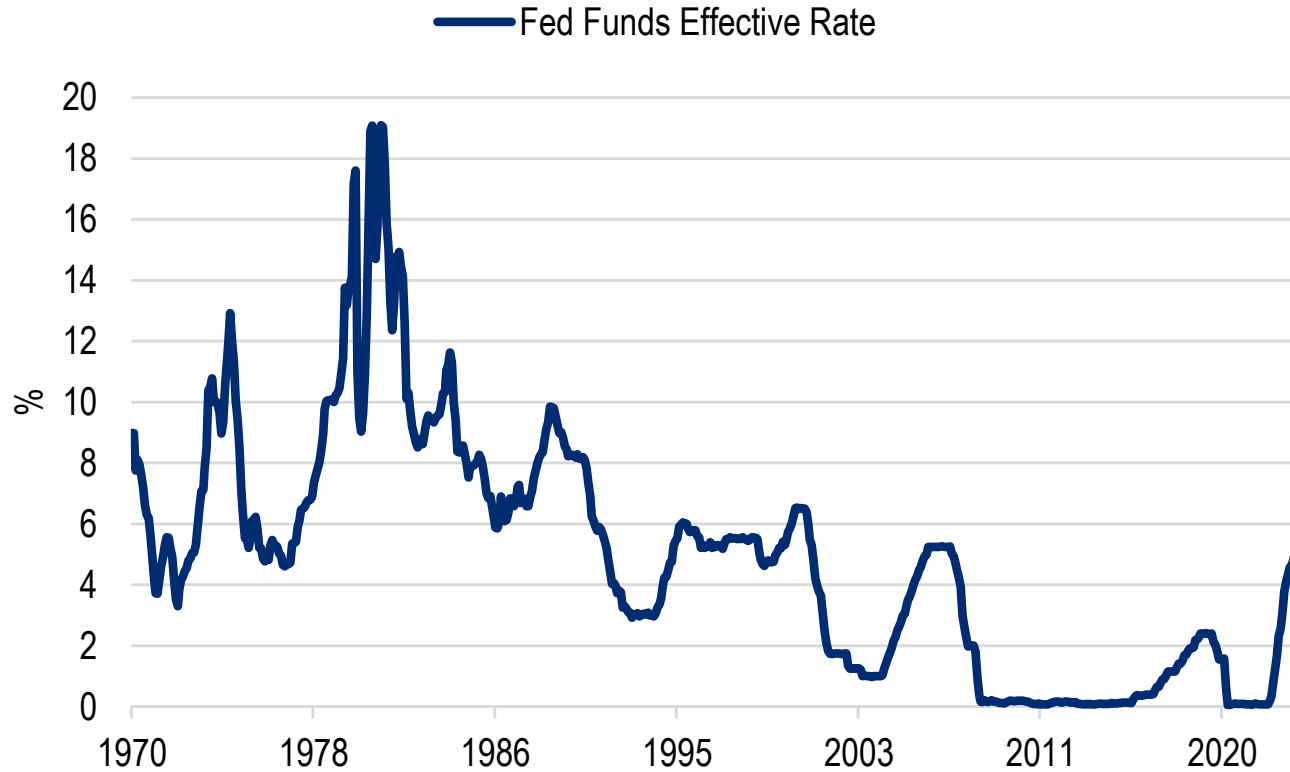
Source: Citi Research, BLS

# Wage growth strong



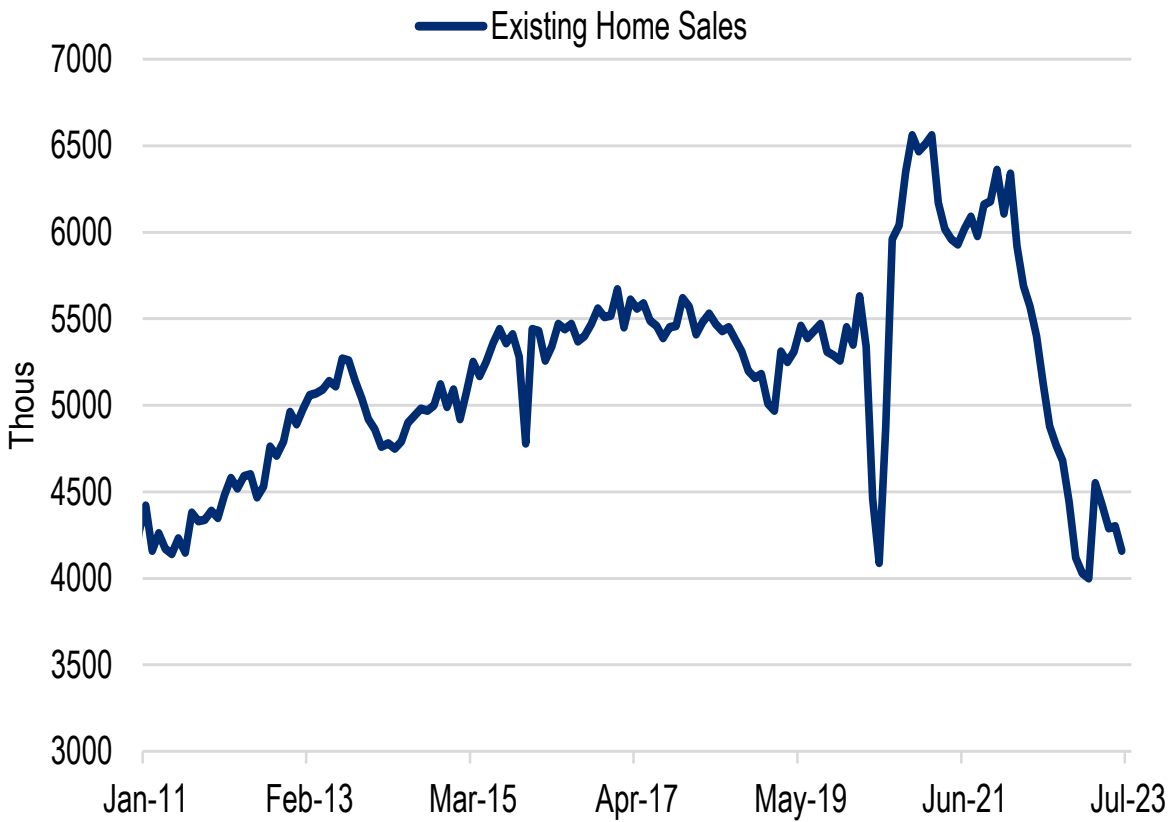
Source: Citi Research, Atlanta Fed, BLS

# Federal Reserve raised interest rates very quickly



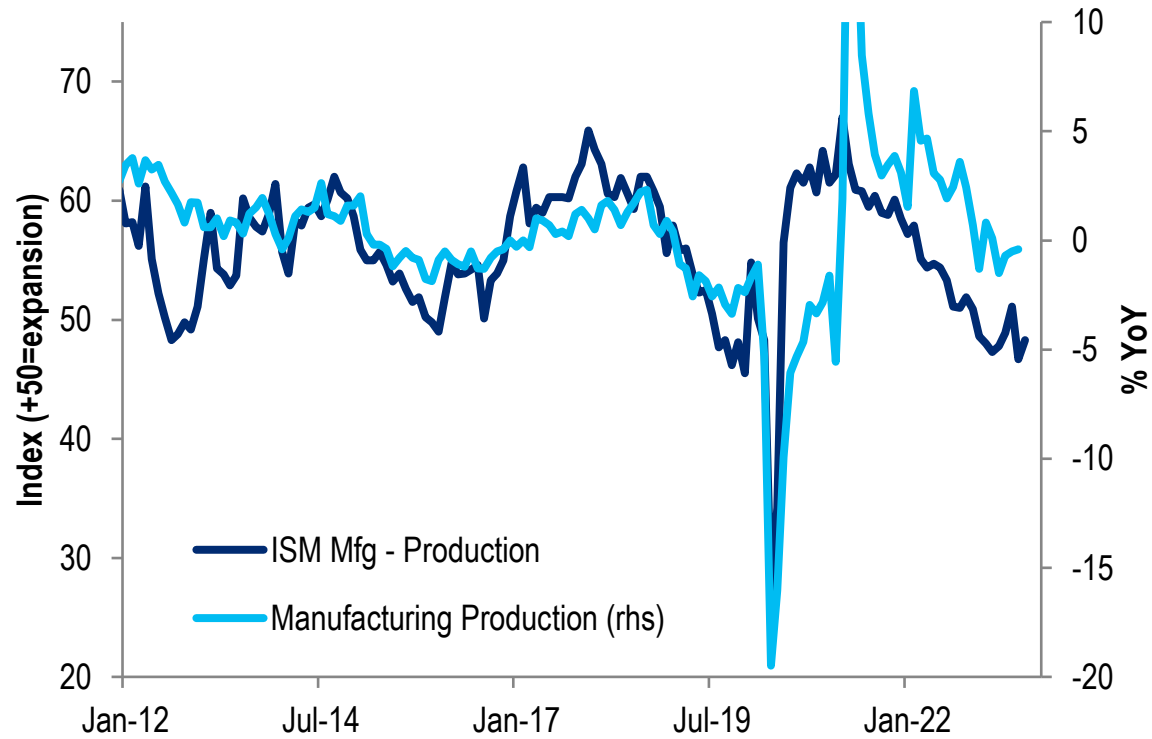
Source: Citi Research, Federal Reserve

# Housing sector contracted with higher rates



Source: Citi Research, NAR

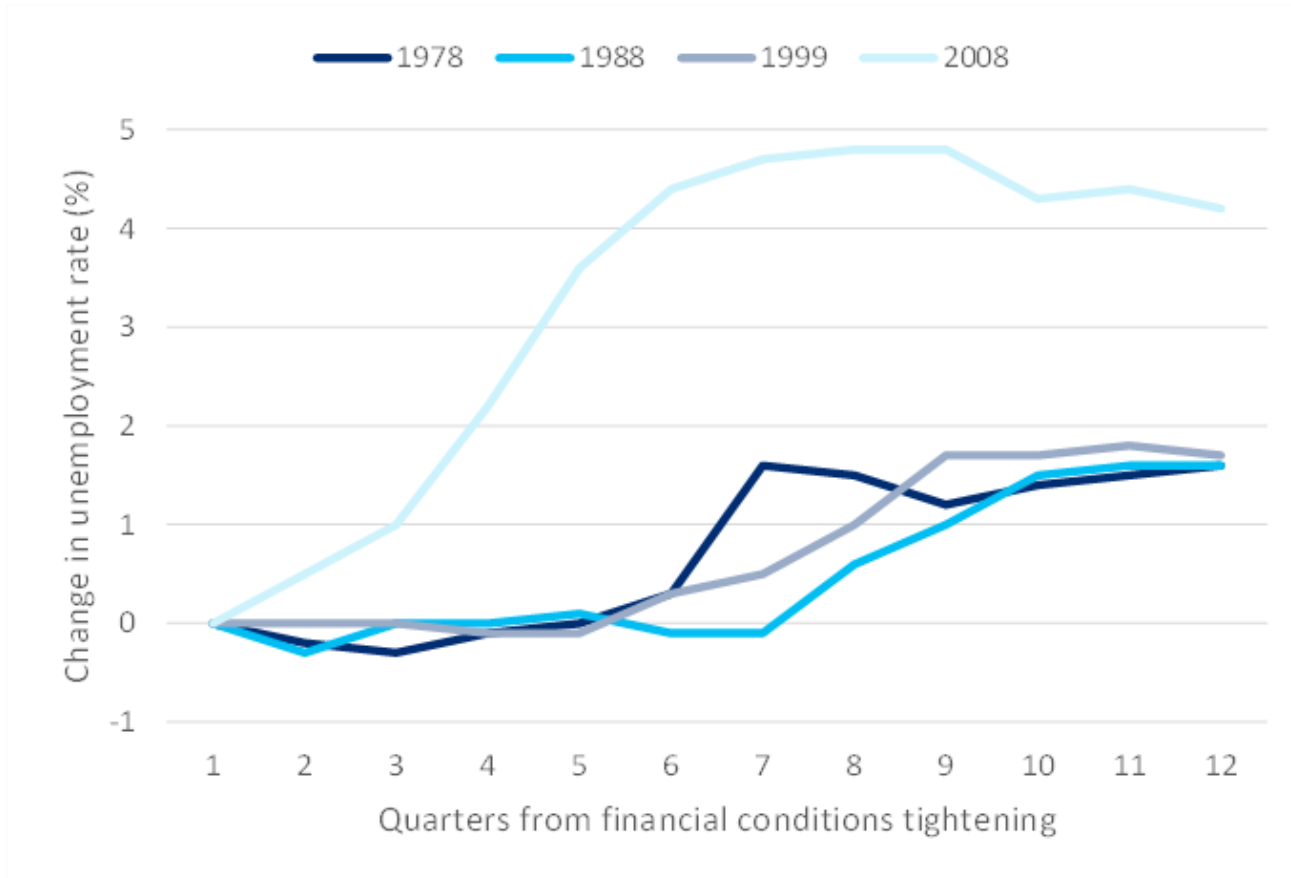
# Manufacturing weakened with softer goods demand



Source: Citi Research, Federal Reserve, ISM



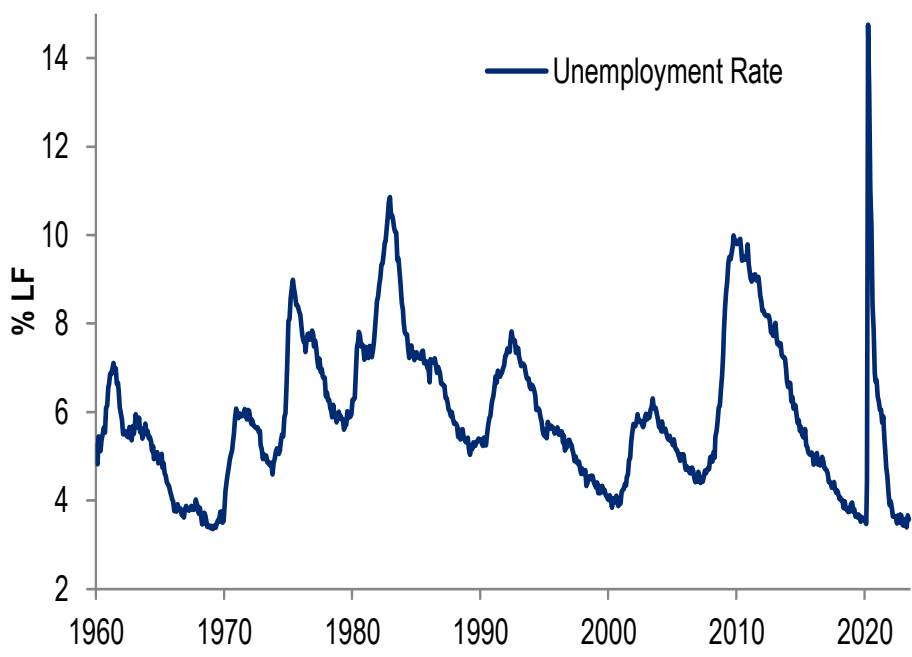
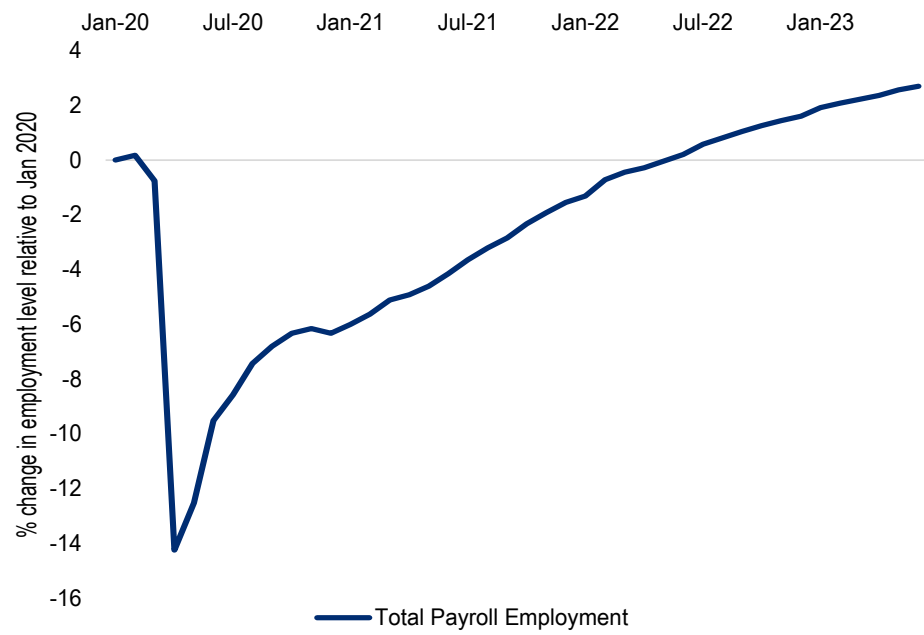
# Usual “lag” of monetary policy on overall economic activity 4-6Q



