

Egypt inflation; We are going higher

We now expect 125bp hike at the May meeting

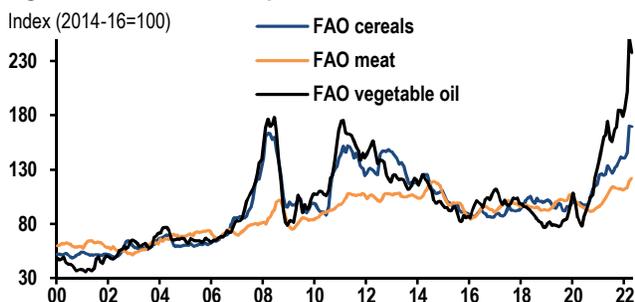
- Significant upward surprise to inflation as April CPI jumped to 13.1%*oya* from 10.5% in March amid a global surge in food prices, volatility from Ramadan and FX devaluation pass-through
- We now see headline inflation averaging 8.9% in FY22 (from 8.2% previously) and 13.9% in FY23 (from 11.5% previously), peaking at 17%*oya* in August 2022.
- Given the higher inflation profile, our Taylor rule estimates now suggest an additional 50-100bp in hikes is required. However, we maintain 425bp through June 2023, as the CBE will likely employ other monetary tightening measures.
- As such, we expect the CBE to hike by 125bp at the May meeting and a cumulative 225bp thereafter into December 2022, taking the policy rate to 12.75%.

Volatile food explains most of the April spike in inflation... Food inflation jumped to 26.0%*oya* in April from 19.7% in March, rising 7.6% m/m. There were broad base rises in key food categories, with fruit and vegetables jumping by 27.6% m/m in April (48.8%*oya* from 24.2% in March). Although Ramadan usually adds pressure on perishables, the monthly increase was the highest ever recorded (series started in 2005). Excluding fruits and vegetables, the rest of the food basket saw inflation rising in April to 21.5%*oya* from 18.9% in March. Thus, the volatile food prices are the main driver of food inflation and headline CPI.

... but global food shock and supply chain distortions imply continued upward pressure on food inflation.

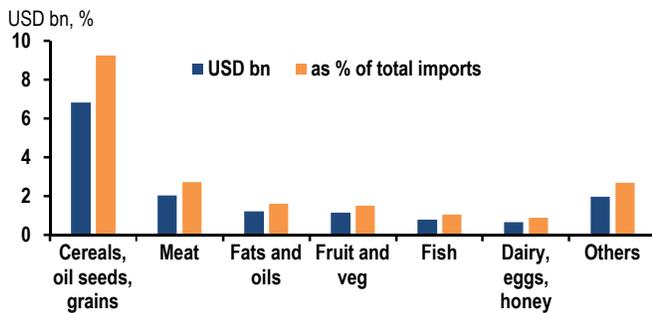
As we showed [here](#), global food prices have surged over the past two years (Figure 1) and opened up a large and widening gap between FAO local currency prices and domestic food CPI. Egypt is not only a large importer of cereals, particularly wheat and maize (for animal feeding) with imports covering 55% and 60% of domestic consumption, respectively, but also heavily exposed to imports from Russia and Ukraine. While Russian wheat exports might not suffer, Ukrainian exports are already impacted and this situation could persist in 2023. Currently, Ukraine has large stocks of wheat but cannot export those due to the Russian blockade of the Black Sea. Looking at the 2022/2023 season, the cereals harvest in Ukraine might decline sharply and therefore keep the upward pressure on prices and also complicate the situation of some large wheat importers like Egypt – we have partly incorporated this in our baseline scenario.