Source: Citi Research, BLS

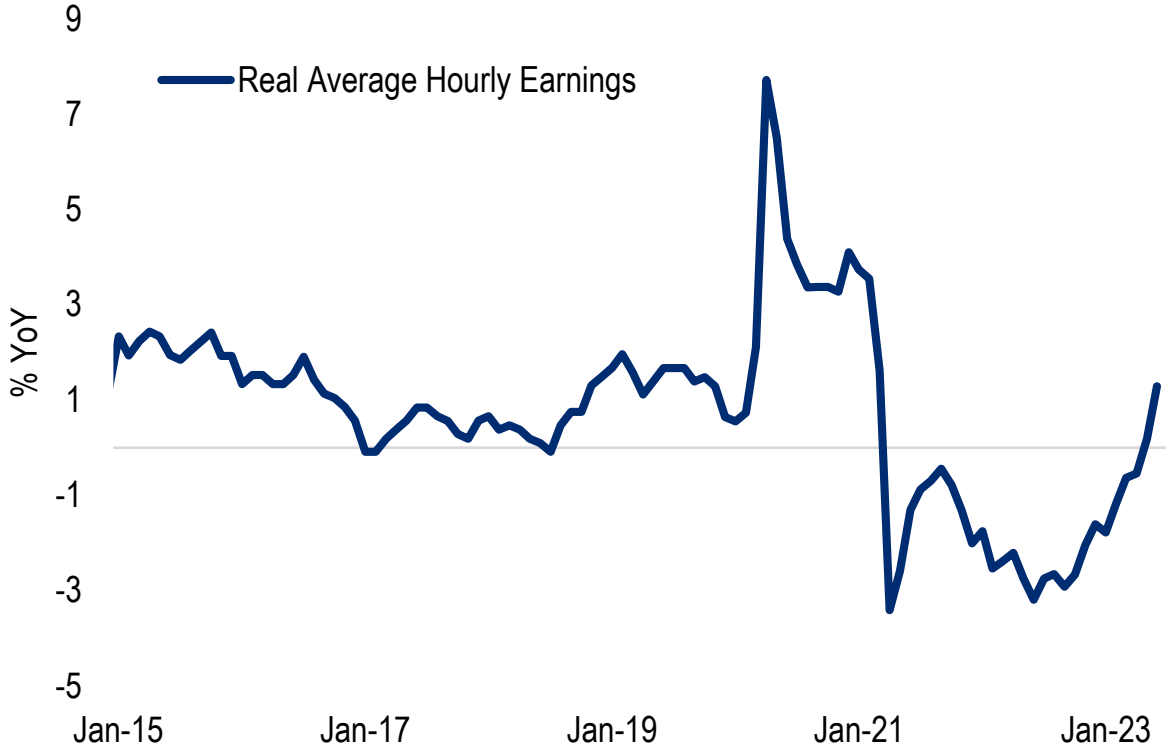
2) Recent resilience has been surprising, but why?

# Job growth has been running consistently strong



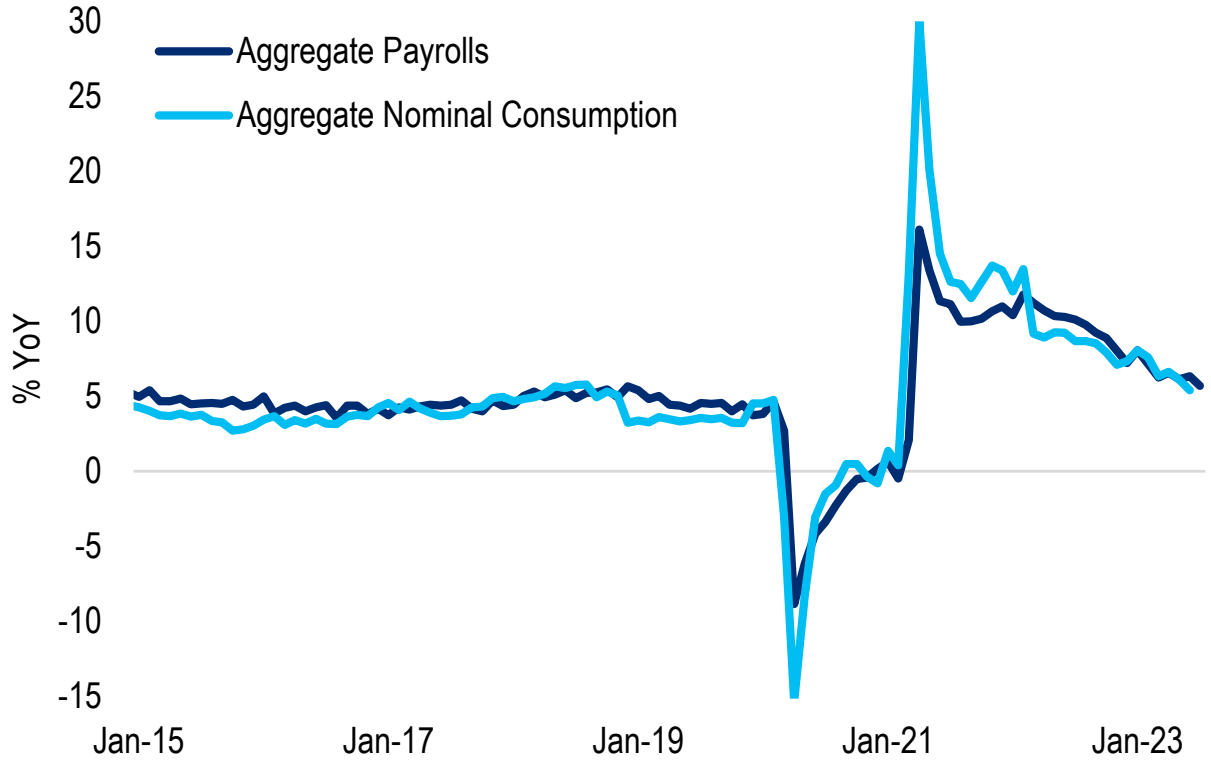
Source: Citi Research, BLS

# Wages still rising, and now rising even adjusted for inflation



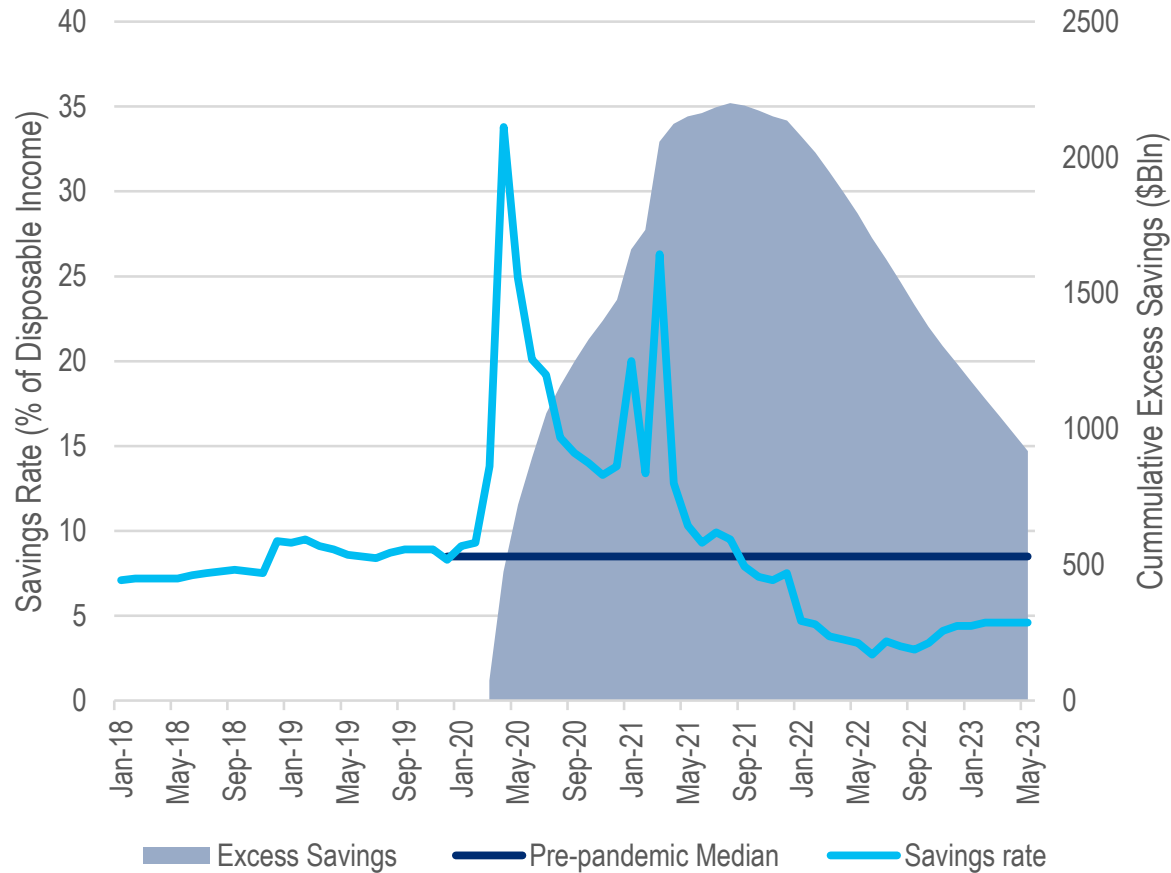
Source: Citi Research, BLS

# Aggregate incomes still rising



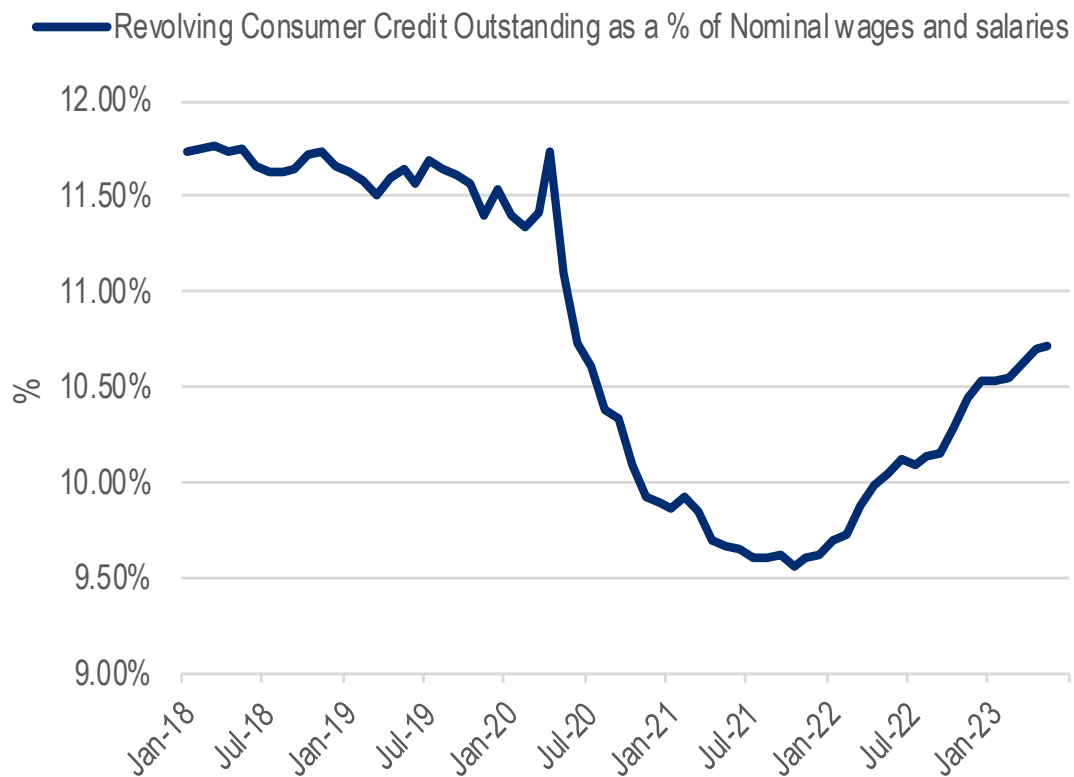
Source: Citi Research, BEA, BLS

# Consumers had substantial excess savings



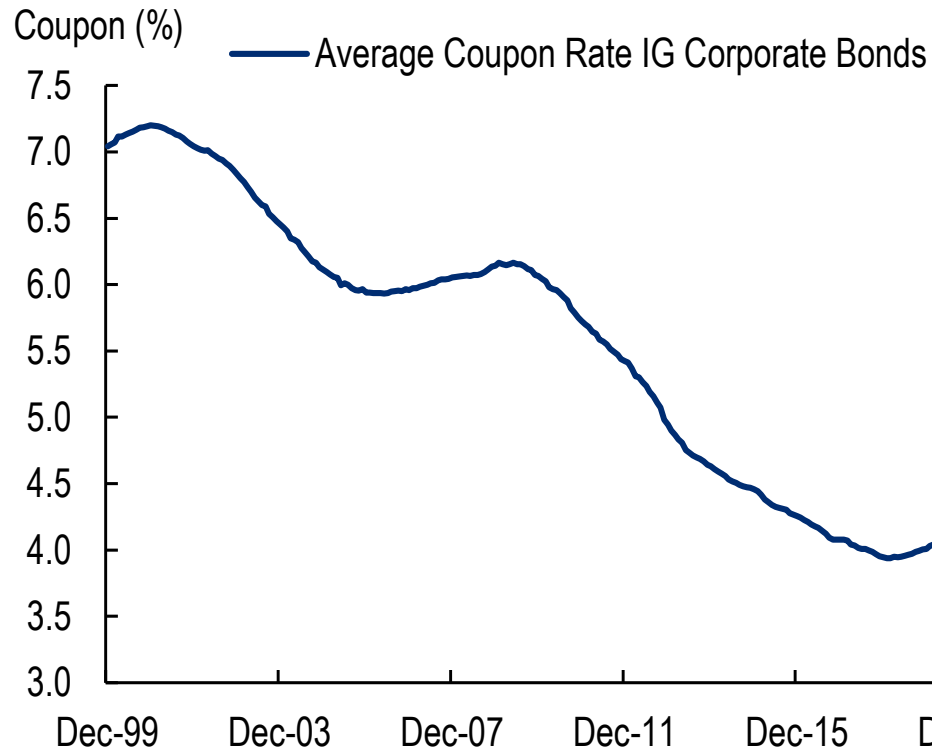
Source: Citi Research, Federal Reserve, BEA