Figure 1: International food prices



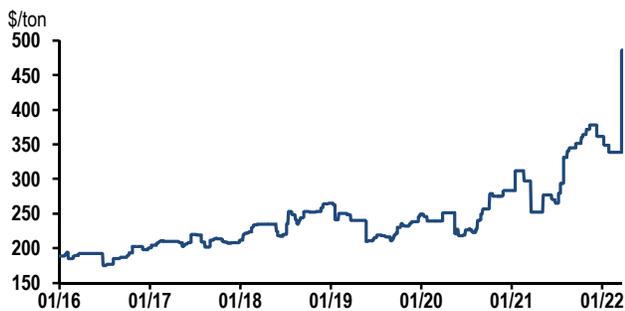
Source: FAO, J.P. Morgan

Figure 2: Egypt food and beverages imports*



Source: UN COMTRADE, J.P. Morgan *2018-2020 annual average

Figure 3: GASC average purchase price for wheat*



Source: GASC, Bloomberg L.P. *average wheat tender purchase price

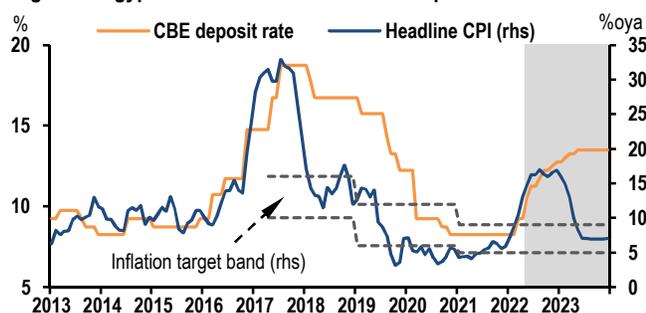
We now see headline inflation averaging 8.9% in FY22 and 13.9% in FY23; MPC to hike 125bp in May. Driven by FX and services, core CPI is also gaining momentum, surging by 11.9%oya in April from 10.1% previously. There were broad based increases across most core segments as shown in Table 1 with significant increases in ‘clothing and footwear’, ‘furnishing, household equipment’, and ‘hotels and restaurants’ categories. It is likely that the pass-through from the FX devaluation is apparent in the economy and will likely continue to provide upside risks to inflation in the coming months. Domestic demand conditions have been fairly robust and the CBE already commenced the process of monetary tightening to tame inflationary and external pressures. Although our Taylor rule estimates infer at least an additional 50-100bps following the upward surprise to inflation, we maintain our current total of 425bp in hikes through June 2023 (Figure 4) as the CBE could employ other tightening measures. For instance, following the 100bp hike to the policy rate in March, the two large state banks [issued high yielding certificate of deposits](#)-(CDS) at 18% that mopped up about US\$16bn of EGP liquidity and further tightened monetary conditions.

Table 1: Egypt CPI

	%m/m					%oya				
	Dec-2021	Jan-2022	Feb-2022	Mar-2022	Apr-2022	Dec-2021	Jan-2022	Feb-2022	Mar-2022	Apr-2022
Headline	-0.1	0.9	1.6	2.2	3.3	5.9	7.3	8.8	10.5	13.1
Food & Nonalcoholic beverages	-1.0	2.1	4.6	4.0	7.6	8.4	12.5	17.6	19.7	26.0
Fruit and Vegetables	-5.7	2.1	15.2	-1.9	27.6	-5.1	14.2	35.2	24.2	48.8
Alcohol & Tobacco	0.0	0.2	0.0	1.8	0.4	3.3	3.4	1.4	3.1	3.5
Clothing & Footwear	0.2	0.5	0.0	-0.1	4.0	2.7	3.5	4.2	4.4	7.1
Housing, Water, Energy & Fuels	0.5	0.5	0.1	0.1	0.9	4.2	4.7	4.3	4.7	5.6
Furnishings, household equipment	0.3	0.8	0.8	1.4	2.6	2.4	3.3	4.0	5.3	7.9
Health	0.2	0.3	0.2	0.4	0.4	2.7	2.7	2.8	3.1	3.4
Transport	0.5	0.0	0.8	0.3	1.7	4.8	4.9	5.7	6.1	6.3
Communication	0.0	0.0	0.0	0.0	0.1	0.7	0.7	0.9	0.9	1.0
Recreation & culture	0.0	0.1	0.1	11.4	1.9	14.7	14.7	15.0	28.0	30.1
Education	0.0	0.0	0.0	0.0	0.0	12.7	12.7	12.7	12.7	12.7
Restaurants & hotels	0.3	0.5	0.9	6.4	2.1	3.0	3.4	4.2	10.8	13.1
Miscellaneous	0.5	0.3	0.5	1.5	2.1	3.5	3.6	4.1	5.6	7.5
Core CPI	0.2	0.8	1.2	3.1	2.4	6.0	6.3	7.2	10.1	11.9

Source: CBE, CAPMAS

Figure 4: Egypt CPI headline and CBE O/N deposit rate



Source: CBE, J.P. Morgan - Shaded area indicates JPM forecast

BOP pressures have somewhat abated. The overall BOP outlook for Egypt has greatly improved since the recent policy actions from the CBE. Although timing remains uncertain, GCC FDI pledges are a key development that could help to narrow the financing gap and ease BOP pressures over the next fiscal year. Qatar, Abu Dhabi, and Saudi Arabia have made combined FDI pledges totaling US\$17bn in recent weeks, with the latter also depositing US\$5bn at the CBE which will provide an immediate buffer amid significant foreign portfolio outflows in March. The ADQ (Abu Dhabi Sovereign Wealth Fund), in fact, already pulled the trigger with a US\$1.8bn investment in five Egyptian companies. We believe the strong commodity price backdrop could spur more investment flows into Egypt from the GCC. These GCC commitments along with IMF/other multilateral funding and the potential return of FPIs (post an IMF agreement) are likely to lead to a much narrower external funding gap in FY23 despite rising current account pressures. Foreign portfolio outflows have likely now halted and as such most of the pressures going forward are likely to emanate mostly from current account drains. We see the current account deficit narrowing to 4.0% of GDP in FY22 (from 4.6% in 2021) as pressures from rising wheat imports (and possible slowdown in tourism) should be partly mitigated by a positive oil and gas trade balance and strong remittances. In any case, the CBE's FX reserves buffer at c.US\$37bn, the current flexible FX regime and continued tightening of monetary conditions should prove adequate in mitigating ensuing external pressures for now.

EM, Economic and Policy Research

Gbolahan S Taiwo ^{AC}

(44-20) 3493-3412

gbolahan.taiwo@jpmorgan.com

Francesco Arcangeli

(44-20) 3493-0971

francesco.arcangeli@jpmorgan.com

J.P. Morgan Securities plc

Disclosures

Analyst Certification: The Research Analyst(s) denoted by an “AC” on the cover of this report certifies (or, where multiple Research Analysts are primarily responsible for this report, the Research Analyst denoted by an “AC” on the cover or within the document individually certifies, with respect to each security or issuer that the Research Analyst covers in this research) that: (1) all of the views expressed in this report accurately reflect the Research Analyst’s personal views about any and all of the subject securities or issuers; and (2) no part of any of the Research Analyst’s compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed by the Research Analyst(s) in this report. For all Korea-based Research Analysts listed on the front cover, if applicable, they also certify, as per KOFIA requirements, that the Research Analyst’s analysis was made in good faith and that the views reflect the Research Analyst’s own opinion, without undue influence or intervention.

All authors named within this report are Research Analysts unless otherwise specified. In Europe, Sector Specialists (Sales and Trading) may be shown on this report as contacts but are not authors of the report or part of the Research Department.

Important Disclosures

Company-Specific Disclosures: Important disclosures, including price charts and credit opinion history tables, are available for compendium reports and all J.P. Morgan-covered companies, and certain non-covered companies, by visiting <https://www.jpmm.com/research/disclosures>, calling 1-800-477-0406, or e-mailing research.disclosure.inquiries@jpmorgan.com with your request.

A history of J.P. Morgan investment recommendations disseminated during the preceding 12 months can be accessed on the Research & Commentary page of <http://www.jpmorganmarkets.com> where you can also search by analyst name, sector or financial instrument.