# Borrowing still lower than pre-pandemic as share of income



Source: Citi Research, Federal Reserve, BEA

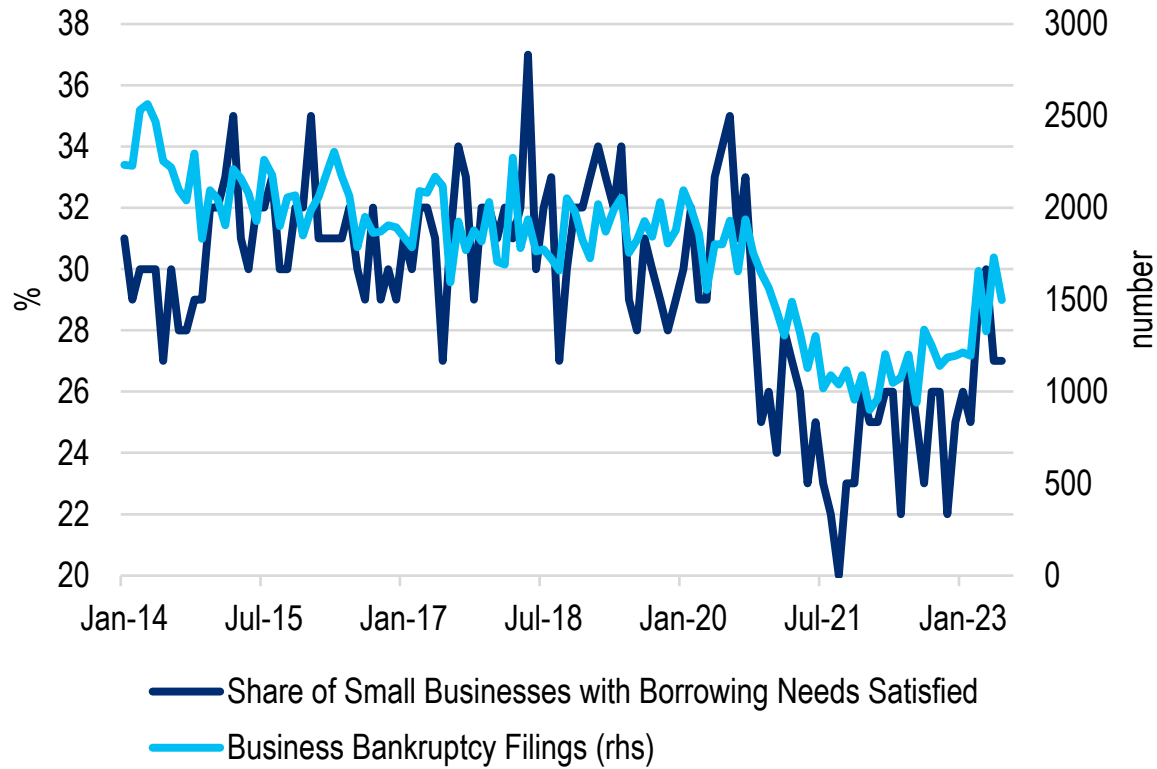
# Businesses have also been less sensitive so far to higher rates



Source: Citi Research, Bloomberg

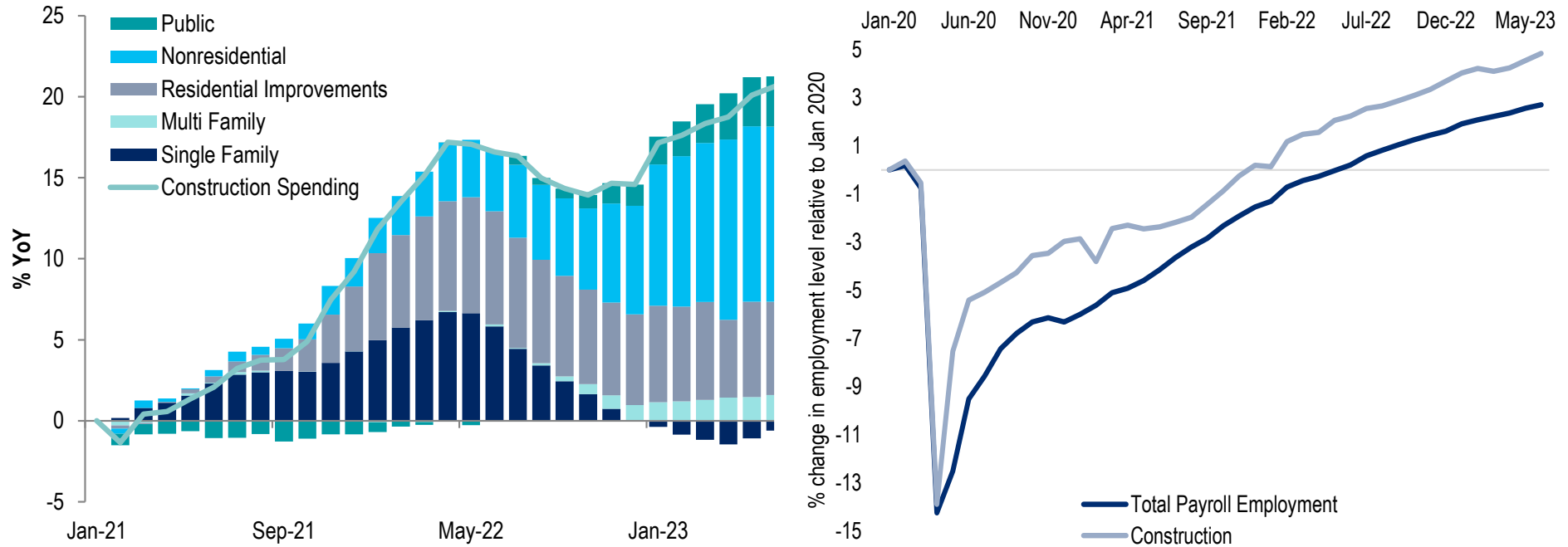


# Business bankruptcies still historically low



Source: Citi Research, NFIB, US Courts

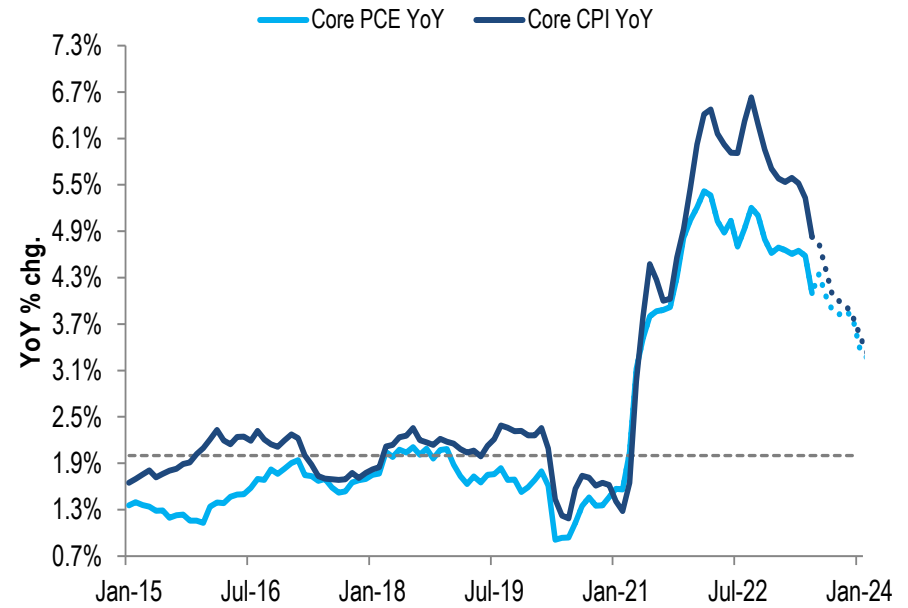
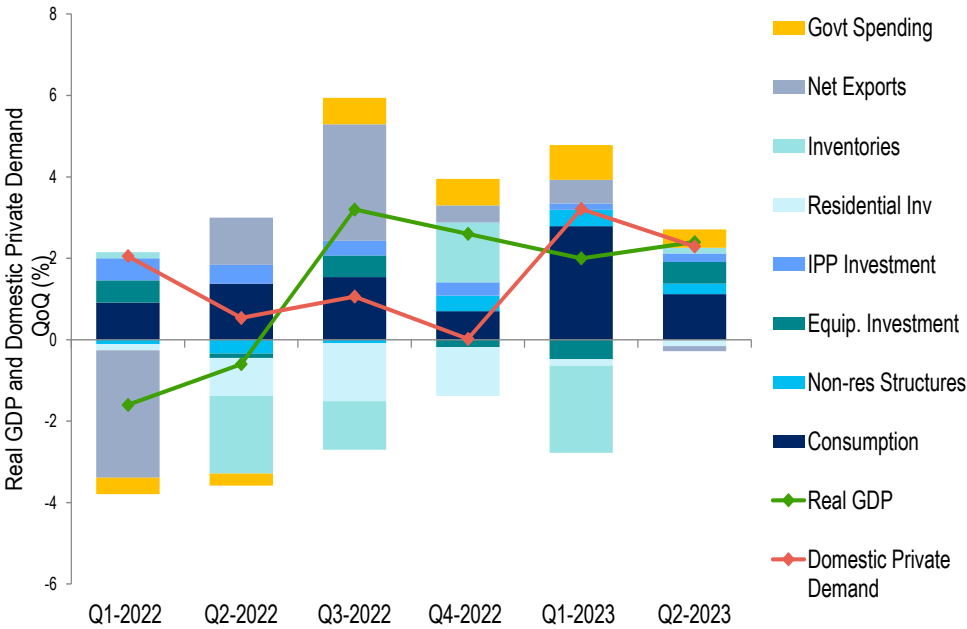
# Some pandemic-induced shifts can be supporting activity



Source: Citi Research, Census Bureau, BLS

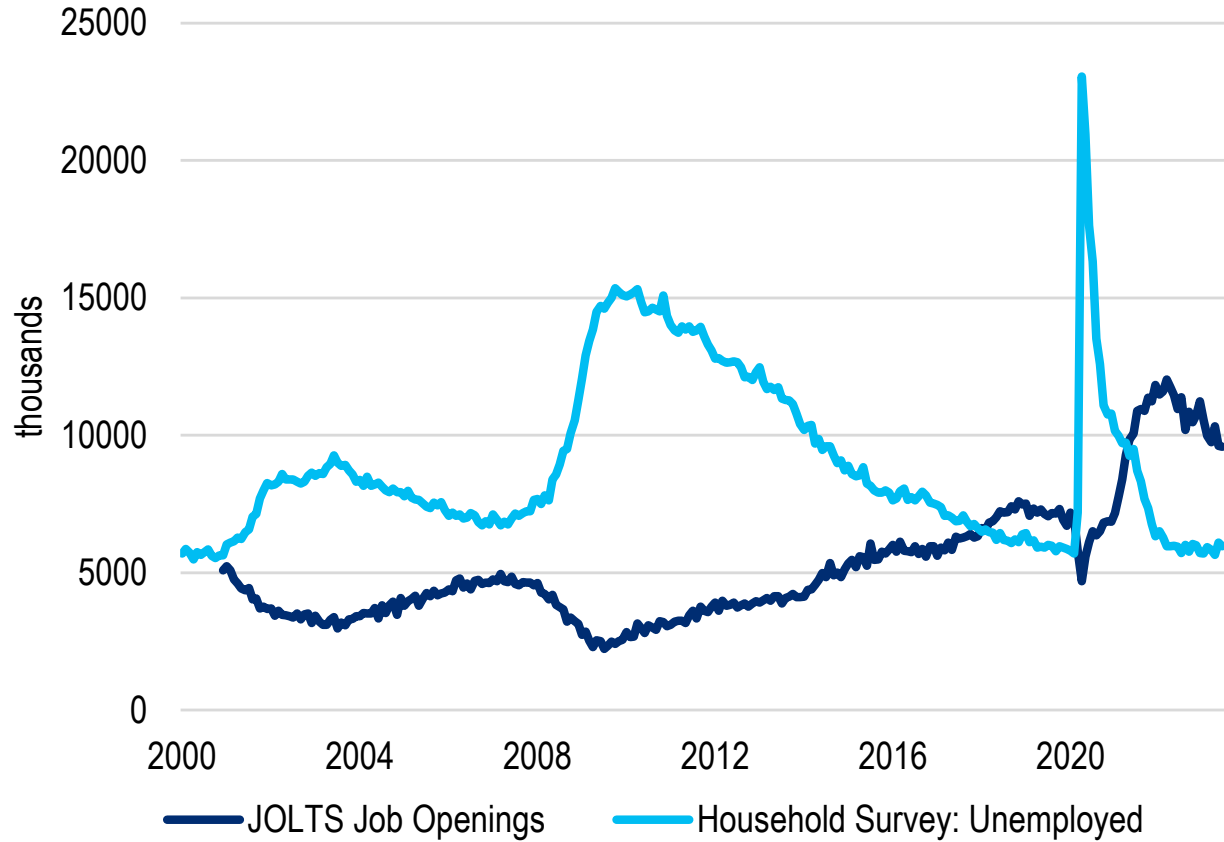
3) Can we have a true “soft landing”?