Explanation of Emerging Markets Sovereign Research Ratings System and Valuation & Methodology:

Ratings System: J.P. Morgan uses the following issuer portfolio weightings for Emerging Markets sovereign credit strategy: Overweight (over the next three months, the recommended risk position is expected to outperform the relevant index, sector, or benchmark credit returns); Marketweight (over the next three months, the recommended risk position is expected to perform in line with the relevant index, sector, or benchmark credit returns); and Underweight (over the next three months, the recommended risk position is expected to underperform the relevant index, sector, or benchmark credit returns). NR is Not Rated. In this case, J.P. Morgan has removed the rating for this security because of either legal, regulatory or policy reasons or because of lack of a sufficient fundamental basis. The previous rating no longer should be relied upon. An NR designation is not a recommendation or a rating. NC is Not Covered. An NC designation is not a rating or a recommendation. Recommendations will be at the issuer level, and an issuer recommendation applies to all of the index-eligible bonds at the same level for the issuer. When we change the issuer-level rating, we are changing the rating for all of the issues covered, unless otherwise specified. Ratings for quasi-sovereign issuers in the EMBIG may differ from the ratings provided in EM corporate coverage.

Valuation & Methodology: For J.P. Morgan's Emerging Markets Sovereign Credit Strategy, we assign a rating to each sovereign issuer (Overweight, Marketweight or Underweight) based on our view of whether the combination of the issuer’s fundamentals, market technicals, and the relative value of its securities will cause it to outperform, perform in line with, or underperform the credit returns of the EMBIGD index over the next three months. Our view of an issuer’s fundamentals includes our opinion of whether the issuer is becoming more or less able to service its debt obligations when they become due and payable, as well as whether its willingness to service debt obligations is increasing or decreasing.

J.P. Morgan Sovereign Research Ratings Distribution, as of April 2, 2022

	Overweight	Marketweight	Underweight
Global Sovereign Research Universe*	12%	83%	5%
IB clients**	71%	58%	67%

*Please note that the percentages might not add to 100% because of rounding.

**Percentage of subject issuers within each of the "buy," "hold" and "sell" categories for which J.P. Morgan has provided investment banking services within the previous 12 months.

The Sovereign Research Rating Distribution is at the issuer level. Issuers with an NR or an NC designation are not included in the table above. This information is current as of the end of the most recent calendar quarter.

Analysts' Compensation: The research analysts responsible for the preparation of this report receive compensation based upon various factors, including the quality and accuracy of research, client feedback, competitive factors, and overall firm revenues.

Registration of non-US Analysts: Unless otherwise noted, the non-US analysts listed on the front of this report are employees of non-US affiliates of J.P. Morgan Securities LLC, may not be registered as research analysts under FINRA rules, may not be associated persons of J.P. Morgan Securities LLC, and may not be subject to FINRA Rule 2241 or 2242 restrictions on communications with covered companies, public appearances, and trading securities held by a research analyst account.

Other Disclosures

J.P. Morgan is a marketing name for investment banking businesses of JPMorgan Chase & Co. and its subsidiaries and affiliates worldwide.

UK MIFID FICC research unbundling exemption: UK clients should refer to [UK MIFID Research Unbundling exemption](#) for details of JPMorgan's implementation of the FICC research exemption and guidance on relevant FICC research categorisation.

Any long form nomenclature for references to China; Hong Kong; Taiwan; and Macau within this research material are Mainland China; Hong Kong SAR (China); Taiwan (China); and Macau SAR (China).

J.P. Morgan Research may, from time to time, write on issuers or securities targeted by economic or financial sanctions imposed or administered by the governmental authorities of the U.S., EU, UK or other relevant jurisdictions (Sanctioned Securities). Nothing in this report is intended to be read or construed as encouraging, facilitating, promoting or otherwise approving investment or dealing in such Sanctioned Securities. Clients should be aware of their own legal and compliance obligations when making investment decisions.