# “Soft landing”: Activity slows, but does not contract; inflation falls



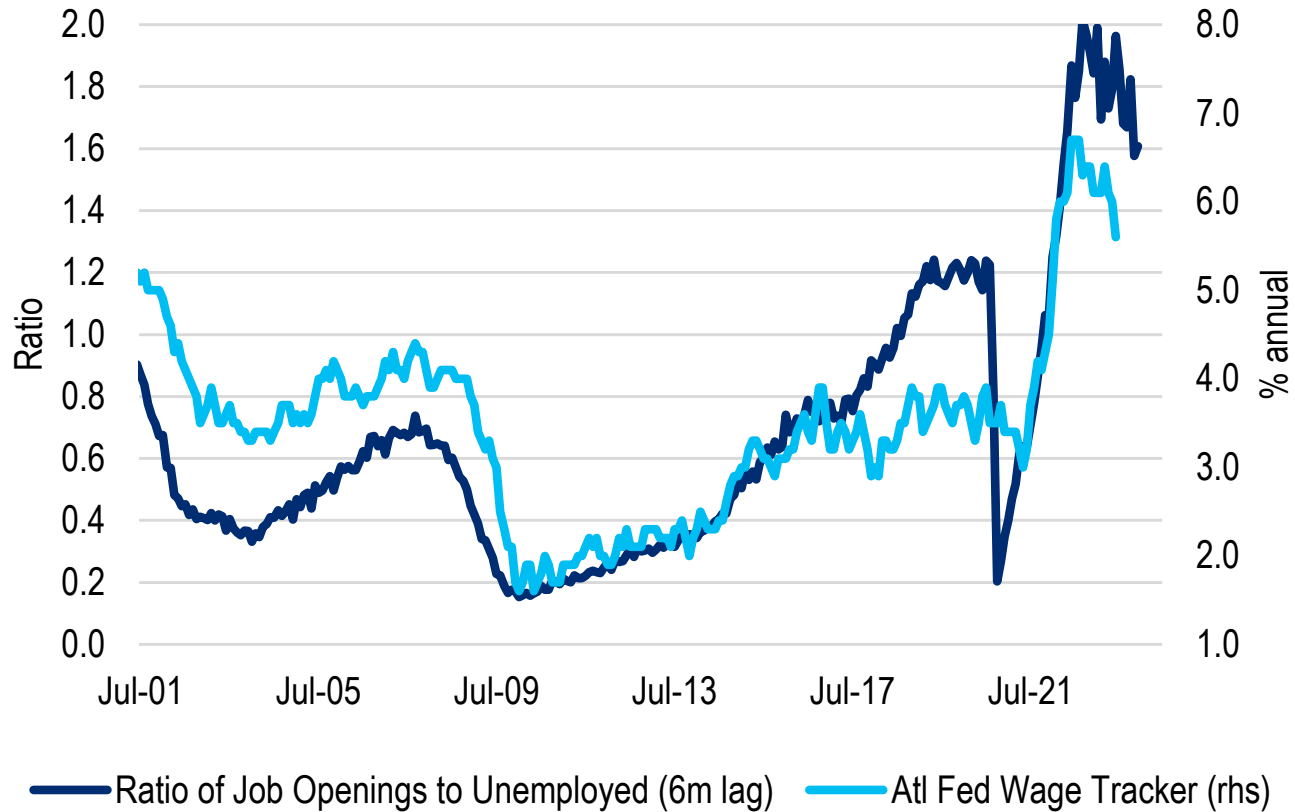
Source: Citi Research, BEA, BLS

# Bring excess demand for labor down, so demand meets supply



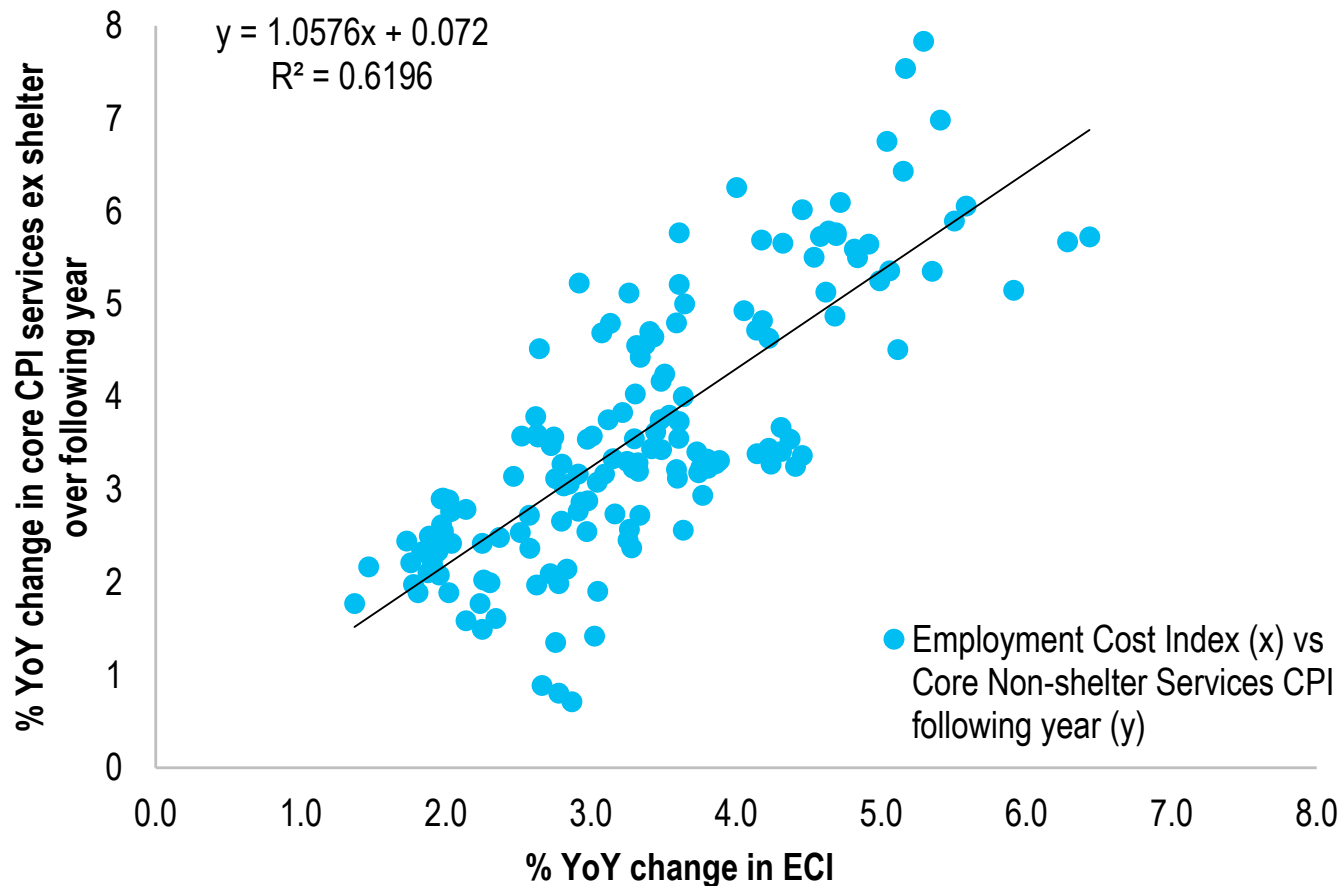
Source: Citi Research, BLS

# More balanced labor market can mean wages slow



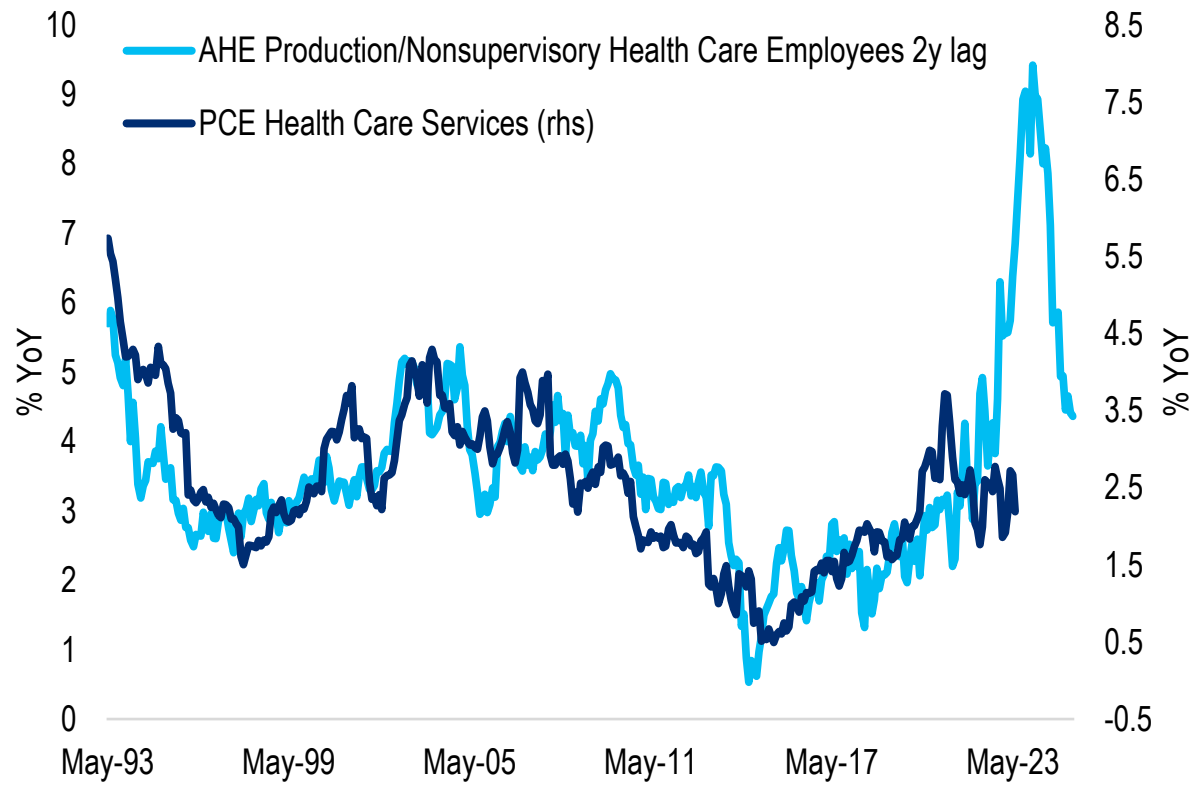
Source: Citi Research, Atlanta Fed, BLS

# Wages will ultimately be the key determinant of inflation



Source: Citi Research, BEA, BLS

# Wages will ultimately be the key determinant of inflation



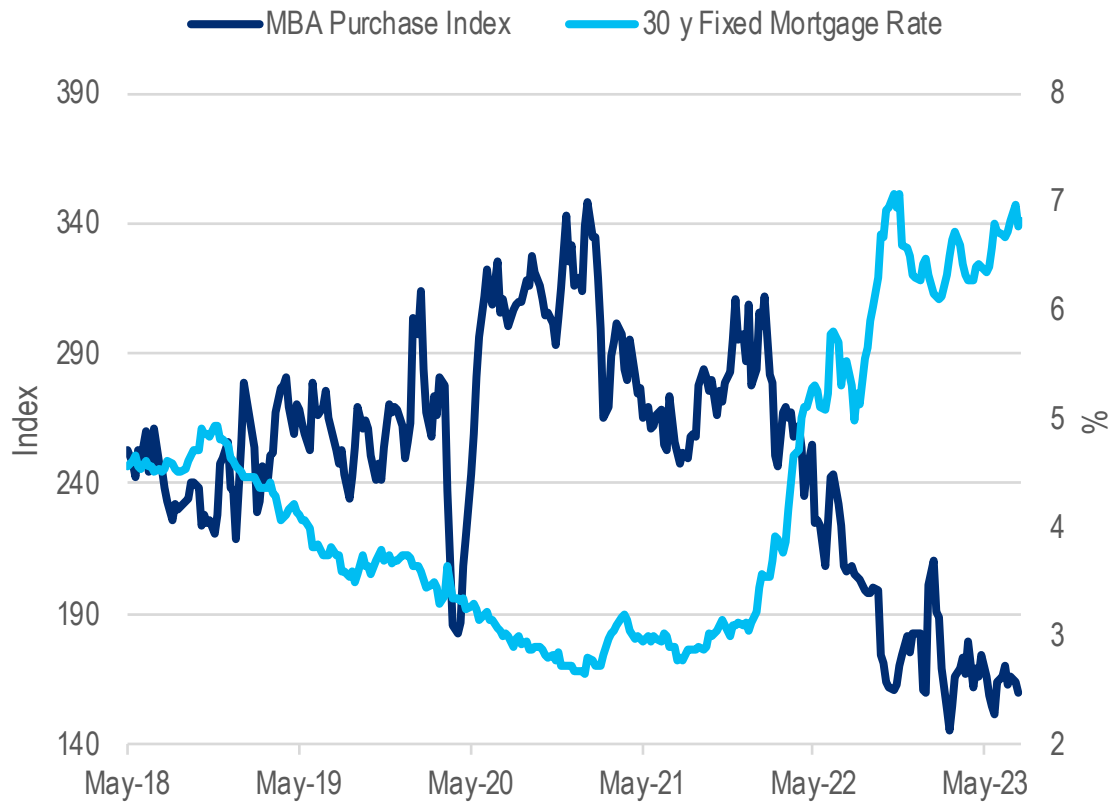
Source: Citi Research, BEA, BLS





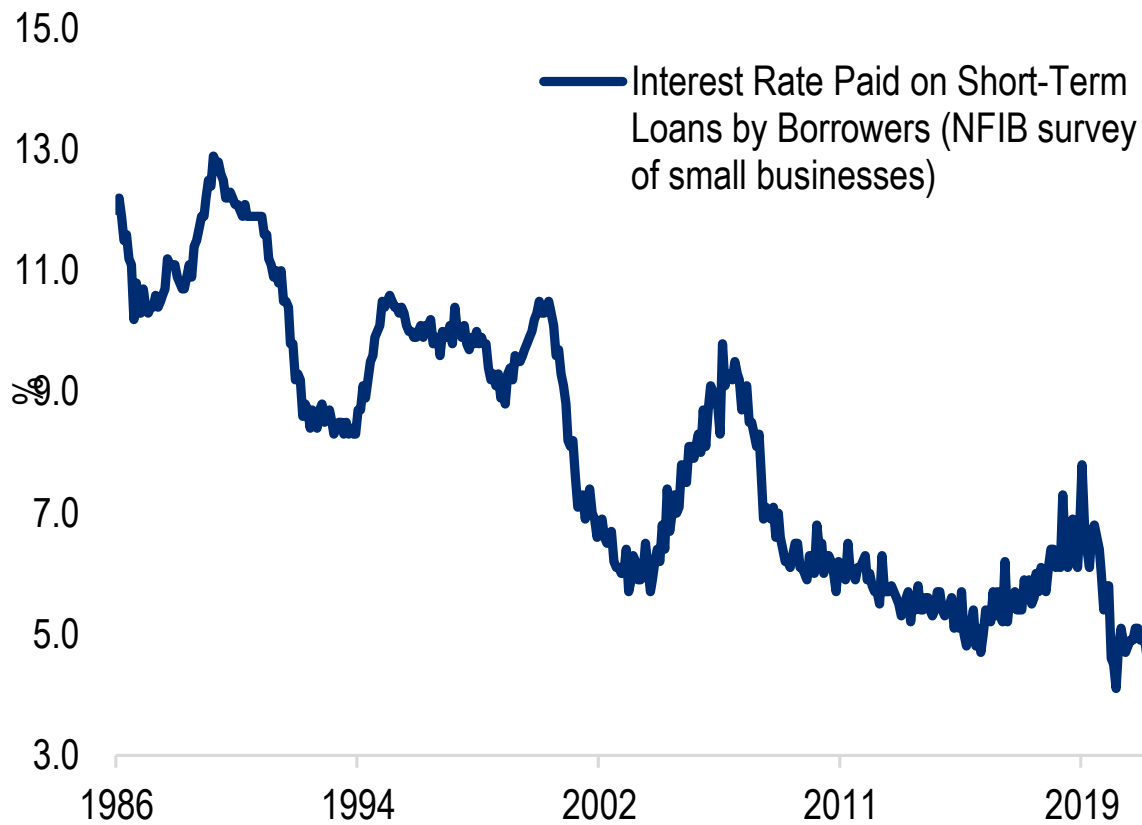
3) US recession still a distinct possibility

# Activity can still slow due to higher rates



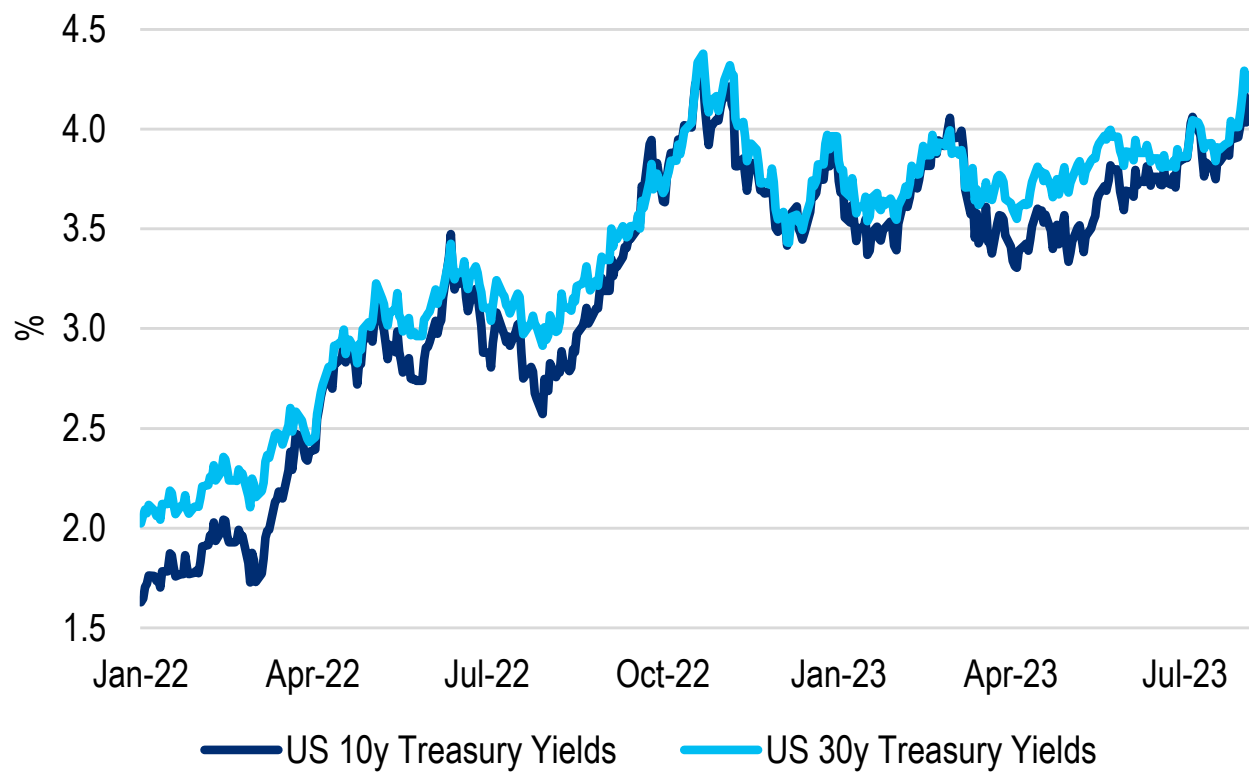
Source: Citi Research, Bloomberg, MBA

# Activity can still slow due to higher rates



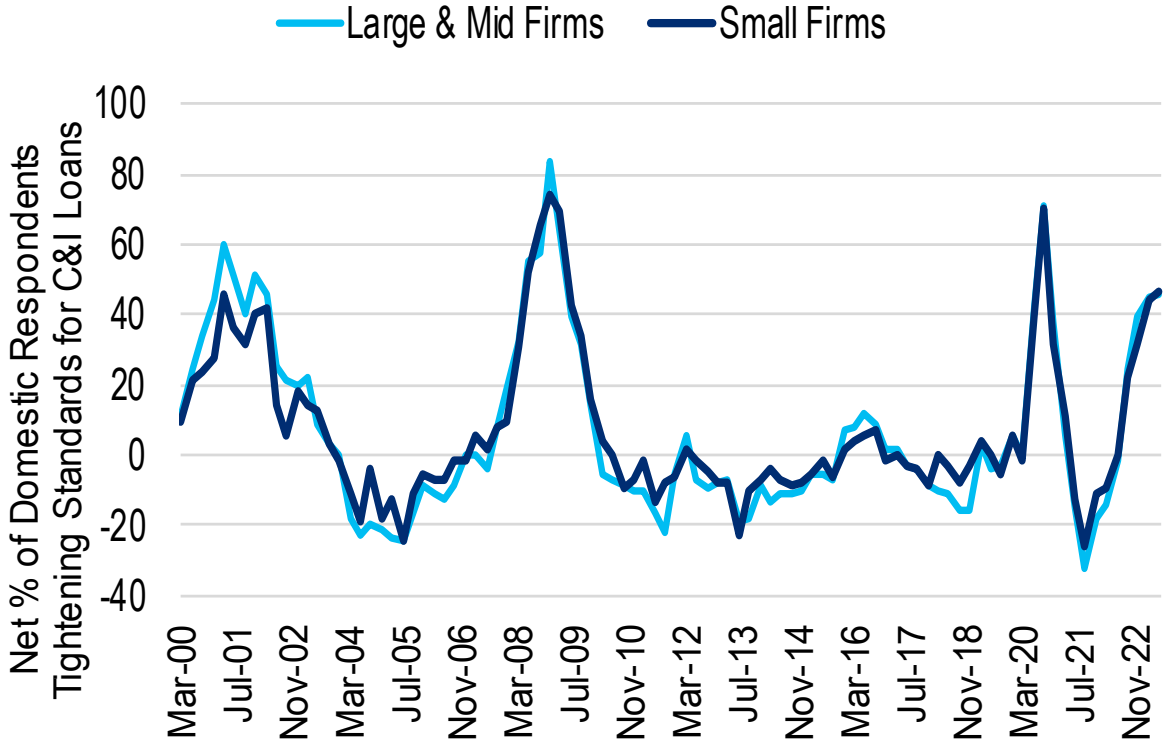
Source: Citi Research, NFIB

# Activity can still slow due to higher rates



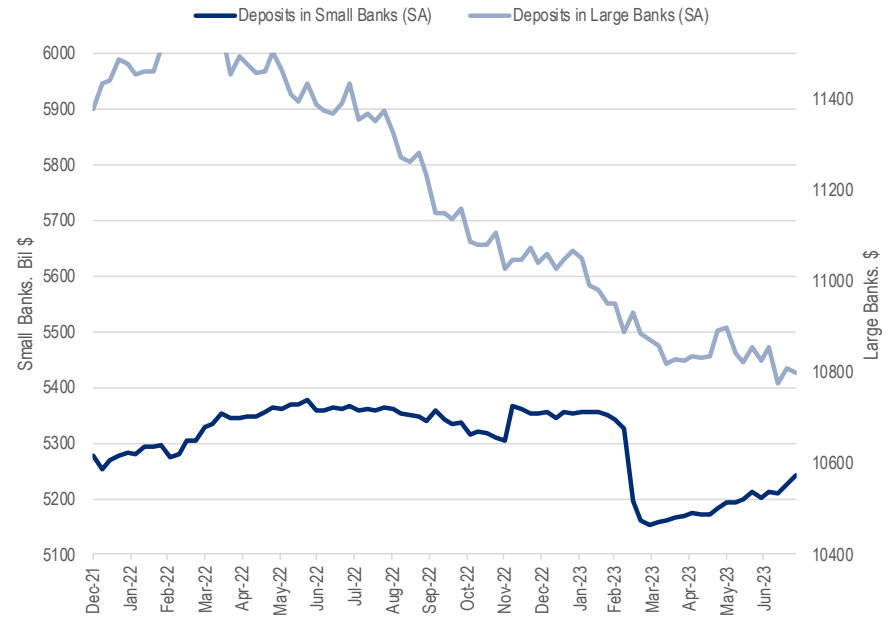
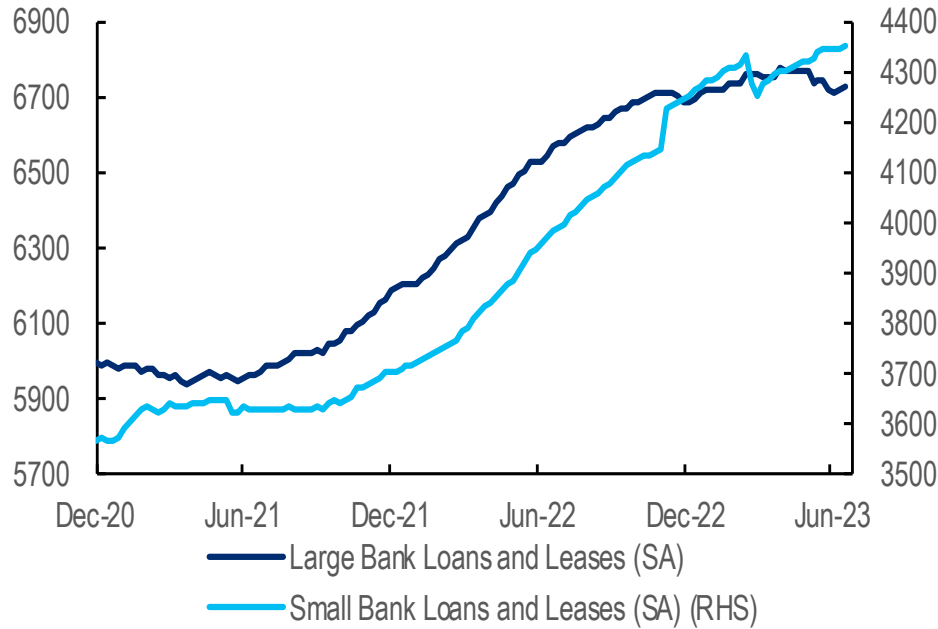
Source: Citi Research, Bloomberg