Options and Futures related research: If the information contained herein regards options- or futures-related research, such information is available only to persons who have received the proper options or futures risk disclosure documents. Please contact your J.P. Morgan Representative or visit <https://www.theocc.com/components/docs/riskstoc.pdf> for a copy of the Option Clearing Corporation's Characteristics and Risks of Standardized Options or http://www.finra.org/sites/default/files/Security_Futures_Risk_Disclosure_Statement_2018.pdf for a copy of the Security Futures Risk Disclosure Statement.

Changes to Interbank Offered Rates (IBORs) and other benchmark rates: Certain interest rate benchmarks are, or may in the future become, subject to ongoing international, national and other regulatory guidance, reform and proposals for reform. For more information, please consult: https://www.jpmm.com/global/disclosures/interbank_offered_rates

Private Bank Clients: Where you are receiving research as a client of the private banking businesses offered by JPMorgan Chase & Co. and its subsidiaries ("J.P. Morgan Private Bank"), research is provided to you by J.P. Morgan Private Bank and not by any other division of J.P. Morgan, including, but not limited to, the J.P. Morgan Corporate and Investment Bank and its Global Research division.

Legal entity responsible for the production and distribution of research: The legal entity identified below the name of the Reg AC Research Analyst who authored this material is the legal entity responsible for the production of this research. Where multiple Reg AC Research Analysts authored this material with different legal entities identified below their names, these legal entities are jointly responsible for the production of this research. Research Analysts from various J.P. Morgan affiliates may have contributed to the production of this material but may not be licensed to carry out regulated activities in your jurisdiction (and do not hold themselves out as being able to do so). Unless otherwise stated below, this material has been distributed by the legal entity responsible for production. If you have any queries, please contact the relevant Research Analyst in your jurisdiction or the entity in your jurisdiction that has distributed this research material.

Legal Entities Disclosures and Country-/Region-Specific Disclosures:

Argentina: JPMorgan Chase Bank N.A Sucursal Buenos Aires is regulated by Banco Central de la República Argentina ("BCRA" - Central Bank of Argentina) and Comisión Nacional de Valores ("CNV" - Argentinian Securities Commission" - ALYC y AN Integral N°51). **Australia:** J.P. Morgan Securities Australia Limited ("JPMSAL") (ABN 61 003 245 234/AFS Licence No: 238066) is regulated by the Australian Securities and Investments Commission and is a Market, Clearing and Settlement Participant of ASX Limited and CHIX. This material is issued and distributed in Australia by or on behalf of JPMSAL only to "wholesale clients" (as defined in section 761G of the Corporations Act 2001). A list of all financial products covered can be found by visiting <https://www.jpmm.com/research/disclosures>. J.P. Morgan seeks to cover companies of relevance to the domestic and international investor base across all Global Industry Classification Standard (GICS) sectors, as well as across a range of market capitalisation sizes. If applicable, in the course of conducting public side due diligence on the subject company(ies), the Research Analyst team may at times perform such diligence through corporate engagements such as site visits, discussions with company representatives, management presentations, etc. Research issued by JPMSAL has been prepared in accordance with J.P. Morgan Australia's Research Independence Policy which can be found at the following link: [J.P. Morgan Australia - Research Independence Policy](#). **Brazil:** Banco J.P. Morgan S.A. is regulated by the Comissão de Valores Mobiliários (CVM) and by the Central Bank of Brazil. Ombudsman J.P. Morgan: 0800-7700847 / ouvidoria.jp.morgan@jpmorgan.com. **Canada:** J.P. Morgan Securities Canada Inc. is a registered investment dealer, regulated by the Investment Industry Regulatory Organization of Canada and the Ontario Securities Commission and is the participating member on Canadian exchanges. This material is distributed in Canada by or on behalf of J.P. Morgan Securities Canada Inc. **Chile:** Inversiones J.P. Morgan Limitada is an unregulated entity incorporated in Chile. **China:** J.P. Morgan Securities (China) Company Limited has been approved by CSRC to conduct the securities investment consultancy business. **Dubai International Financial Centre (DIFC):** JPMorgan Chase Bank, N.A., Dubai Branch is regulated by the Dubai Financial Services Authority (DFSA) and its registered address is Dubai International Financial Centre - The Gate, West Wing, Level 3 and 9 PO Box 506551, Dubai, UAE. This material has been distributed by JP Morgan Chase Bank, N.A., Dubai Branch to persons regarded as professional clients or market counterparties as defined under the DFSA rules. **European Economic Area (EEA):** Unless specified to the contrary, research is distributed in the EEA by J.P. Morgan SE ("JPM SE"), which is subject to prudential supervision by the European Central Bank ("ECB") in cooperation with BaFin and Deutsche Bundesbank in Germany. JPM SE is a company headquartered in Frankfurt with registered address at TaunusTurm, Taunustor 1, Frankfurt am Main, 60310, Germany. The material has been distributed in the EEA to persons regarded as professional investors (or equivalent) pursuant to Art. 4 para. 1 no. 10 and Annex II of MiFID II and its respective implementation in their home jurisdictions ("EEA professional investors"). This material must not be acted on or relied on by persons who are not EEA professional