# Credit conditions have tightened substantially



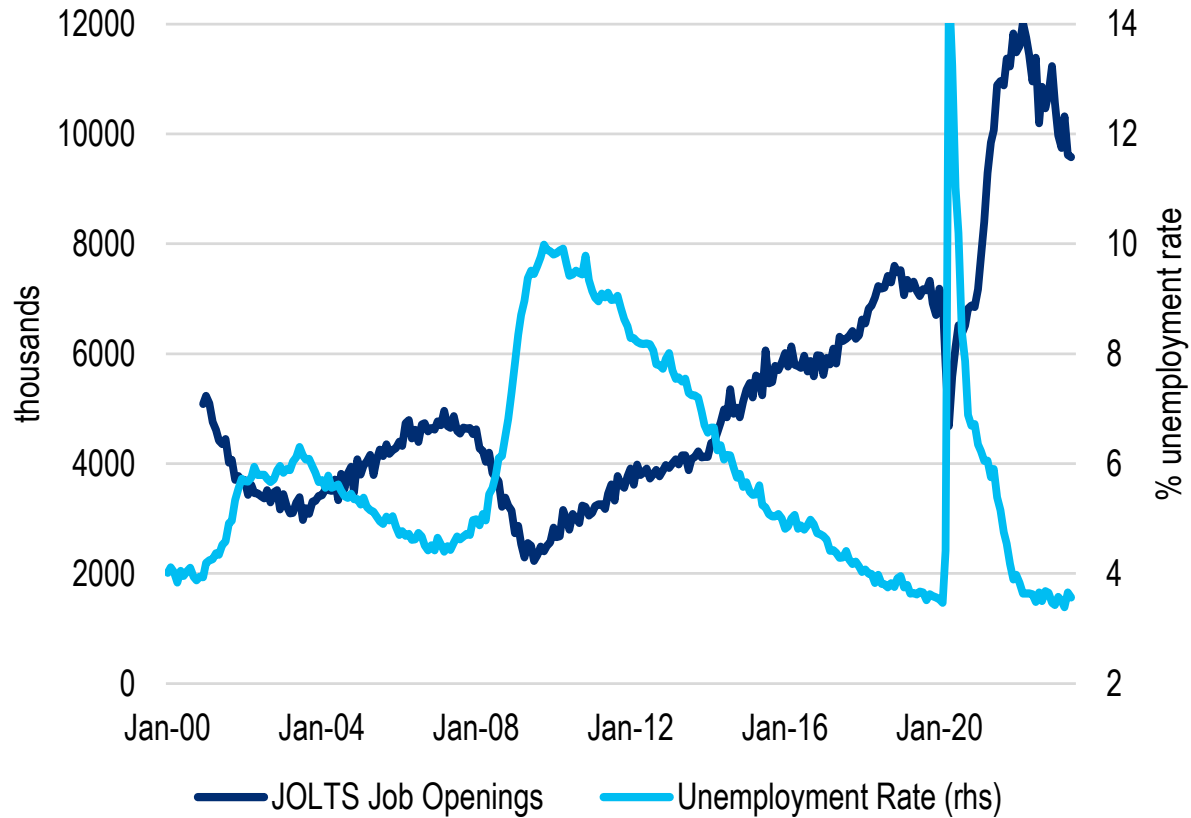
Source: Citi Research, Federal Reserve

# Loan growth can slow further as banks are cautious, deposits fall



Source: Citi Research, Federal Reserve

# Bringing labor demand down further could be more painful

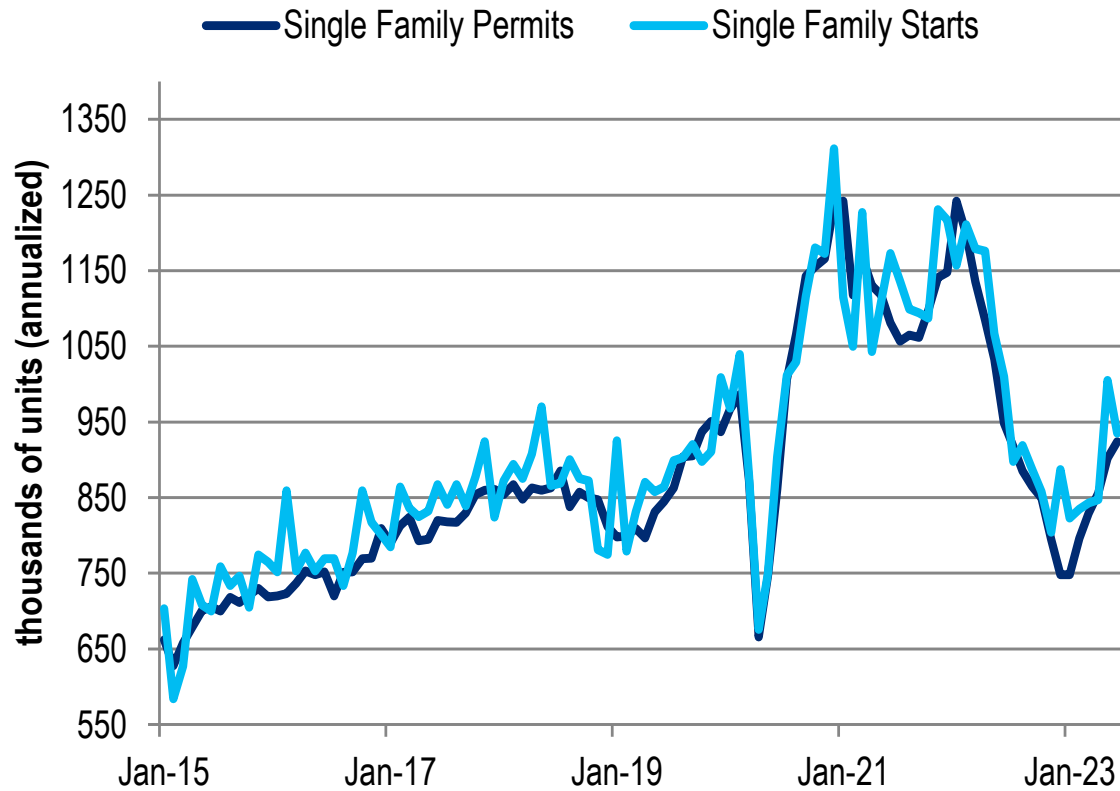


Source: Citi Research, BLS

3) No landing at all, but still high inflation



# Housing sector is most rate sensitive, but has bottomed



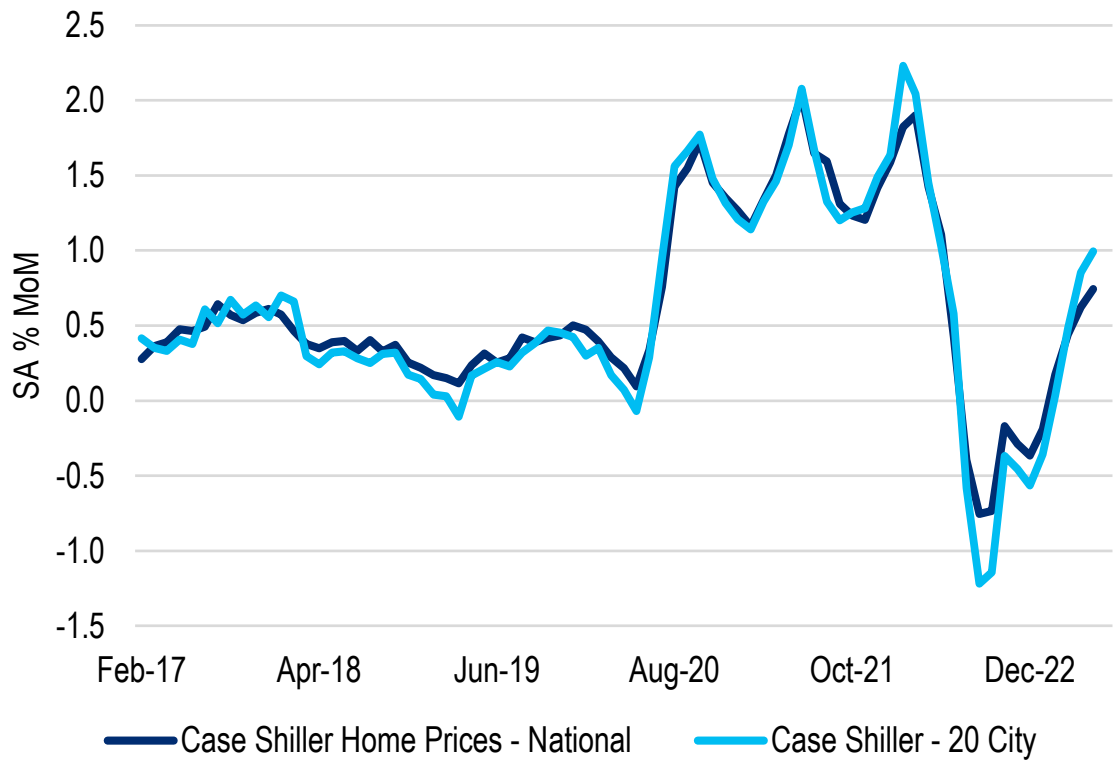
Source: Citi Research, Census Bureau

# Housing supply is constrained



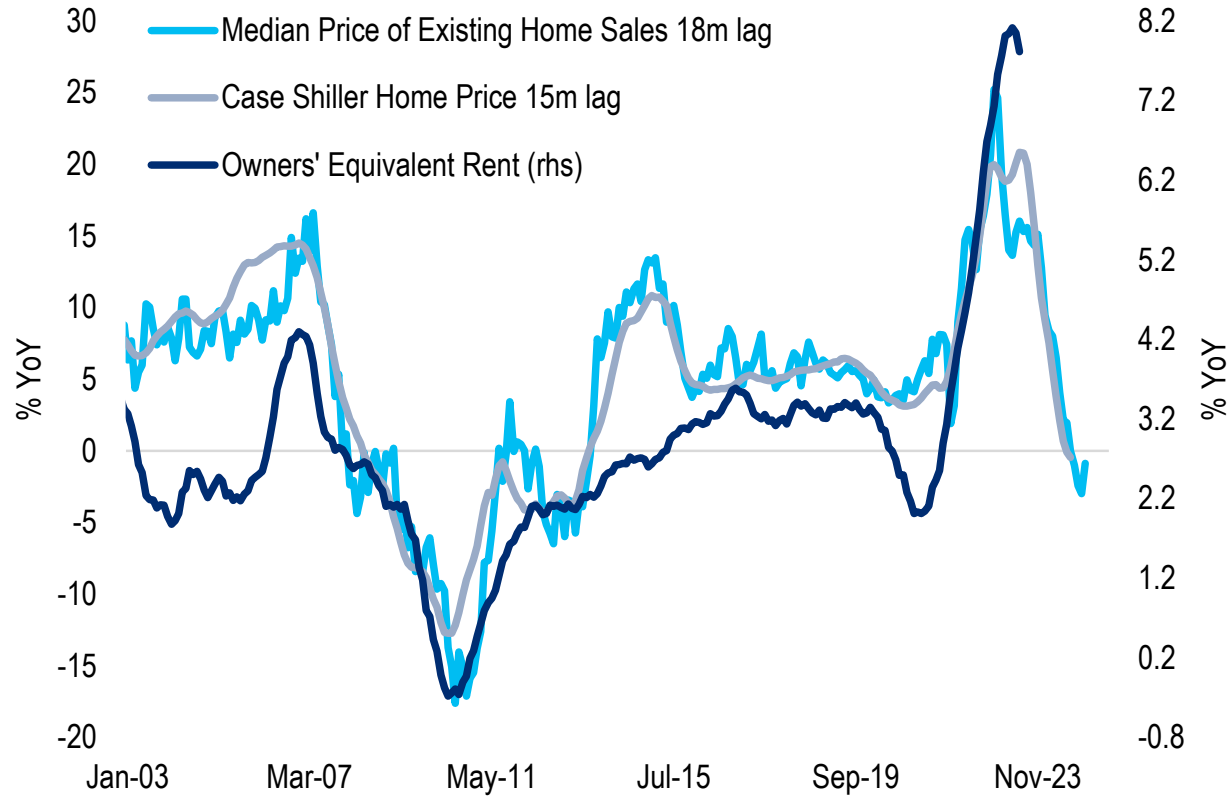
Source: Citi Research, NAR

# Home prices are rising again



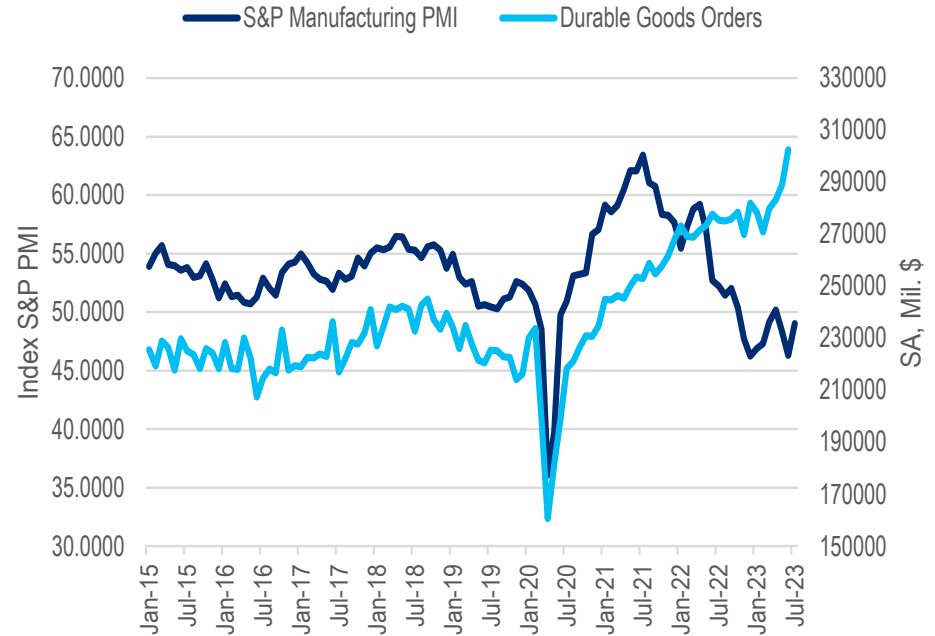
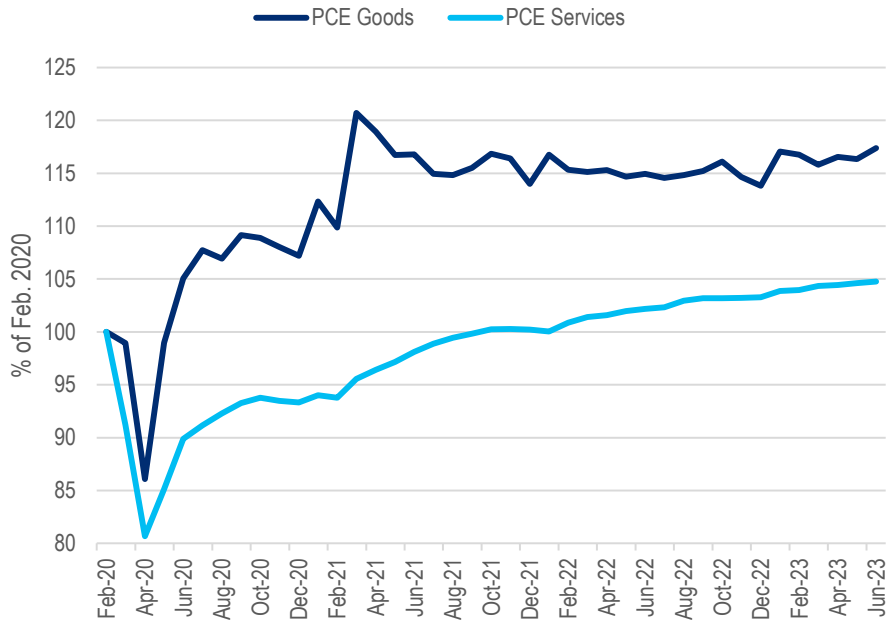
Source: Citi Research, S&P

# Rising home prices suggest upside to shelter prices in CPI later



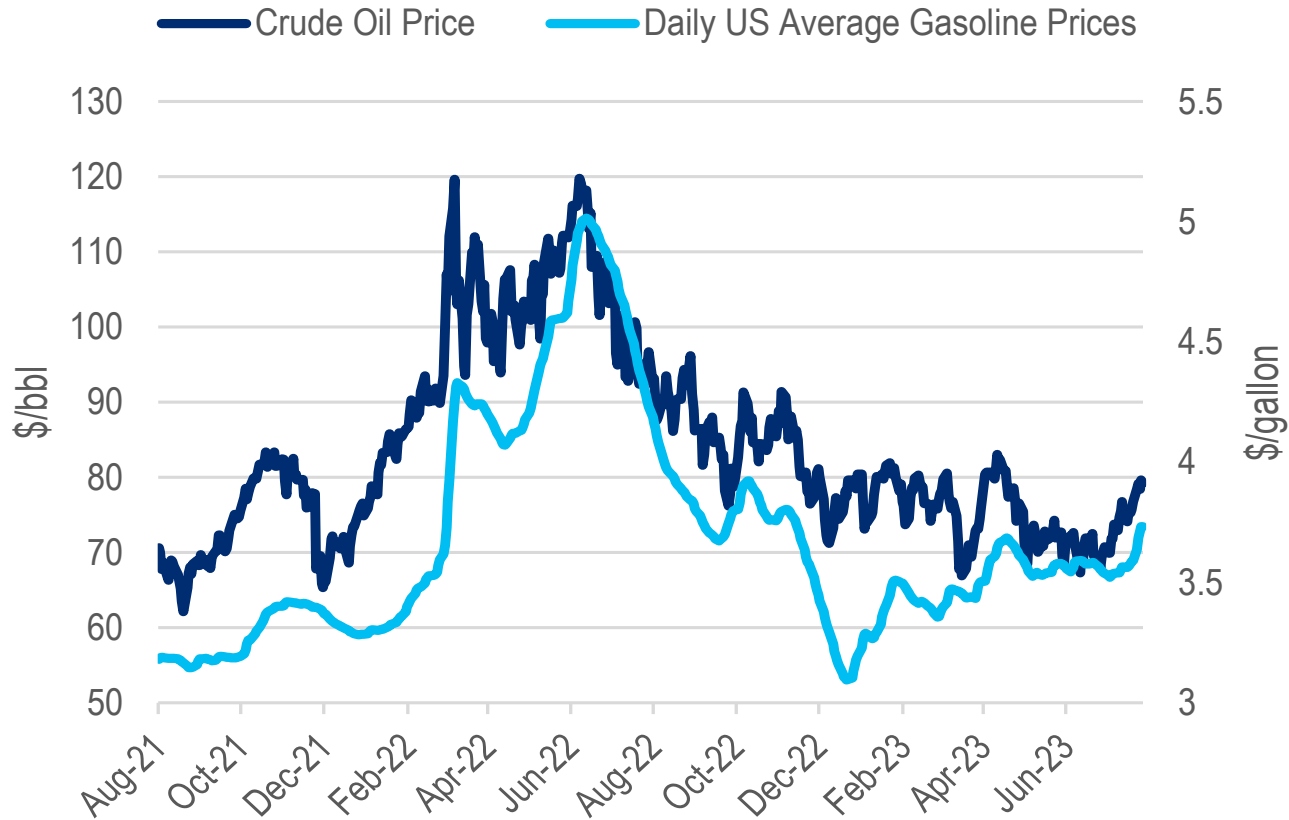
Source: Citi Research, NAR, S&P, BLS

# Some signs goods demand picking up again



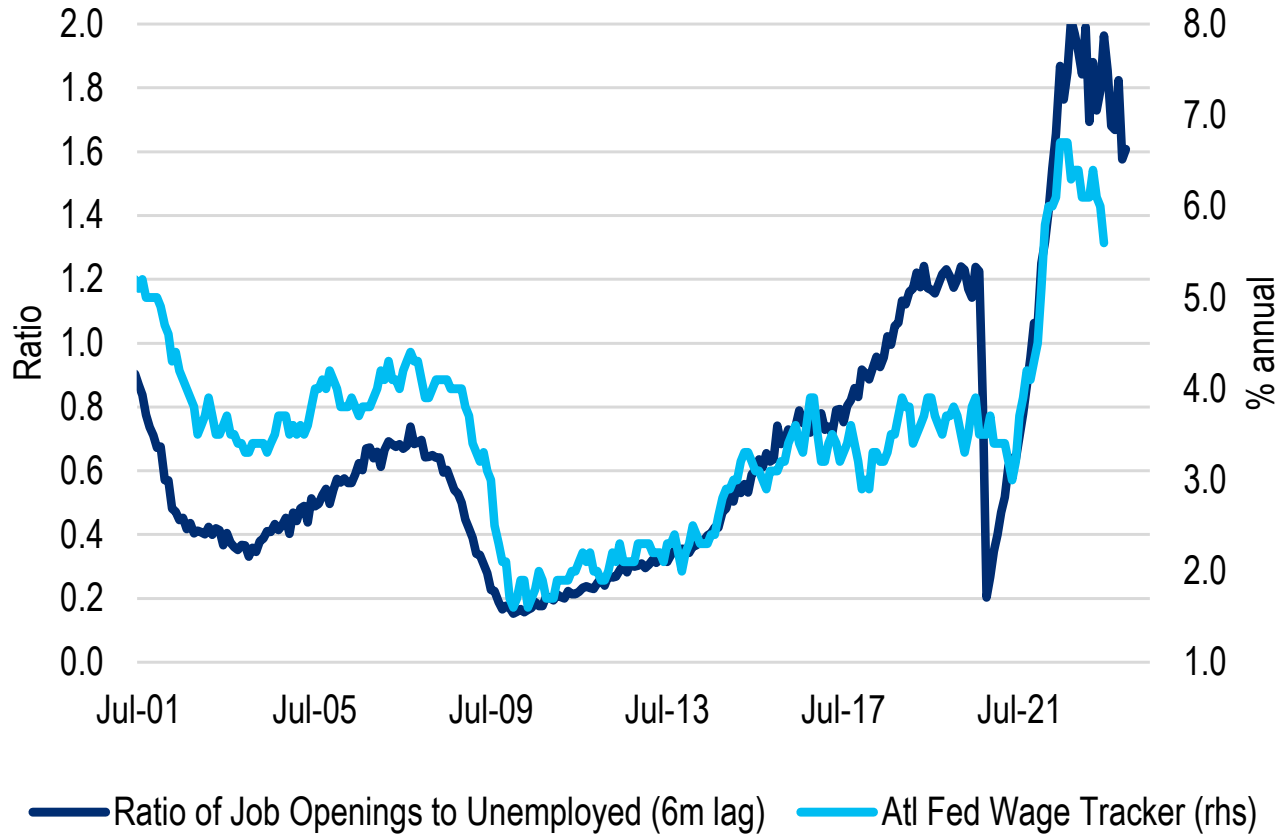
Source: Citi Research, BEA, Census Bureau, S&P

# Upward risks to goods prices with commodities rebounding



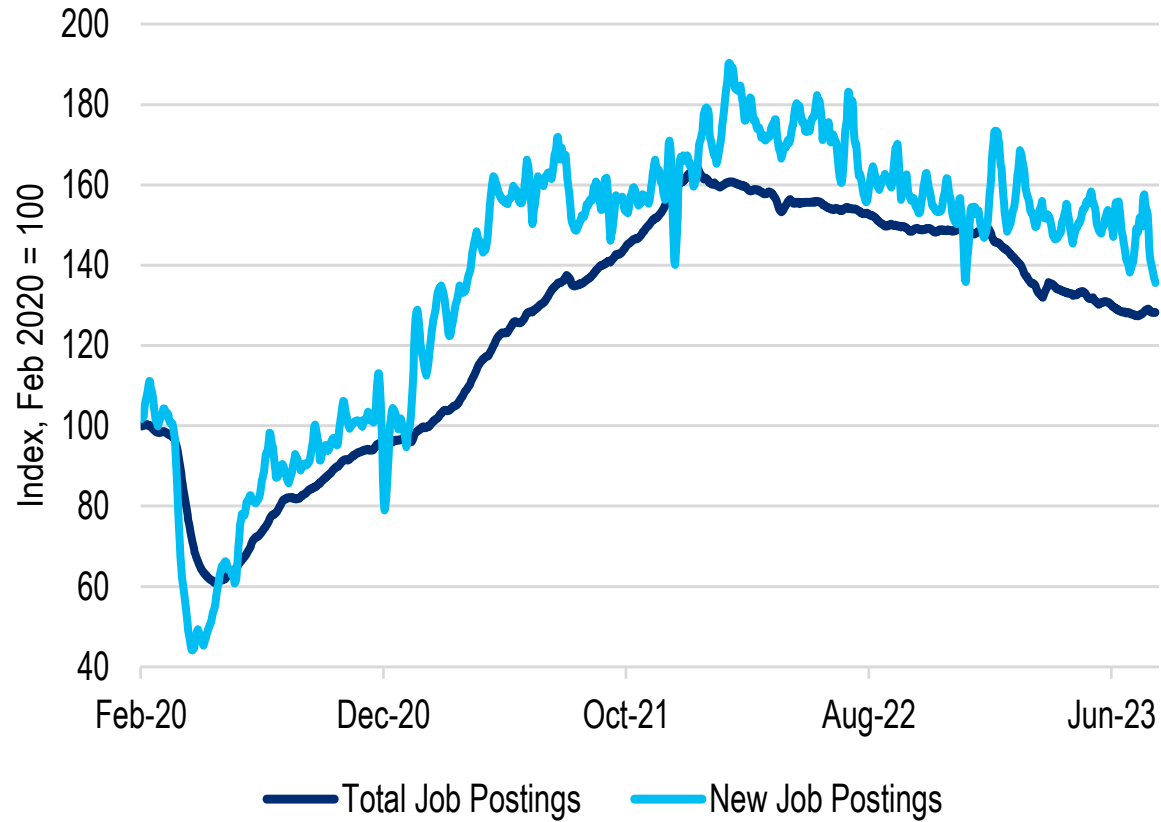
Source: Citi Research, Bloomberg, BLS

# Labor market might not be loosening enough



Source: Citi Research, BLS, Atlanta Fed

# Labor market might not be loosening enough



Source: Citi Research, Indeed.com



# High inflation for too long risks becoming embedded



Source: Citi Research, University of Michigan



If you are visually impaired and would like to speak to a Citi representative regarding the details of the graphics in this document, please call USA 1-888-800-5008 (TTY: 711), from outside the US +1-210-677-3788

## Appendix A-1

### ANALYST CERTIFICATION

---

The research analysts primarily responsible for the preparation and content of this research report are either (i) designated by “AC” in the author block or (ii) listed in bold alongside content which is attributable to that analyst. If multiple AC analysts are designated in the author block, each analyst is certifying with respect to the entire research report other than (a) content attributable to another AC certifying analyst listed in bold alongside the content and (b) views expressed solely with respect to a specific issuer which are attributable to another AC certifying analyst identified in the price charts or rating history tables for that issuer shown below. Each of these analysts certify, with respect to the sections of the report for which they are responsible: (1) that the views expressed therein accurately reflect their personal views about each issuer and security referenced and were prepared in an independent manner, including with respect to Citigroup Global Markets Inc. and its affiliates; and (2) no part of the research analyst’s compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that research analyst in this report.

### IMPORTANT DISCLOSURES

---

Analysts’ compensation is determined by Citi Research management and Citigroup’s senior management and is based upon activities and services intended to benefit the investor clients of Citigroup Global Markets Inc. and its affiliates (the “Firm”). Compensation is not linked to specific transactions or recommendations. Like all Firm employees, analysts receive compensation that is impacted by overall Firm profitability which includes investment banking, sales and trading, and principal trading revenues. One factor in equity research analyst compensation is arranging corporate access events between institutional clients and the management teams of covered companies. Typically, company management is more likely to participate when the analyst has a positive view of the company.

For financial instruments recommended in the Product in which the Firm is not a market maker, the Firm is a liquidity provider in such financial instruments (and any underlying instruments) and may act as principal in connection with transactions in such instruments. The Firm is a regular issuer of traded financial instruments linked to securities that may have been recommended in the Product. The Firm regularly trades in the securities of the issuer(s) discussed in the Product. The Firm may engage in securities transactions in a manner inconsistent with the Product and, with respect to securities covered by the Product, will buy or sell from customers on a principal basis.

Unless stated otherwise neither the Research Analyst nor any member of their team has viewed the material operations of the Companies for which an investment view has been provided within the past 12 months.

For important disclosures (including copies of historical disclosures) regarding the companies that are the subject of this Citi Research product (“the Product”), please contact Citi Research, 388 Greenwich Street, 6th Floor, New York, NY, 10013, Attention: Legal/Compliance [E6WYB6412478]. In addition, the same important disclosures, with the exception of the Valuation and Risk assessments and historical disclosures, are contained on the Firm’s disclosure website at [https://www.citivelocity.com/cvr/eppublic/citi\\_research\\_disclosures](https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures). Valuation and Risk assessments can be found in the text of the most recent research note/report regarding the subject company. Pursuant to the Market Abuse Regulation a history of all Citi Research recommendations published during the preceding 12-month period can be accessed via Citi Velocity (<https://www.citivelocity.com/cv2>) or your standard distribution portal. Historical disclosures (for up to the past three years) will be provided upon request.

### RESEARCH ANALYST AFFILIATIONS / NON-US RESEARCH ANALYST DISCLOSURES

---

The legal entities employing the authors of this report are listed below (and their regulators are listed further herein). Non-US research analysts who have prepared this report (i.e., all research analysts listed below other than those identified as employed by Citigroup Global Markets Inc.) are not registered/qualified as research analysts with FINRA. Such research analysts



may not be associated persons of the member organization (but are employed by an affiliate of the member organization) and therefore may not be subject to the FINRA Rule 2241 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

Citigroup Global Markets Inc.

Andrew Hollenhorst; Gisela Hoxha; Veronica Clark

## OTHER DISCLOSURES

Any price(s) of instruments mentioned in recommendations are as of the prior day's market close on the primary market for the instrument, unless otherwise stated.

The completion and first dissemination of any recommendations made within this research report are as of the Eastern date-time displayed at the top of the Product. If the Product references views of other analysts then please refer to the price chart or rating history table for the date/time of completion and first dissemination with respect to that view.

European regulations require that where a recommendation differs from any of the author's previous recommendations concerning the same financial instrument or issuer that has been published during the preceding 12-month period that the change(s) and the date of that previous recommendation are indicated. Please refer to the trade history in the published research or contact the research analyst.

Citi Research has implemented policies for identifying, considering and managing potential conflicts of interest arising as a result of publication or distribution of investment research. A description of these policies can be found at [https://www.citivelocity.com/cvr/eppublic/citi\\_research\\_disclosures](https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures).

The proportion of all Citi Research research recommendations that were the equivalent to "Buy", "Hold", "Sell" at the end of each quarter over the prior 12 months (with the % of these that had received investment firm services from Citi in the prior 12 months shown in brackets) is as follows: Q2 2023 Buy 33% (66%), Hold 43% (56%), Sell 23% (48%), RV 0.5% (88%); Q1 2023 Buy 33% (65%), Hold 43% (55%), Sell 23% (51%), RV 0.5% (86%); Q4 2022 Buy 33% (64%), Hold 43% (55%), Sell 23% (51%), RV 0.6% (91%); Q3 2022 Buy 33% (65%), Hold 43% (55%), Sell 23% (49%), RV 0.5% (89%). For the purposes of disclosing recommendations other than for equity (whose definitions can be found in the corresponding disclosure sections), "Buy" means a positive directional trade idea; "Sell" means a negative directional trade idea; and "Relative Value" means any trade idea which does not have a clear direction to the investment strategy.

European regulations require a 5 year price history when past performance of a security is referenced. CitiVelocity's Charting Tool

([https://www.citivelocity.com/cv2/#go/CHARTING\\_3\\_Equities](https://www.citivelocity.com/cv2/#go/CHARTING_3_Equities)) provides the facility to create customisable price charts including a five year option. This tool can be found in the Data & Analytics section under any of the asset class menus in CitiVelocity (<https://www.citivelocity.com/>). For further information contact CitiVelocity support

([https://www.citivelocity.com/cv2/go/CLIENT\\_SUPPORT](https://www.citivelocity.com/cv2/go/CLIENT_SUPPORT)). The source for all referenced prices, unless otherwise stated, is DataCentral, which sources price information from Thomson Reuters. Past performance is not a guarantee or reliable indicator of future results. Forecasts are not a guarantee or reliable indicator of future performance.

Investors should always consider the investment objectives, risks, and charges and expenses of an ETF carefully before investing. The applicable prospectus and key investor information document (as applicable) for an ETF should contain this and other information about such ETF. It is important to read carefully any such prospectus before investing. Clients may obtain prospectuses and key investor information documents for ETFs from the applicable distributor or authorized participant, the exchange upon which an ETF is listed and/or from the applicable website of the applicable ETF issuer. The value of the investments and any accruing income may fall or rise. Any past performance, prediction or forecast is not indicative of future or likely performance. Any information on ETFs contained herein is provided strictly for illustrative purposes and should not be deemed an offer to sell or a solicitation of an offer to purchase units of any ETF either explicitly or implicitly. The opinions expressed are those of the authors and do not necessarily reflect the views of ETF issuers, any of their agents or their affiliates.

Citigroup Global Markets India Private Limited and/or its affiliates may have, from time to time, actual or beneficial ownership of 1% or more in the debt securities of the subject issuer.

Please be advised that pursuant to Executive Order 13959 as amended (the "Order"), U.S. persons are prohibited from investing in securities of any company determined by the United States Government to be the subject of the Order. This research is not intended to be used or relied upon in any way that could result in a violation of the Order. Investors are encouraged to rely upon their own legal counsel for advice on compliance with the Order and other economic sanctions programs administered and enforced by the Office of Foreign Assets Control of the U.S. Treasury Department.

This communication is directed at persons who are "Eligible Clients" as such term is defined in the Israeli Regulation of Investment Advice, Investment Marketing and Investment Portfolio Management law, 1995 (the "Advisory Law"). Within Israel, this communication is not intended for retail clients and Citi will not make such products or transactions available to retail clients. The presenter is not licensed as investment advisor or marketer by the Israeli Securities Authority ("ISA") and this communication does not constitute investment or marketing advice. The information contained herein may relate to matters that are not regulated by the ISA. Any securities which are the subject of this communication may not be offered or sold to any Israeli person except pursuant to an exemption from the Israeli public offering rules, including according to the Israeli Securities Law.



Citi Research generally disseminates its research to the Firm's global institutional and retail clients via both proprietary (e.g., Citi Velocity and Citi Personal Wealth Management) and non-proprietary electronic distribution platforms. Certain research may be disseminated only via the Firm's proprietary distribution platforms; however such research will not contain changes to earnings forecasts, target price, investment or risk rating or investment thesis or be otherwise inconsistent with the author's previously published research. Certain research is made available only to institutional investors to satisfy regulatory requirements. Individual Citi Research analysts may also opt to circulate published research to one or more clients by email; such email distribution is discretionary and is done only after the research has been disseminated. The level and types of services provided by Citi Research analysts to clients may vary depending on various factors such as the client's individual preferences as to the frequency and manner of receiving communications from analysts, the client's risk profile and investment focus and perspective (e.g. market-wide, sector specific, long term, short-term etc.), the size and scope of the overall client relationship with the Firm and legal and regulatory constraints.

Pursuant to Comissão de Valores Mobiliários Resolução 20 and ASIC Regulatory Guide 264, Citi is required to disclose whether a Citi related company or business has a commercial relationship with the subject company. Considering that Citi operates multiple businesses in more than 100 countries around the world, it is likely that Citi has a commercial relationship with the subject company.

**Disclosure for investors in the Republic of Turkey:** Under Capital Markets Law of Turkey (Law No: 6362), the investment information, comments and recommendations stated here, are not within the scope of investment advisory activity. Investment advisory service is provided in accordance with a contract of engagement on investment advisory concluded between brokerage houses, portfolio management companies, non-deposit banks and clients. Comments and recommendations stated here rely on the individual opinions of the ones providing these comments and recommendations. These opinions may not fit to your financial status, risk and return preferences. For this reason, to make an investment decision by relying solely to this information stated here may not bring about outcomes that fit your expectations. Furthermore, Citi Research is a division of Citigroup Global Markets Inc. (the "Firm"), which does and seeks to do business with companies and/or trades on securities covered in this research reports. As a result, investors should be aware that the Firm may have a conflict of interest that could affect the objectivity of this report, however investors should also note that the Firm has in place organisational and administrative arrangements to manage potential conflicts of interest of this nature.

Securities recommended, offered, or sold by the Firm: (i) are not insured by the Federal Deposit Insurance Corporation; (ii) are not deposits or other obligations of any insured depository institution (including Citibank); and (iii) are subject to investment risks, including the possible loss of the principal amount invested. The Product is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security. Any decision to purchase securities mentioned in the Product must take into account existing public information on such security or any registered prospectus. Although information has been obtained from and is based upon sources that the Firm believes to be reliable, we do not guarantee its accuracy and it may be incomplete and condensed. Note, however, that the Firm has taken all reasonable steps to determine the accuracy and completeness of the disclosures made in the Important Disclosures section of the Product. The Firm's research department has received assistance from the subject company(ies) referred to in this Product including, but not limited to, discussions with management of the subject company(ies). Firm policy prohibits research analysts from sending draft research to subject companies. However, it should be presumed that the author of the Product has had discussions with the subject company to ensure factual accuracy prior to publication. Statements and views concerning ESG (environmental, social, governance) factors are typically based upon public statements made by the affected company or other public news, which the author may not have independently verified. ESG factors are one consideration that investors may choose to examine when making investment decisions. All opinions, projections and estimates constitute the judgment of the author as of the date of the Product and these, plus any other information contained in the Product, are subject to change without notice. Prices and availability of financial instruments also are subject to change without notice. Notwithstanding other departments within the Firm advising the companies discussed in this Product, information obtained in such role is not used in the preparation of the Product. Although Citi Research does not set a predetermined frequency for publication, if the Product is a fundamental equity or credit research report, it is the intention of Citi Research to provide research coverage of the covered issuers, including in response to news affecting the issuer. For non-fundamental research reports, Citi Research may not provide regular updates to the views, recommendations and facts included in the reports. Notwithstanding that Citi Research maintains coverage on, makes recommendations concerning or discusses issuers, Citi Research may be periodically restricted from referencing certain issuers due to legal or policy reasons. Where a component of a published trade idea is subject to a restriction, the trade idea will be removed from any list of open trade ideas included in the Product. Upon the lifting of the restriction, the trade idea will either be re-instated in the open trade ideas list if the analyst continues to support it or it will be officially closed. Citi Research may provide different research products and services to different classes of customers (for example, based upon long-term or short-term investment horizons) that may lead to differing conclusions or recommendations that could impact the price of a security contrary to the recommendations in the alternative research product, provided that each is consistent with the rating system for each respective product.



Investing in non-U.S. securities, including ADRs, may entail certain risks. The securities of non-U.S. issuers may not be registered with, nor be subject to the reporting requirements of the U.S. Securities and Exchange Commission. There may be limited information available on foreign securities. Foreign companies are generally not subject to uniform audit and reporting standards, practices and requirements comparable to those in the U.S. Securities of some foreign companies may be less liquid and their prices more volatile than securities of comparable U.S. companies. In addition, exchange rate movements may have an adverse effect on the value of an investment in a foreign stock and its corresponding dividend payment for U.S. investors. Net dividends to ADR investors are estimated, using withholding tax rates conventions, deemed accurate, but investors are urged to consult their tax advisor for exact dividend computations. Investors who have received the Product from the Firm may be prohibited in certain states or other jurisdictions from purchasing securities mentioned in the Product from the Firm. Please ask your Financial Consultant for additional details. Citigroup Global Markets Inc. takes responsibility for the Product in the United States. Any orders by US investors resulting from the information contained in the Product may be placed only through Citigroup Global Markets Inc.

---

**Important Disclosures for Bell Potter Customers:** Bell Potter is making this Product available to its clients pursuant to an agreement with Citigroup Global Markets Australia Pty Limited. Neither Citigroup Global Markets Australia Pty Limited nor any of its affiliates has made any determination as to the suitability of the information provided herein and clients should consult with their Bell Potter financial advisor before making any investment decision.

---

**The Citigroup legal entity that takes responsibility for the production of the Product is the legal entity which the first named author is employed by.**

The Product is made available in **Australia** through Citigroup Global Markets Australia Pty Limited. (ABN 64 003 114 832 and AFSL No. 240992), participant of the ASX Group and regulated by the Australian Securities & Investments Commission. Citigroup Centre, 2 Park Street, Sydney, NSW 2000. Citigroup Global Markets Australia Pty Limited is not an Authorised Deposit-Taking Institution under the Banking Act 1959, nor is it regulated by the Australian Prudential Regulation Authority.

---

The Product is made available in **Brazil** by Citigroup Global Markets Brasil - CCTVM SA, which is regulated by CVM - Comissão de Valores Mobiliários ("CVM"), BACEN - Brazilian Central Bank, APIMEC - Associação dos Analistas e Profissionais de Investimento do Mercado de Capitais and ANBIMA – Associação Brasileira das Entidades dos Mercados Financeiro e de Capitais. Av. Paulista, 1111 - 14º andar(parte) - CEP: 01311920 - São Paulo - SP.

---

This Product is being made available in **Canada** by Citigroup Global Markets (Canada) Inc. ("CGM Canada"). Citigroup Place, 123 Front Street West, Toronto, Ontario M5J 2M3.

---

This Product is available in **Chile** through Banchile Corredores de Bolsa S.A., an indirect subsidiary of Citigroup Inc., which is regulated by the Comisión Para El Mercado Financiero. Agustinas 975, piso 2, Santiago, Chile.

---

**Disclosure for investors in the Republic of Colombia :** This communication or message does not constitute a professional recommendation to make investment in the terms of article 2.40.1.1.2 of Decree 2555 de 2010 or the regulations that modify, substitute or complement it. Para la elaboración y distribución de informes de investigación y de comunicaciones generales de que trata este artículo no se requiere ser una entidad vigilada por la Superintendencia Financiera de Colombia.

---

The Product is made available in **Germany** by Citigroup Global Markets Europe AG ("CGME"), which is regulated by the European Central Bank and the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht BaFin). CGME, Reuterweg 16, 60323 Frankfurt am Main.

---

Unless otherwise specified, if the analyst who prepared this report is based in Hong Kong and it relates to "securities" (as defined in the Securities and Futures Ordinance (Cap.571 of the Laws of Hong Kong)), the report is issued in Hong Kong by Citigroup Global Markets Asia Limited. Citigroup Global Markets Asia Limited is regulated by Hong Kong Securities and Futures Commission. If the report is prepared by a non-Hong Kong based analyst, please note that such analyst (and the legal entity that the analyst is employed by or accredited to) is not licensed/registered in Hong Kong and they do not hold themselves out as such. Please refer to the section "Research Analyst Affiliations / Non-US Research Analyst Disclosures" for the details of the employment entity of the analysts.