investors. Any investment or investment activity to which this material relates is only available to EEA relevant persons and will be engaged in only with EEA relevant persons. **Hong Kong:** J.P. Morgan Securities (Asia Pacific) Limited (CE number AAJ321) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission in Hong Kong, and J.P. Morgan Broking (Hong Kong) Limited (CE number AAB027) is regulated by the Securities and Futures Commission in Hong Kong. JP Morgan Chase Bank, N.A., Hong Kong (CE Number AAL996) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission, is organized under the laws of the United States with limited liability. **India:** J.P. Morgan India Private Limited (Corporate Identity Number - U67120MH1992FTC068724), having its registered office at J.P. Morgan Tower, Off. C.S.T. Road, Kalina, Santacruz - East, Mumbai – 400098, is registered with the Securities and Exchange Board of India (SEBI) as a ‘Research Analyst’ having registration number INH000001873. J.P. Morgan India Private Limited is also registered with SEBI as a member of the National Stock Exchange of India Limited and the Bombay Stock Exchange Limited (SEBI Registration Number – INZ000239730) and as a Merchant Banker (SEBI Registration Number - MB/INM000002970). Telephone: 91-22-6157 3000, Facsimile: 91-22-6157 3990 and Website: <http://www.jpmpil.com>. JPMorgan Chase Bank, N.A. - Mumbai Branch is licensed by the Reserve Bank of India (RBI) (Licence No. 53/ Licence No. BY.4/94; SEBI - IN/CUS/014/ CDSL : IN-DP-CDSL-444-2008/ IN-DP-NSDL-285-2008/ INBI00000984/ INE231311239) as a Scheduled Commercial Bank in India, which is its primary license allowing it to carry on Banking business in India and other activities, which a Bank branch in India are permitted to undertake. For non-local research material, this material is not distributed in India by J.P. Morgan India Private Limited. **Indonesia:** PT J.P. Morgan Sekuritas Indonesia is a member of the Indonesia Stock Exchange and is regulated by the OJK a.k.a. BAPEPAM LK. **Korea:** J.P. Morgan Securities (Far East) Limited, Seoul Branch, is a member of the Korea Exchange (KRX). JPMorgan Chase Bank, N.A., Seoul Branch, is licensed as a branch office of foreign bank (JPMorgan Chase Bank, N.A.) in Korea. Both entities are regulated by the Financial Services Commission (FSC) and the Financial Supervisory Service (FSS). For non-macro research material, the material is distributed in Korea by or through J.P. Morgan Securities (Far East) Limited, Seoul Branch. **Japan:** JPMorgan Securities Japan Co., Ltd. and JPMorgan Chase Bank, N.A., Tokyo Branch are regulated by the Financial Services Agency in Japan. **Malaysia:** This material is issued and distributed in Malaysia by JPMorgan Securities (Malaysia) Sdn Bhd (18146-X), which is a Participating Organization of Bursa Malaysia Berhad and holds a Capital Markets Services License issued by the Securities Commission in Malaysia. **Mexico:** J.P. Morgan Casa de Bolsa, S.A. de C.V. and J.P. Morgan Grupo Financiero are members of the Mexican Stock Exchange and are authorized to act as a broker dealer by the National Banking and Securities Exchange Commission. **New Zealand:** This material is issued and distributed by JPMSAL in New Zealand only to "wholesale clients" (as defined in the Financial Markets Conduct Act 2013). JPMSAL is registered as a Financial Service Provider under the Financial Service providers (Registration and Dispute Resolution) Act of 2008. **Pakistan:** J. P. Morgan Pakistan Broking (Pvt.) Ltd is a member of the Karachi Stock Exchange and regulated by the Securities and Exchange Commission of Pakistan. **Philippines:** J.P. Morgan Securities Philippines Inc. is a Trading Participant of the Philippine Stock Exchange and a member of the Securities Clearing Corporation of the Philippines and the Securities Investor Protection Fund. It is regulated by the Securities and Exchange Commission. **Russia:** CB J.P. Morgan Bank International LLC is regulated by the Central Bank of Russia. **Singapore:** This material is issued and distributed in Singapore by or through J.P. Morgan Securities Singapore Private Limited (JPMSS) [MCI (P) 093/09/2021 and Co. Reg. No.: 199405335R], which is a member of the Singapore Exchange Securities Trading Limited, and/or JPMorgan Chase Bank, N.A., Singapore branch (JPMCB Singapore), both of which are regulated by the Monetary Authority of Singapore. This material is issued and distributed in Singapore only to accredited investors, expert investors and institutional investors, as defined in Section 4A of the Securities and Futures Act, Cap. 289 (SFA). This material is not intended to be issued or distributed to any retail investors or any other investors that do not fall into the classes of “accredited investors,” “expert investors” or “institutional investors,” as defined under Section 4A of the SFA. Recipients of this material in Singapore are to contact JPMSS or JPMCB Singapore in respect of any matters arising from, or in connection with, the material. As at the date of this material, JPMSS is a designated market maker for certain structured warrants listed on the Singapore Exchange where the underlying securities may be the securities discussed in this material. Arising from its role as a designated market maker for such structured warrants, JPMSS may conduct hedging activities in respect of such underlying securities and hold or have an interest in such underlying securities as a result. The updated list of structured warrants for which JPMSS acts as designated market maker may be found on the website of the Singapore Exchange Limited: <http://www.sgx.com>. **South Africa:** J.P. Morgan Equities South Africa Proprietary Limited and JPMorgan Chase Bank, N.A., Johannesburg Branch are members of the Johannesburg Securities Exchange and are regulated by the Financial Services Board. **Taiwan:** J.P. Morgan Securities (Taiwan) Limited is a participant of the Taiwan Stock Exchange (company-type) and regulated by the Taiwan Securities and Futures Bureau. Material relating to equity securities is issued and distributed in Taiwan by J.P. Morgan Securities (Taiwan) Limited, subject to the license scope and the applicable laws and the regulations in Taiwan. According to Paragraph 2, Article 7-1 of Operational Regulations Governing Securities Firms Recommending Trades in Securities to Customers (as amended or supplemented) and/or other applicable laws or regulations, please note that the recipient of this material is not permitted to engage in any activities in connection with the material that may give rise to conflicts of interests, unless otherwise disclosed in the “Important Disclosures” in this material. **Thailand:** This material is issued and distributed in Thailand by JPMorgan Securities (Thailand) Ltd., which is a member of the Stock Exchange of Thailand and is regulated by the Ministry of Finance and the Securities and Exchange Commission, and its registered address is 3rd Floor, 20 North Sathorn Road, Silom, Bangrak, Bangkok 10500. **UK:** Unless specified to the contrary, research is distributed in the UK by J.P. Morgan Securities plc (“JPMS plc”) which is a member of the London Stock Exchange and is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. JPMS plc is registered in England & Wales No. 2711006, Registered Office 25 Bank Street, London, E14 5JP. This material is directed in the UK only to: (a) persons having professional experience in matters relating to investments falling within article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) (Order) 2005 (“the FPO”); (b) persons outlined in article 49 of the FPO (high net worth companies, unincorporated associations or partnerships, the trustees of high value trusts, etc.); or (c) any persons to whom this communication may otherwise lawfully be made; all such persons being referred to as “UK relevant persons”. This material must not be acted on or relied on by persons who are not UK relevant persons. Any investment or investment activity to which this material relates is only available to UK relevant persons and will be engaged in only with UK relevant persons. Research issued by JPMS plc has been prepared in accordance with JPMS plc's policy for prevention and avoidance of conflicts of interest related to the production of Research which can be found at the following link: [J.P. Morgan EMEA - Research Independence Policy](#). **U.S.:** J.P. Morgan Securities LLC (“JPMS”) is a member of the

NYSE, FINRA, SIPC, and the NFA. JPMorgan Chase Bank, N.A. is a member of the FDIC. Material published by non-U.S. affiliates is distributed in the U.S. by JPMS who accepts responsibility for its content.

General: Additional information is available upon request. The information in this material has been obtained from sources believed to be reliable. While all reasonable care has been taken to ensure that the facts stated in this material are accurate and that the forecasts, opinions and expectations contained herein are fair and reasonable, JPMorgan Chase & Co. or its affiliates and/or subsidiaries (collectively J.P. Morgan) make no representations or warranties whatsoever to the completeness or accuracy of the material provided, except with respect to any disclosures relative to J.P. Morgan and the Research Analyst's involvement with the issuer that is the subject of the material. Accordingly, no reliance should be placed on the accuracy, fairness or completeness of the information contained in this material. Any data discrepancies in this material could be the result of different calculations and/or adjustments. J.P. Morgan accepts no liability whatsoever for any loss arising from any use of this material or its contents, and neither J.P. Morgan nor any of its respective directors, officers or employees, shall be in any way responsible for the contents hereof, apart from the liabilities and responsibilities that may be imposed on them by the relevant regulatory authority in the jurisdiction in question, or the regulatory regime thereunder. Opinions, forecasts or projections contained in this material represent J.P. Morgan's current opinions or judgment as of the date of the material only and are therefore subject to change without notice. Periodic updates may be provided on companies/industries based on company-specific developments or announcements, market conditions or any other publicly available information. There can be no assurance that future results or events will be consistent with any such opinions, forecasts or projections, which represent only one possible outcome. Furthermore, such opinions, forecasts or projections are subject to certain risks, uncertainties and assumptions that have not been verified, and future actual results or events could differ materially. The value of, or income from, any investments referred to in this material may fluctuate and/or be affected by changes in exchange rates. All pricing is indicative as of the close of market for the securities discussed, unless otherwise stated. Past performance is not indicative of future results. Accordingly, investors may receive back less than originally invested. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients. The recipients of this material must make their own independent decisions regarding any securities or financial instruments mentioned herein and should seek advice from such independent financial, legal, tax or other adviser as they deem necessary. J.P. Morgan may trade as a principal on the basis of the Research Analysts' views and research, and it may also engage in transactions for its own account or for its clients' accounts in a manner inconsistent with the views taken in this material, and J.P. Morgan is under no obligation to ensure that such other communication is brought to the attention of any recipient of this material. Others within J.P. Morgan, including Strategists, Sales staff and other Research Analysts, may take views that are inconsistent with those taken in this material. Employees of J.P. Morgan not involved in the preparation of this material may have investments in the securities (or derivatives of such securities) mentioned in this material and may trade them in ways different from those discussed in this material. This material is not an advertisement for or marketing of any issuer, its products or services, or its securities in any jurisdiction.

"Other Disclosures" last revised April 09, 2022.

Copyright 2022 JPMorgan Chase & Co. All rights reserved. This material or any portion hereof may not be reprinted, sold or redistributed without the written consent of J.P. Morgan.