---

The Product is made available in **India** by Citigroup Global Markets India Private Limited (CGM), which is regulated by the Securities and Exchange Board of India (SEBI), as a Research Analyst (SEBI Registration No. INH000000438). CGM is also actively involved in the business of merchant banking (SEBI Registration No. INM000010718) and stock brokerage ((SEBI Registration No. INZ000263033) in India, and is registered with SEBI in this regard. Registration granted by SEBI and certification from National Institute of Securities Markets (NISM) in no way guarantee performance of the intermediary or provide any assurance of returns to investors. CGM's registered office is at 1202, 12th Floor, First International Financial Centre (FIFC), G Block, Bandra Kurla Complex, Bandra East, Mumbai – 400098. CGM's Corporate Identity Number is U99999MH2000PTC126657, and its Compliance Officer [Vishal Bohra] contact details are: Tel:+91-022-61759994, Fax:+91-022-61759851, Email: cgmcompliance@citi.com. The Investor Charter in respect of Research Analysts and Complaints information can be found at [https://www.citivelocity.com/cvr/eppublic/citi\\_research\\_disclosures](https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures). The grievance officer [Nikita Jadhav] contact details are Tel: +91-022-42775089, Email: EMEA.CR.Complaints@citi.com.

---

Investment in securities market are subject to market risks. Read all the related documents carefully before investing.

---



The Product is made available in **Indonesia** through PT Citigroup Securities Indonesia. Citibank Tower 10/F, Pacific Century Place, SCBD lot 10, Jl. Jend Sudirman Kav 52-53, Jakarta 12190, Indonesia. Neither this Product nor any copy hereof may be distributed in Indonesia or to any Indonesian citizens wherever they are domiciled or to Indonesian residents except in compliance with applicable capital market laws and regulations. This Product is not an offer of securities in Indonesia. The securities referred to in this Product have not been registered with the Capital Market and Financial Services Authority (OJK) pursuant to relevant capital market laws and regulations, and may not be offered or sold within the territory of the Republic of Indonesia or to Indonesian citizens through a public offering or in circumstances which constitute an offer within the meaning of the Indonesian capital market laws and regulations.

The Product is made available in **Israel** through Citibank NA, regulated by the Bank of Israel and the Israeli Securities Authority. Citibank, N.A, Azrieli Sarona Building, 121 Menachem Begin Street, Tel Aviv, Israel.

The Product is made available in **Japan** by Citigroup Global Markets Japan Inc. ("CGMJ"), which is regulated by Financial Services Agency, Securities and Exchange Surveillance Commission, Japan Securities Dealers Association, Tokyo Stock Exchange and Osaka Securities Exchange. Otemachi Park Building, 1-1-1 Otemachi, Chiyoda-ku, Tokyo 100-8132 Japan. If the Product was distributed by SMBC Nikko Securities Inc. it is being so distributed under license. In the event that an error is found in a CGMJ research report, a revised version will be posted on the Firm's Citi Velocity website. If you have questions regarding Citi Velocity, please call (81 3) 6270-3019 for help.

The product is made available in the **Kingdom of Saudi Arabia** in accordance with Saudi laws through Citigroup Saudi Arabia, which is regulated by the Capital Market Authority (CMA) under CMA license (17184-31). 2239 Al Urubah Rd – Al Olaya Dist. Unit No. 18, Riyadh 12214 – 9597, Kingdom Of Saudi Arabia.

The Product is made available in **Korea** by Citigroup Global Markets Korea Securities Ltd. (CGMK), which is regulated by the Financial Services Commission, the Financial Supervisory Service and the Korea Financial Investment Association (KOFIA). The address of CGMK is Citibank Center, 50 Saemunan-ro, Jongno-gu, Seoul 03184, Korea. KOFIA makes available registration information of research analysts on its website. Please visit the following website if you wish to find KOFIA registration information on research analysts of CGMK. <http://dis.kofia.or.kr/websquare/index.jsp?w2xPath=/wq/fundMgr/DISFundMgrAnalystList.xml&divisionId=MDIS03002002000000&serviceld=SDIS03002002000>. The Product is made available in Korea by Citibank Korea Inc., which is regulated by the Financial Services Commission and the Financial Supervisory Service. Address is Citibank Center, 50 Saemunan-ro, Jongno-gu, Seoul 03184, Korea. This research report is intended to be provided only to Professional Investors as defined in the Financial Investment Services and Capital Market Act and its Enforcement Decree in Korea.

The Product is made available in **Malaysia** by Citigroup Global Markets Malaysia Sdn Bhd (Registration No. 199801004692 (460819-D)) ("CGMM") to its clients and CGMM takes responsibility for its contents as regards CGMM's clients. CGMM is regulated by the Securities Commission of Malaysia. Please contact CGMM at Level 43 Menara Citibank, 165 Jalan Ampang, 50450 Kuala Lumpur, Malaysia in respect of any matters arising from, or in connection with, the Product.

The Product is made available in **Mexico** by Citibanamex Casa de Bolsa, S.A. De C. V., Casa de Bolsa, Integrante del Grupo Financiero Citibanamex which is a wholly owned subsidiary of Citigroup Inc. and is regulated by Comision Nacional Bancaria y de Valores. Actuario Roberto Medellin 800, Zedec Santa Fe, Álvaro Obregón, 01219 Ciudad de México, CDMX.

The Product is made available in **Poland** by Biuro Maklerskie Banku Handlowego (DMBH), separate department of Bank Handlowy w Warszawie S.A. a subsidiary of Citigroup Inc., which is regulated by Komisja Nadzoru Finansowego. Biuro Maklerskie Banku Handlowego (DMBH), ul.Senatorska 16, 00-923 Warszawa.

The Product is made available in the **Russian Federation** through AO Citibank, which is licensed to carry out banking activities in the Russian Federation in accordance with the general banking license, depositary services license and brokerage activities license issued by the Central Bank of the Russian Federation. Neither the Product nor any information contained in the Product shall be considered as advertising the securities mentioned in this report within the territory of the Russian Federation or outside the Russian Federation. The Product does not constitute an appraisal within the meaning of the Federal Law of the Russian Federation of 29 July 1998 No. 135-FZ (as amended) On Appraisal Activities in the Russian Federation. 8-10 Gasheka Street, 125047 Moscow.

The Product is made available in **Singapore** through Citigroup Global Markets Singapore Pte. Ltd. ("CGMSPL"), a capital markets services license holder, and regulated by Monetary Authority of Singapore. Please contact CGMSPL at 8 Marina View, 21st Floor Asia Square Tower 1, Singapore 018960, in respect of any matters arising from, or in connection with, the analysis of this document. This report is intended for recipients who are accredited, expert and institutional investors as defined under the Securities and Futures Act (Cap. 289). The Product is made available by The Citigroup Private Bank in Singapore through Citibank, N.A., Singapore Branch, a licensed bank in Singapore that is regulated by Monetary Authority of Singapore. Please contact your Private Banker in Citibank N.A., Singapore Branch if you have any queries on or any matters arising from or in connection with this document. This report is intended for recipients who are accredited, expert and institutional investors as defined under the Securities and Futures Act (Cap. 289). This report is distributed in Singapore by Citibank Singapore Ltd ("CSL") to selected Citigold/Citigold Private Clients. CSL provides no independent research or analysis of the substance or in preparation of this report. Please contact your Citigold/Citigold



Private Client Relationship Manager in CSL if you have any queries on or any matters arising from or in connection with this report. This report is intended for recipients who are accredited investors as defined under the Securities and Futures Act (Cap. 289).

Citigroup Global Markets (Pty) Ltd. is incorporated in the **Republic of South Africa** (company registration number 2000/025866/07) and its registered office is at 145 West Street, Sandton, 2196, Saxonwold. Citigroup Global Markets (Pty) Ltd. is regulated by JSE Securities Exchange South Africa, South African Reserve Bank and the Financial Services Board. The investments and services contained herein are not available to private customers in South Africa.

The Product is made available in the **Republic of China (Taiwan)** through Citigroup Global Markets Taiwan Securities Company Ltd. ("CGMTS"), 14F, 15F and 16F, No. 1, Songzhi Road, Taipei 110, Taiwan, subject to the license scope and the applicable laws and regulations in the Republic of China (Taiwan). CGMTS is regulated by the Securities and Futures Bureau of the Financial Supervisory Commission of Taiwan, the Republic of China (Taiwan). No portion of the Product may be reproduced or quoted in the Republic of China (Taiwan) by the press or any third parties [without the written authorization of CGMTS]. Pursuant to the applicable laws and regulations in the Republic of China (Taiwan), the recipient of the Product shall not take advantage of such Product to involve in any matters in which the recipient may have conflicts of interest. If the Product covers securities which are not allowed to be offered or traded in the Republic of China (Taiwan), neither the Product nor any information contained in the Product shall be considered as advertising the securities or making recommendation of the securities in the Republic of China (Taiwan). The Product is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security or financial products. Any decision to purchase securities or financial products mentioned in the Product must take into account existing public information on such security or the financial products or any registered prospectus.

The Product is made available in **Thailand** through Citicorp Securities (Thailand) Ltd., which is regulated by the Securities and Exchange Commission of Thailand. 399 Interchange 21 Building, 18th Floor, Sukhumvit Road, Klongtoey Nua, Wattana, Bangkok 10110, Thailand.

The Product is made available in **Turkey** through Citibank AS which is regulated by Capital Markets Board. Tekfen Tower, Eski Buyukdere Caddesi # 209 Kat 2B, 23294 Levent, Istanbul, Turkey.

In the **U.A.E**, these materials (the "Materials") are communicated by Citigroup Global Markets Limited, DIFC branch ("CGML"), an entity registered in the Dubai International Financial Center ("DIFC") and licensed and regulated by the Dubai Financial Services Authority ("DFSA") to Professional Clients and Market Counterparties only and should not be relied upon or distributed to Retail Clients. A distribution of the different Citi Research ratings distribution, in percentage terms for Investments in each sector covered is made available on request. Financial products and/or services to which the Materials relate will only be made available to Professional Clients and Market Counterparties.

The Product is made available in **United Kingdom** by Citigroup Global Markets Limited, which is authorised by the Prudential Regulation Authority ("PRA") and regulated by the Financial Conduct Authority ("FCA") and the PRA. This material may relate to investments or services of a person outside of the UK or to other matters which are not authorised by the PRA nor regulated by the FCA and the PRA and further details as to where this may be the case are available upon request in respect of this material. Citigroup Centre, Canada Square, Canary Wharf, London, E14 5LB.

The Product is made available in **United States** by Citigroup Global Markets Inc., which is a member of FINRA and registered with the US Securities and Exchange Commission. 388 Greenwich Street, New York, NY 10013.

Unless specified to the contrary, within EU Member States, the Product is made available by Citigroup Global Markets Europe AG ("CGME"), which is regulated by the European Central Bank and the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht-BaFin).

The Product is not to be construed as providing investment services in any jurisdiction where the provision of such services would not be permitted.

Subject to the nature and contents of the Product, the investments described therein are subject to fluctuations in price and/or value and investors may get back less than originally invested. Certain high-volatility investments can be subject to sudden and large falls in value that could equal or exceed the amount invested. The yield and average life of CMOs (collateralized mortgage obligations) referenced in this Product will fluctuate depending on the actual rate at which mortgage holders prepay the mortgages underlying the CMO and changes in current interest rates. Any government agency backing of the CMO applies only to the face value of the CMO and not to any premium paid. Certain investments contained in the Product may have tax implications for private customers whereby levels and basis of taxation may be subject to change. If in doubt, investors should seek advice from a tax adviser. The Product does not purport to identify the nature of the specific market or other risks associated with a particular transaction. Advice in the Product is general and should not be construed as personal advice given it has been prepared without taking account of the objectives, financial situation or needs of any particular investor. Accordingly, investors should, before acting on the advice, consider the appropriateness of the advice, having regard to their objectives, financial situation and needs. Prior to acquiring any financial product, it is the client's responsibility to obtain the relevant



offer document for the product and consider it before making a decision as to whether to purchase the product.

Citi Research product may source data from dataCentral. dataCentral is a Citi Research proprietary database, which includes the Firm's estimates, data from company reports and feeds from Thomson Reuters. The source for all referenced prices, unless otherwise stated, is DataCentral. Past performance is not a guarantee or reliable indicator of future results. Forecasts are not a guarantee or reliable indicator of future performance. The printed and printable version of the research report may not include all the information (e.g. certain financial summary information and comparable company data) that is linked to the online version available on the Firm's proprietary electronic distribution platforms.

**Card Insights.** Where this report references Card Insights data, Card Insights consists of selected data from a subset of Citi's proprietary credit card transactions. Such data has undergone rigorous security protocols to keep all customer information confidential and secure; the data is highly aggregated and anonymized so that all unique customer identifiable information is removed from the data prior to receipt by the report's author or distribution to external parties. This data should be considered in the context of other economic indicators and publicly available information. Further, the selected data represents only a subset of Citi's proprietary credit card transactions due to the selection methodology or other limitations and should not be considered as indicative or predictive of the past or future financial performance of Citi or its credit card business.

Where included in this report, MSCI sourced information is the exclusive property of Morgan Stanley Capital International Inc. (MSCI). Without prior written permission of MSCI, this information and any other MSCI intellectual property may not be reproduced, disseminated or used to create any financial products, including any indices. This information is provided on an "as is" basis. The user assumes the entire risk of any use made of this information. MSCI, its affiliates and any third party involved in, or related to, computing or compiling the information hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any of this information. Without limiting any of the foregoing, in no event shall MSCI, any of its affiliates or any third party involved in, or related to, computing or compiling the information have any liability for any damages of any kind. MSCI, Morgan Stanley Capital International and the MSCI indexes are services marks of MSCI and its affiliates. Part of this product may contain Sustainalytics proprietary information that may not be reproduced, used, disseminated, modified nor published in any manner without the express written consent of Sustainalytics. Sustainalytics, its affiliates and any third party involved in, or related to, computing or compiling the information hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any of this information. Any information attributed to Sustainalytics is provided solely for informational purposes and on its own should not be considered an offer to buy or sell a security. Neither Sustainalytics nor all its third-party suppliers provide investment advice (as defined in the applicable jurisdiction) or any other form of (financial) advice. The information is provided "as is" and, therefore Sustainalytics assumes no responsibility for errors or omissions. Sustainalytics cannot be held liable for damage arising from the use of this product or information contained herein in any manner whatsoever. Where data is attributed to Morningstar that data is © 2023 Morningstar, Inc. All Rights Reserved. That information: (1) is proprietary to Morningstar and/or its content providers; (2) may not be copied or distributed; and (3) is not warranted to be accurate, complete or timely. Neither Morningstar nor its content providers are responsible for any damages or losses arising from any use of this information.

The Firm accepts no liability whatsoever for the actions of third parties. The Product may provide the addresses of, or contain hyperlinks to, websites. Except to the extent to which the Product refers to website material of the Firm, the Firm has not reviewed the linked site. Equally, except to the extent to which the Product refers to website material of the Firm, the Firm takes no responsibility for, and makes no representations or warranties whatsoever as to, the data and information contained therein. Such address or hyperlink (including addresses or hyperlinks to website material of the Firm) is provided solely for your convenience and information and the content of the linked site does not in any way form part of this document. Accessing such website or following such link through the Product or the website of the Firm shall be at your own risk and the Firm shall have no liability arising out of, or in connection with, any such referenced website.

© 2023 Citigroup Global Markets Inc. Citi Research is a division of Citigroup Global Markets Inc. Citi and Citi with Arc Design are trademarks and service marks of Citigroup Inc. and its affiliates and are used and registered throughout the world. All rights reserved. The research data in this report are not intended to be used for the purpose of (a) determining the price of or amounts due in respect of (or to value) one or more financial products or instruments and/or (b) measuring or comparing the performance of, or defining the asset allocation of a financial product, a portfolio of financial instruments, or a collective investment undertaking, and any such use is strictly prohibited without the prior written consent of Citi Research. Any unauthorized use, duplication, redistribution or disclosure of this report (the "Product"), including, but not limited to, redistribution of the Product by electronic mail, posting of the Product on a website or page, and/or providing to a third party a link to the Product, is prohibited by law and will result in prosecution. The information contained in the Product is intended solely for the recipient and may not be further distributed by the recipient to any third party.

ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST