

# The Ukraine conflict as a terms-of-trade shock for Japan

Takashi MIWA  
Head of Japan Economic Research  
Nomura Securities, Co. Ltd.  
+81 3 6703 1280  
takashi.miwa@nomura.com

See Appendix A-1 for analyst certification, important disclosures and the status of non-US analysts.

Any authors named on this report are research analysts unless otherwise indicated.

October 27, 2022



## Why we focus on terms of trade?

**The Ukraine conflict is not the cause of all of the recent deterioration in Japan's terms of trade.**

**Nevertheless, it is undeniable that sharp rises in prices are triggered by concerns about the supply of primary products, for which Russia and Ukraine account for a large share of the global market.**

**We believe the deterioration in terms of trade under the Ukrainian conflict will have material impact on the Japanese economy on multiple fronts and will have important implications for the future of the economy.**

## The points we focus on in this article

**How Japan's terms of trade have changed before and during the Ukrainian crisis**

**The impact of the change in Japan's terms of trade on prices and inflation**

**The relationship between changes in Japan's terms of trade and its balance of payments**

**The implications for the Japanese economy of the weakening of the yen alongside the changes in the country's terms of trade**

A solid red circle icon positioned to the left of the first text block.

**How Japan's terms of trade have changed before and during the Ukrainian crisis**

A solid grey circle icon positioned to the left of the second text block.

The impact of the change in Japan's terms of trade on prices and inflation

A solid grey circle icon positioned to the left of the third text block.

The relationship between changes in Japan's terms of trade and its balance of payments

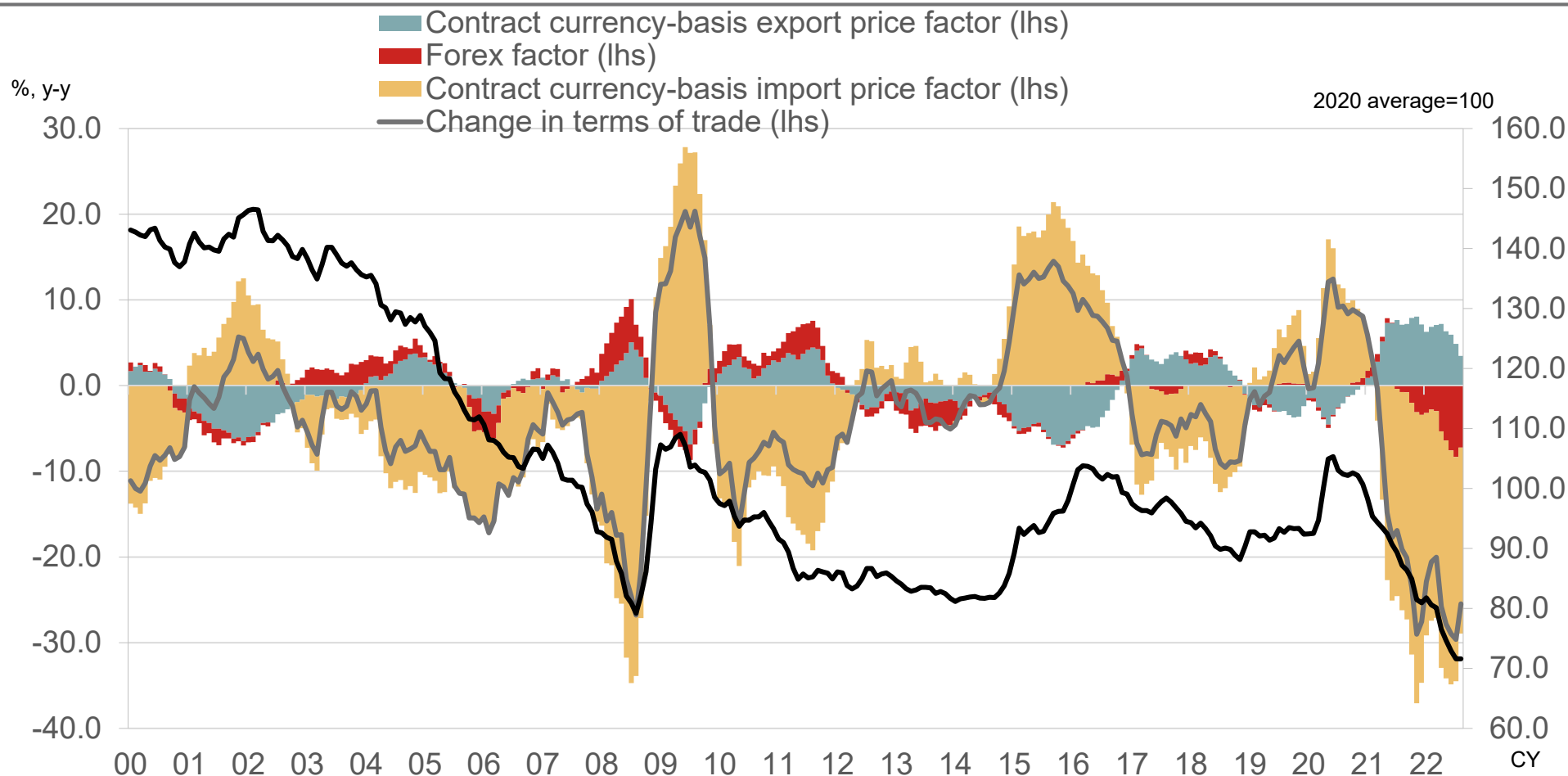
A solid grey circle icon positioned to the left of the fourth text block.

The implications for the Japanese economy of the weakening of the yen alongside the changes in the country's terms of trade

# Changes in Japan's terms of trade: current situation and distinguishing features

- In the recent phase of deterioration in Japan's terms of trade, 'forex factor' has made a relatively larger contribution to this deterioration than in a historical standard

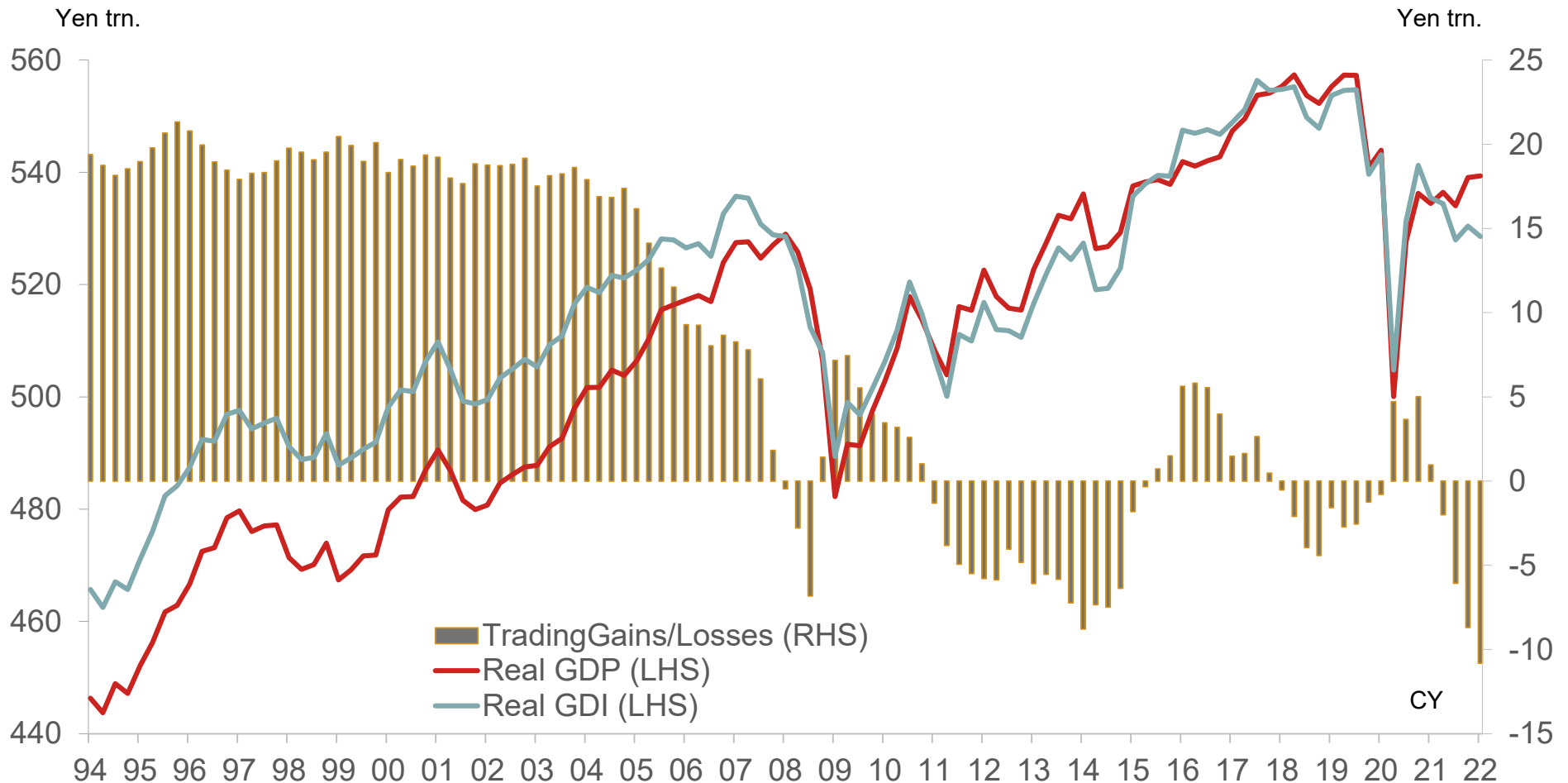
Terms-of-trade index and factors leading to changes in the index



# Changes in Japan's terms of trade: a huge loss of value added

- A trading loss caused by the deterioration in terms of trade amounts to as much as ¥15.5trn in Q2 2022, around 2.8% of Japan's real GDP

Trading gains/losses



How Japan's terms of trade have changed before and during the Ukrainian crisis

**The impact of the change in Japan's terms of trade on prices and inflation**

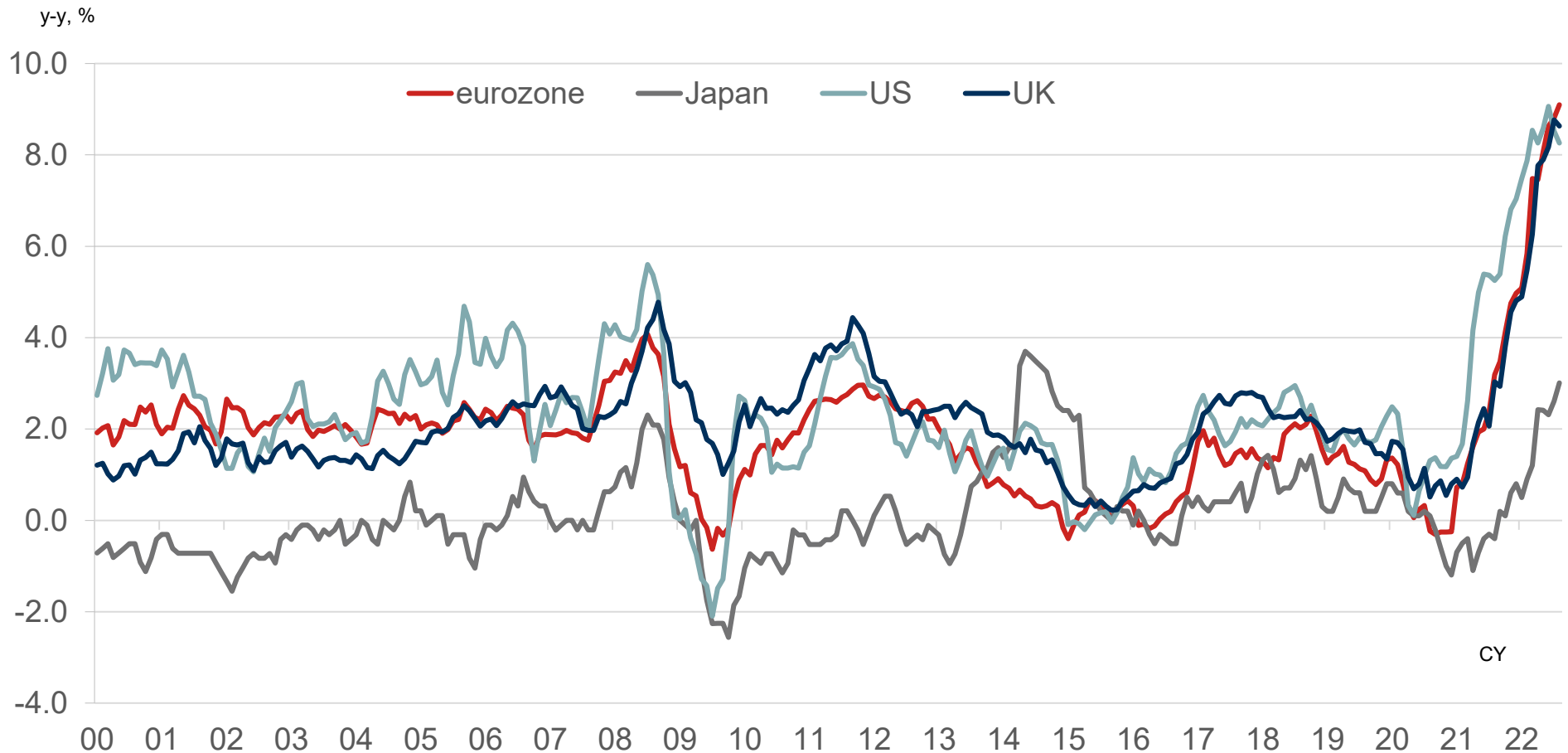
The relationship between changes in Japan's terms of trade and its balance of payments

The implications for the Japanese economy of the weakening of the yen alongside the changes in the country's terms of trade

# A simple comparison of headline inflation

■ Japan's inflation is still seriously lagging behind other major economies of developed countries

Y-y change in CPI in MEDCs (all-items basis)

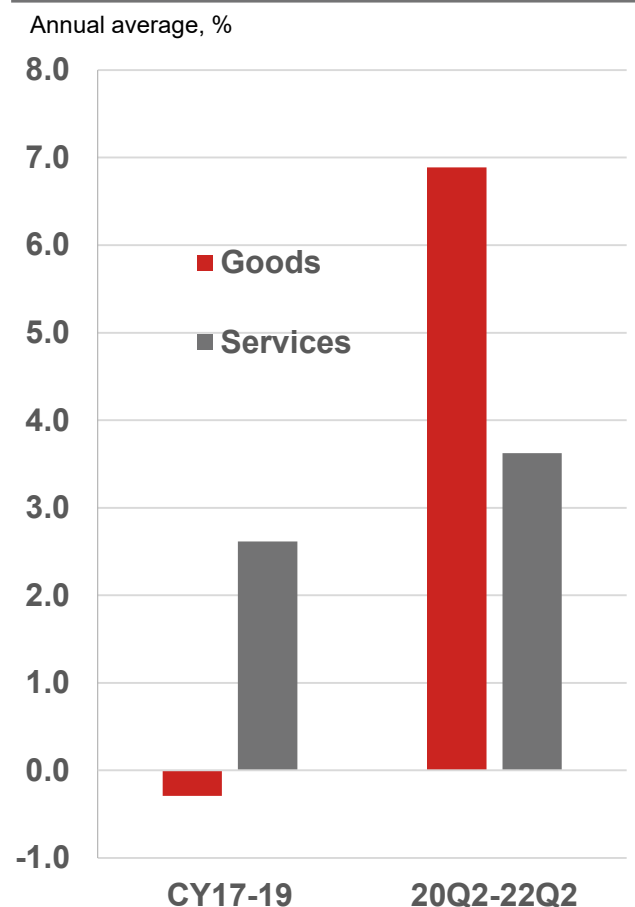




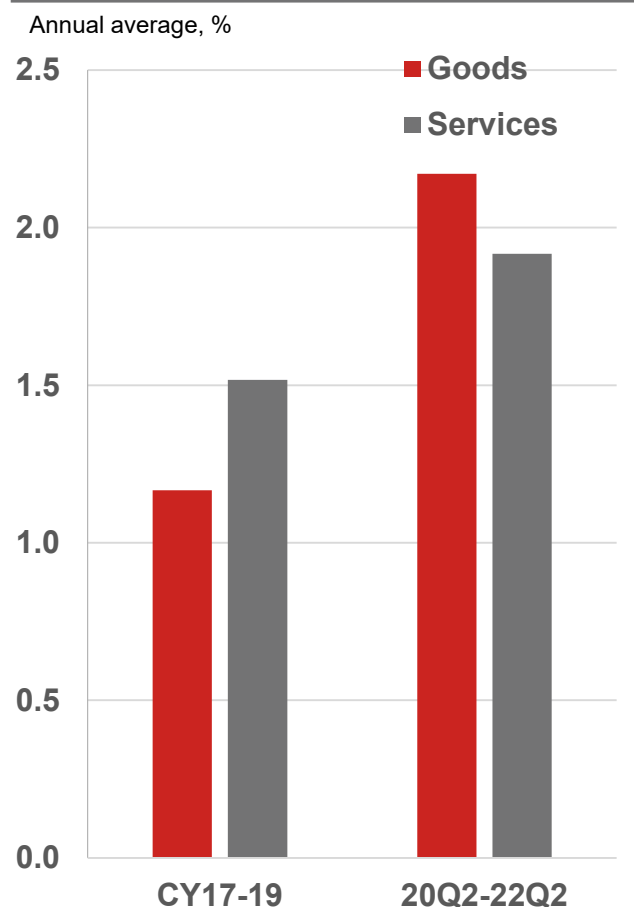
# Where the difference in inflation lies

## Major difference between Japan and other DM lies in service inflation...

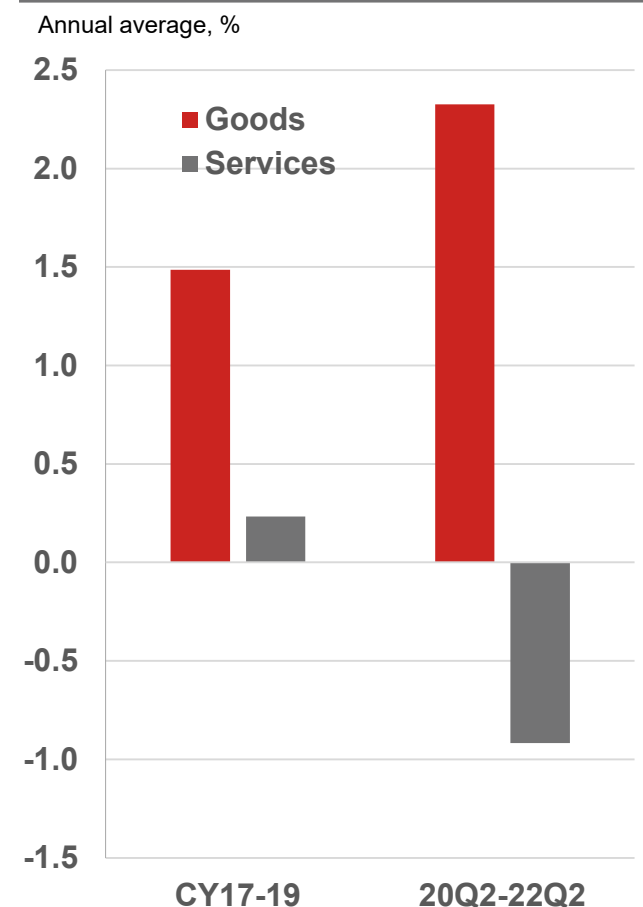
Comparison of change in CPI before and after pandemic—US



Comparison of change in CPI before and after pandemic—eurozone



Comparison of change in CPI before and after pandemic—Japan



Note: Goods exclude food and energy  
 Source: Nomura, based on data from Japan's Ministry of Internal Affairs and Communications (MIC) and the European Central Bank (ECB)

# An analysis of inflation in Japan by stage of demand

- ...reflecting a weaker path through cost in upstream area

Y-y change in prices by goods/services category and stage of demand (Y-y change in Apr-Jun 2022 average)

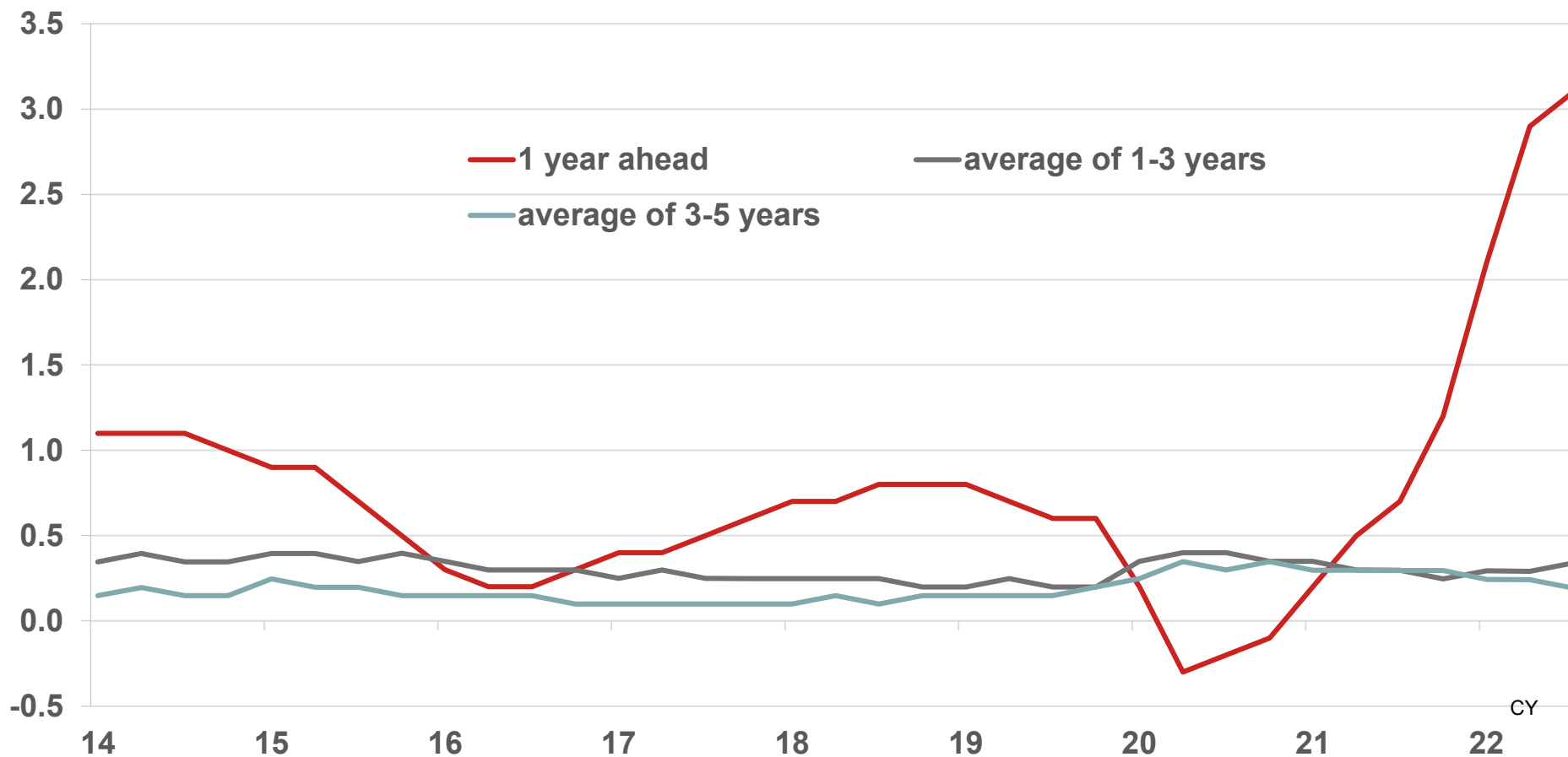
		Domestic goods	Import goods	Services
Intermediate demand	Stage 1	10.3	80.9	2.0
	Stage 2	18.8	82.4	2.6
	Stage 3	12.5	38.1	3.0
	Stage 4	9.9	21.1	2.6
Final demand (excluding exports)		4.7	17.3	0.2

# Any changes in pricing behavior of Japanese enterprises?

- While they rushed into price revisions recently, Japanese enterprises are still reluctant and cautious in raising their selling prices in the longer time horizon

Outlook for Output Prices in the BOJ Tankan (All-enterprise basis)

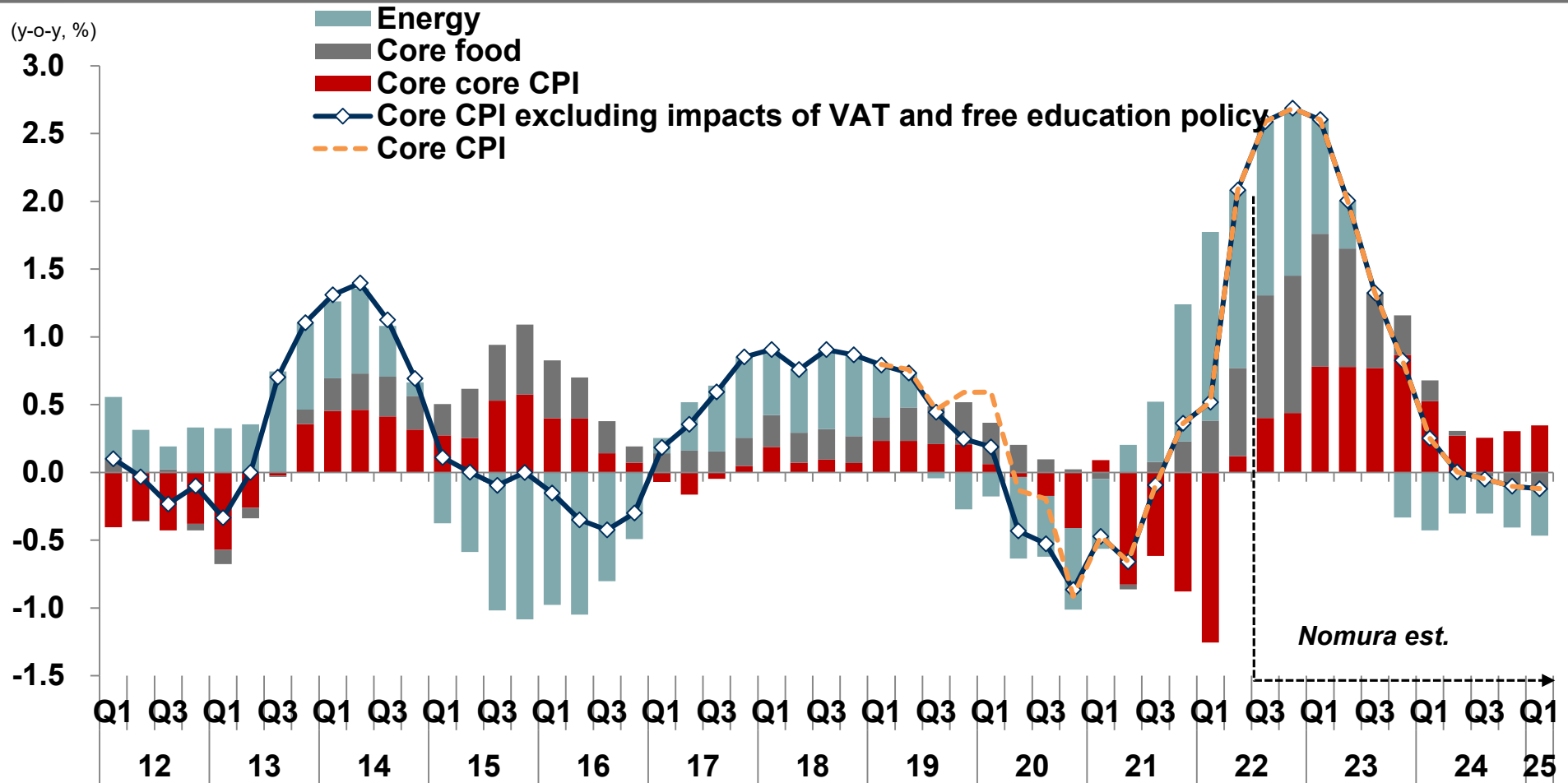
annual average, %



# We still maintain 'discouraging' view for Japan's inflation

■ We do not expect Japan's inflation to meet BOJ's 2% goal in a sustainable manner

Nomura's Core CPI inflation forecasts



Note: The core CPI is the consumer price index less fresh food. Core core CPI = Core CPI - energy - core food (excluding fresh food and alcohol).  
 Source: Nomura, based on Ministry of Internal Affairs and Communications data

How Japan's terms of trade have changed before and during the Ukrainian crisis

The impact of the change in Japan's terms of trade on prices and inflation

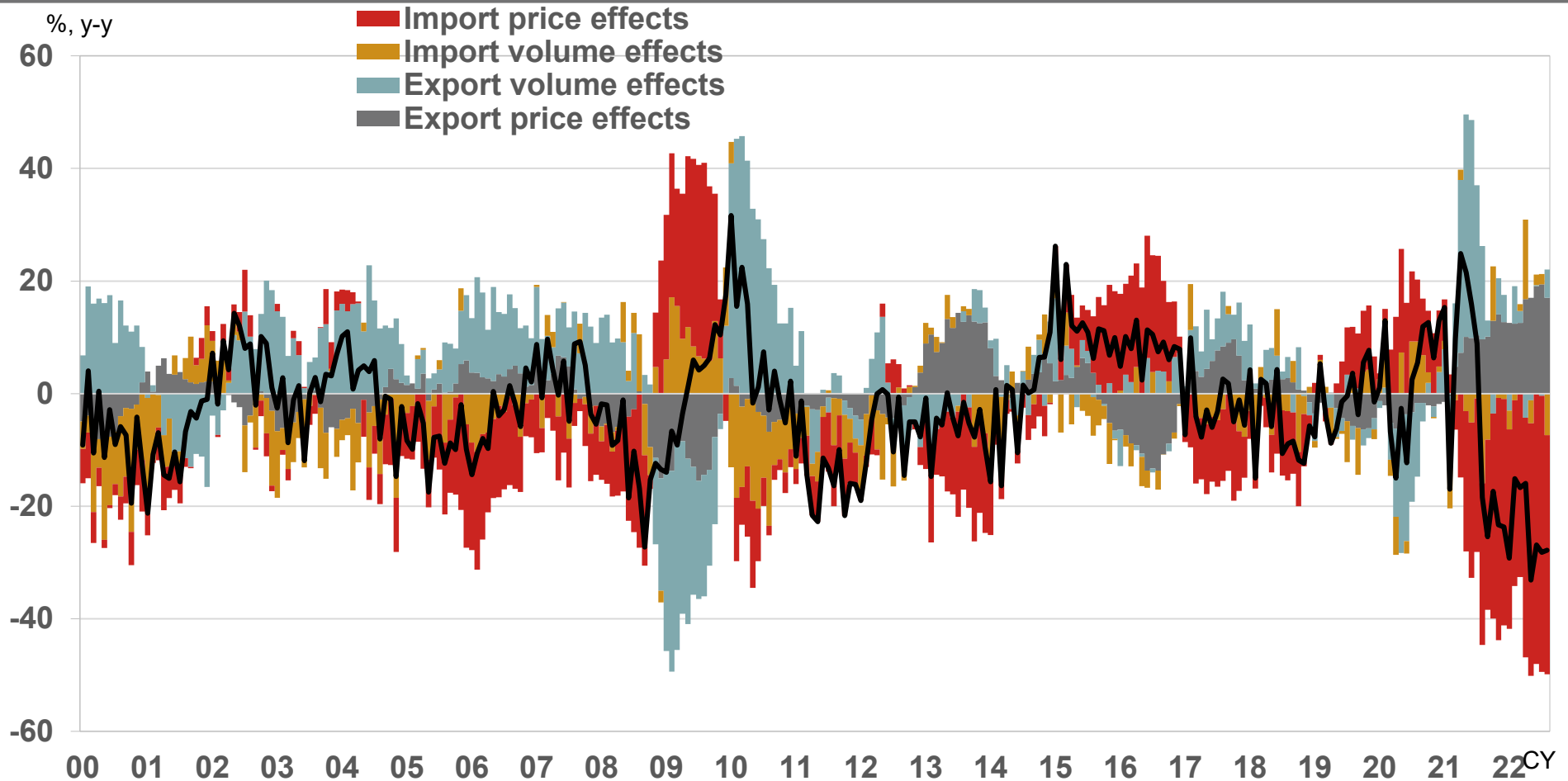
**The relationship between changes in Japan's terms of trade and its balance of payments**

The implications for the Japanese economy of the weakening of the yen alongside the changes in the country's terms of trade

# Terms-of-trade shock and external balances

■ We see less volume effects offsetting the deterioration in trade balance

Factors affecting the trade balance

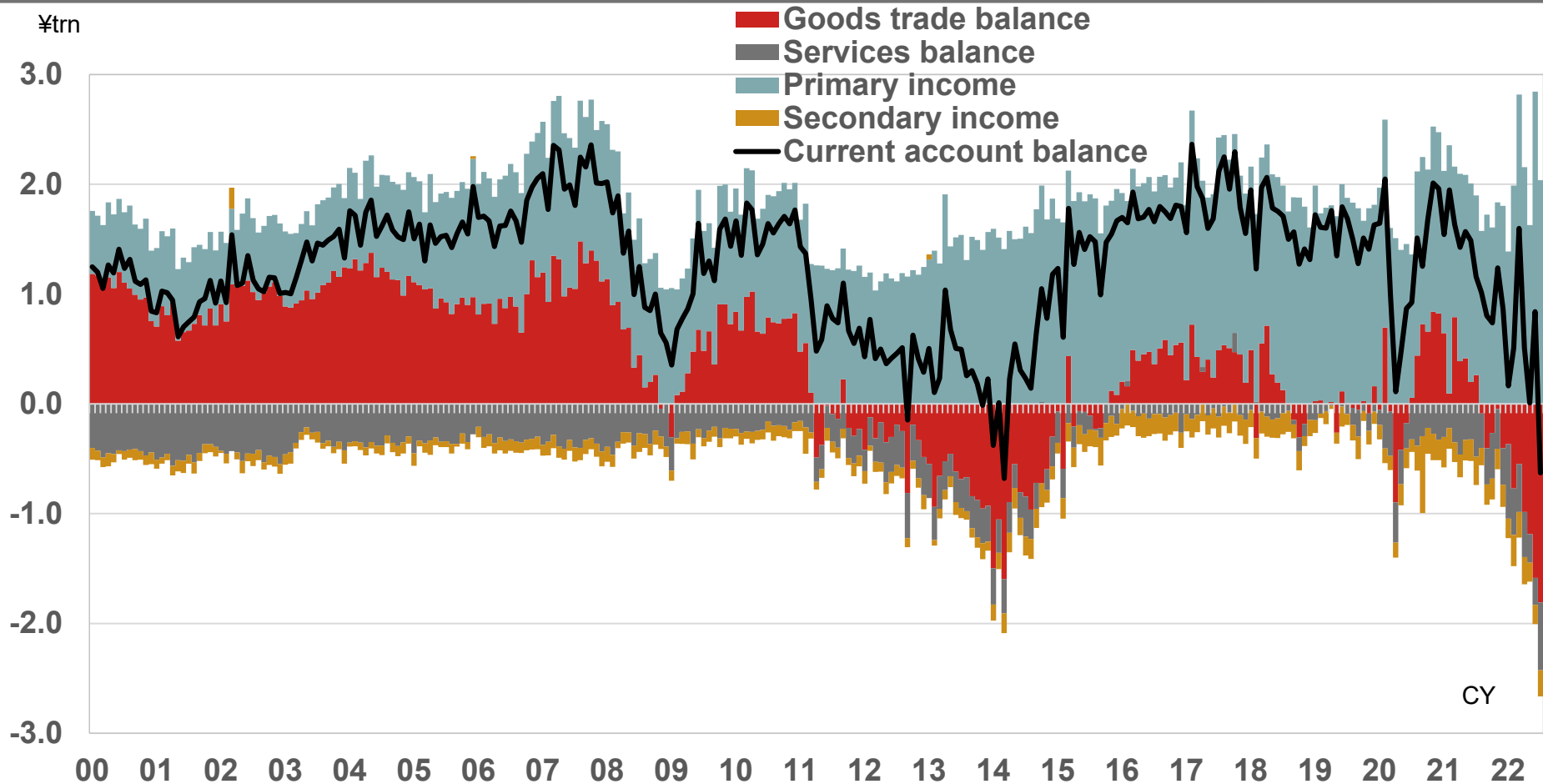


Note: Trade balance fluctuation is difference between import and export growth.  
Source: Nomura, based on MOF and BOJ data

# The current account balance still staying in surplus

- The reason for the widening gap between the trade and current account balance is the size of the primary income surplus

## Factors affecting the trade balance





How Japan's terms of trade have changed before and during the Ukrainian crisis

The impact of the change in Japan's terms of trade on prices and inflation

The relationship between changes in Japan's terms of trade and its balance of payments

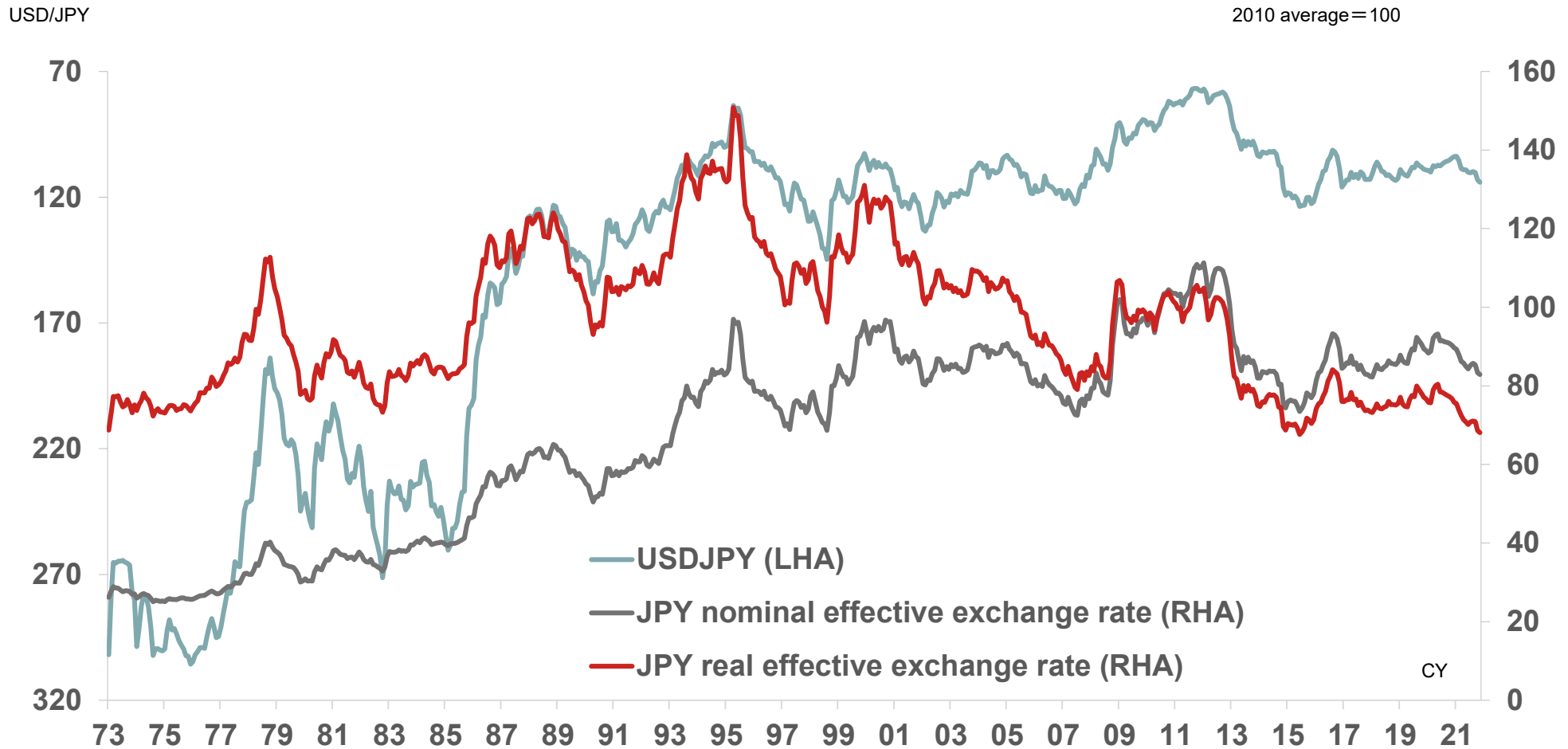
**The implications for the Japanese economy of the weakening of the yen alongside the changes in the country's terms of trade**



# What matters is not only yen weakness

- If the deterioration in terms of trade and depreciation of the yen keep feeding off each other, the concern is that the absolute gap in prices between overseas and Japan will grow larger

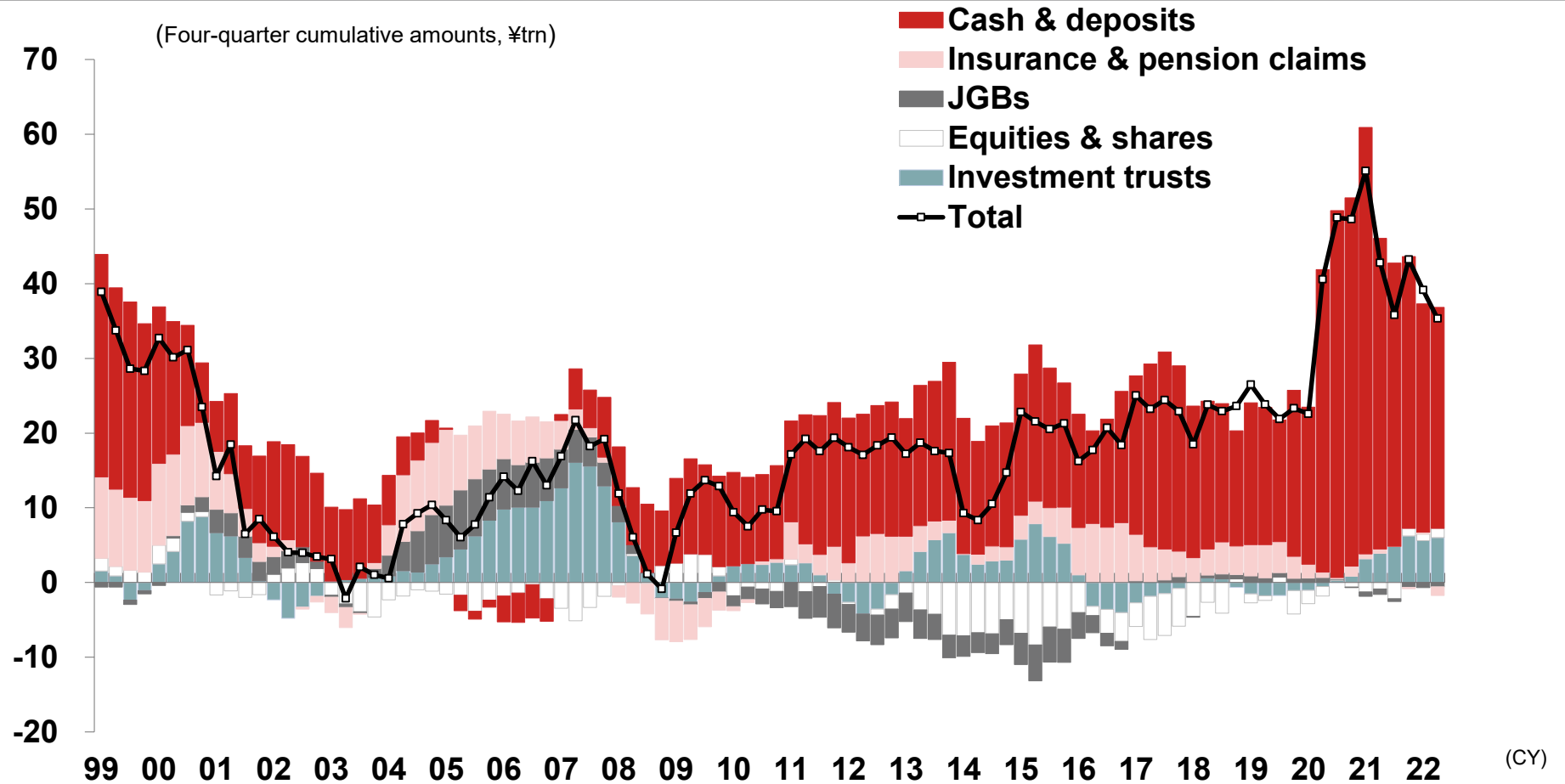
USD/JPY and the REER index



# No sign of changes in asset preference of Japan's households

- The Flow of Funds Accounts Statistics to date do not provide evidence of changes in asset preferences or capital outflows

## Changes in household assets and the factors behind these changes



**Our conclusion is that the terms-of-trade shock that is currently confronting the Japanese economy is one that is likely to see interplay and synergies with the weakening of the yen and is therefore likely to form a kind of echo chamber that amplifies the effects of these synergies.**

# Appendix A-1

## Analyst Certification

I, **Takashi Miwa**, hereby certify (1) that the views expressed in this Research report accurately reflect my personal views about any or all of the subject securities or issuers referred to in this Research report, (2) no part of my compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this Research report and (3) no part of my compensation is tied to any specific investment banking transactions performed by Nomura Securities International, Inc., Nomura International plc or any other Nomura Group company.

## Important Disclosures

### Online availability of research and conflict-of-interest disclosures

Nomura Group research is available on [www.nomuranow.com/research](http://www.nomuranow.com/research), Bloomberg, Capital IQ, Factset, Reuters and ThomsonOne.

Important disclosures may be read at <http://go.nomuranow.com/research/globalresearchportal/pages/disclosures/disclosures.aspx> or requested from Nomura Securities International, Inc. If you have any difficulties with the website, please email [grpsupport@nomura.com](mailto:grpsupport@nomura.com) for help.

The analysts responsible for preparing this report have received compensation based upon various factors including the firm's total revenues, a portion of which is generated by Investment Banking activities. Unless otherwise noted, the non-US analysts listed at the front of this report are not registered/qualified as research analysts under FINRA rules, may not be associated persons of NSI, and may not be subject to FINRA Rule 2241 restrictions on communications with covered companies, public appearances, and trading securities held by a research analyst account.

Nomura Global Financial Products Inc. (NGFP) Nomura Derivative Products Inc. (NDP) and Nomura International plc. (NIplc) are registered with the Commodities Futures Trading Commission and the National Futures Association (NFA) as swap dealers. NGFP, NDPI, and NIplc are generally engaged in the trading of swaps and other derivative products, any of which may be the subject of this report.

## Disclaimers

This publication contains material that has been prepared by the Nomura Group entity identified on page 1 and, if applicable, with the contributions of one or more Nomura Group entities whose employees and their respective affiliations are specified on page 1 or identified elsewhere in this publication. The term "Nomura Group" used herein refers to Nomura Holdings, Inc. and its affiliates and subsidiaries including: (a) Nomura Securities Co., Ltd. ('NSC') Tokyo, Japan, (b) Nomura Financial Products Europe GmbH ('NFPE'), Germany, (c) Nomura International plc ('NIplc'), UK, (d) Nomura Securities International, Inc. ('NSI'), New York, US, (e) Nomura International (Hong Kong) Ltd. ('NIHK'), Hong Kong, (f) Nomura Financial Investment (Korea) Co., Ltd. ('NFIK'), Korea (Information on Nomura analysts registered with the Korea Financial Investment Association ('KOFIA') can be found on the KOFIA Intranet at <http://dis.kofia.or.kr>), (g) Nomura Singapore Ltd. ('NSL'), Singapore (Registration number 197201440E, regulated by the Monetary Authority of Singapore) (h) Nomura Australia Ltd. ('NAL'), Australia (ABN 48 003 032 513), regulated by the Australian Securities and Investment Commission ('ASIC') and holder of an Australian financial services licence number 246412, (i) Nomura Securities Malaysia Sdn. Bhd. ('NSM'), Malaysia, (j) NIHK, Taipei Branch ('NITB'), Taiwan, (k) Nomura Financial Advisory and Securities (India) Private Limited ('NFASL'), Mumbai, India (Registered Address: Ceejay House, Level 11, Plot F, Shivsagar Estate, Dr. Annie Besant Road, Worli, Mumbai- 400 018, India; Tel: 91 22 4037 4037, Fax: 91 22 4037 4111; CIN No: U74140MH2007PTC169116, SEBI Registration No. for Stock Broking activities : INZ000255633; SEBI Registration No. for Merchant Banking : INM000011419; SEBI Registration No. for Research: INH000001014. 'CNS Thailand' next to an analyst's name on the front page of a research report indicates that the analyst is employed by Capital Nomura Securities Public Company Limited ('CNS') to provide research assistance services to NSL under an agreement between CNS and NSL. 'NSFSPL' next to an employee's name on the front page of a research report indicates that the individual is employed by Nomura Structured Finance Services Private Limited to provide assistance to certain Nomura entities under inter-company agreements. 'Verdhana' next to an individual's name on the front page of a research report indicates that the individual is employed by PT Verdhana Sekuritas Indonesia ('Verdhana') to provide research assistance to NIHK under a research partnership agreement and neither Verdhana nor such individual is licensed outside of Indonesia. For the avoidance of doubt and for the purpose of disclosure, Nomura Orient International Securities Co., Ltd ("NOI"), a joint venture amongst Nomura Group, Orient International (Holding) Co., Ltd and Shanghai Huangpu Investment Holding (Group) Co., Ltd is excluded from the definition of Nomura Group. An individual name printed next to NOI on the front page of a research report indicates that individual is employed by NOI to provide research assistance to NIHK under a research partnership agreement and neither NOI or such individual is licensed outside of Mainland China, PRC.

THIS MATERIAL IS: (I) FOR YOUR PRIVATE INFORMATION, AND WE ARE NOT SOLICITING ANY ACTION BASED UPON IT; (II) NOT TO BE CONSTRUED AS AN OFFER TO SELL OR A SOLICITATION OF AN OFFER TO BUY ANY SECURITIES IN ANY JURISDICTION WHERE SUCH OFFER OR SOLICITATION WOULD BE ILLEGAL; AND (III) OTHER THAN DISCLOSURES RELATING TO THE NOMURA GROUP, BASED UPON INFORMATION FROM SOURCES THAT WE CONSIDER RELIABLE, BUT HAS NOT BEEN INDEPENDENTLY VERIFIED BY NOMURA GROUP.

Other than disclosures relating to the Nomura Group, the Nomura Group does not warrant, represent or undertake, express or implied, that the document is fair, accurate, complete, correct, reliable or fit for any particular purpose or merchantable, and to the maximum extent permissible by law and/or regulation, does not accept liability (in negligence or otherwise, and in whole or in part) for any act (or decision not to act) resulting from use of this document and related data. To the maximum extent permissible by law and/or regulation, all warranties and other assurances by the Nomura Group are hereby excluded and the Nomura Group shall have no liability (in negligence or otherwise, and in whole or in part) for any loss howsoever arising from the use, misuse, or distribution of this material or the information contained in this material or otherwise arising in connection therewith.

Opinions or estimates expressed are current opinions as of the original publication date appearing on this material and the information, including the opinions and estimates contained herein, are subject to change without notice. The Nomura Group, however, expressly disclaims any obligation, and therefore is under no duty, to update or revise this document. Any comments or statements made herein are those of the author(s) and may differ from views held by other parties within Nomura Group. Clients should consider whether any advice or recommendation in this report is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. The Nomura Group does not provide tax advice.

The Nomura Group, and/or its officers, directors, employees and affiliates, may, to the extent permitted by applicable law and/or regulation, deal as principal, agent, or otherwise, or have long or short positions in, or buy or sell, the securities, commodities or instruments, or options or other derivative instruments based thereon, of issuers or securities mentioned herein. The Nomura Group companies may also act as market maker or liquidity provider (within the meaning of applicable regulations in the UK) in the financial instruments of the issuer. Where the activity of market maker is carried out in accordance with the definition given to it by specific laws and regulations of the US or other jurisdictions, this will be separately disclosed within the specific issuer disclosures.

This document may contain information obtained from third parties, including, but not limited to, ratings from credit ratings agencies such as Standard & Poor's. The Nomura Group hereby expressly disclaims all representations, warranties or undertakings of originality, fairness, accuracy, completeness, correctness, merchantability or fitness for a particular purpose with respect to any of the information obtained from third parties contained in this material or otherwise arising in connection therewith, and shall not be liable (in negligence or otherwise, and in whole or in part) for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including lost income or profits and opportunity costs) in connection with any use or misuse of any of the information obtained from third parties contained in this material or otherwise arising in connection therewith. Reproduction and distribution of third-party content in any form is prohibited except with the prior written permission of the related third-party. Third-party content providers do not, express or implied, guarantee the fairness, accuracy, completeness, correctness, timeliness or availability of any information, including ratings, and are not in any way responsible for any errors or omissions (negligent or otherwise), regardless of the cause, or for the results obtained from the use or misuse of such content. Third-party content providers give no express or implied warranties, including, but not limited to, any warranties of merchantability or fitness for a particular purpose or use. Third-party content providers shall not be liable (in negligence or otherwise, and in whole or in part) for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including lost income or profits and opportunity costs) in connection with any use or misuse of their content, including ratings. Credit ratings are statements of opinions and are not statements of fact or recommendations to purchase hold or sell securities. They do not address the suitability of securities or the suitability of securities for investment purposes, and should not be relied on as investment advice. Any MSCI sourced information in this document is the exclusive property of MSCI Inc. ('MSCI'). Without prior written permission of MSCI, this information and any other MSCI intellectual property may not be duplicated, reproduced, re-disseminated, redistributed or used, in whole or in part, for any purpose whatsoever, including creating any financial products and 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 representations, warranties or undertakings of originality, fairness, accuracy, completeness, correctness, merchantability or fitness for a particular purpose with respect to any of this material or the information contained in this material or otherwise arising in connection therewith. 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 (in negligence or otherwise, and in whole or in part) for any damages of any kind. MSCI and the MSCI indexes are services marks of MSCI and its affiliates.

The intellectual property rights and any other rights, in Russell/Nomura Japan Equity Index belong to Nomura Securities Co., Ltd. ("Nomura") and Frank Russell Company ("Russell"). Nomura and Russell do not guarantee fairness, accuracy, completeness, correctness, reliability, usefulness, marketability, merchantability or fitness of the Index, and do not account for business activities or services that any index user and/or its affiliates undertakes with the use of the Index.

Investors should consider this document as only a single factor in making their investment decision and, as such, the report should not be viewed as identifying or suggesting all risks, direct or indirect, that may be associated with any investment decision. Nomura Group produces a number of different types of research product including, among others, fundamental analysis and quantitative analysis; recommendations contained in one type of research product may differ from recommendations contained in other types of research product, whether as a result of differing time horizons, methodologies or otherwise. The Nomura Group publishes research product in a number of different ways including the posting of product on the Nomura Group portals and/or distribution directly to clients. Different groups of clients may receive different products and services from the research department depending on their individual requirements.

Figures presented herein may refer to past performance or simulations based on past performance which are not reliable indicators of future or likely performance. Where the information contains an expectation, projection or indication of future performance and business prospects, such forecasts may not be a reliable indicator of future or likely performance. Moreover, simulations are based on models and simplifying assumptions which may oversimplify and not reflect the future distribution of returns. Any figure, strategy or index created and published for illustrative purposes within this document is not intended for "use" as a "benchmark" as defined by the European Benchmark Regulation.

Certain securities are subject to fluctuations in exchange rates that could have an adverse effect on the value or price of, or income derived from, the investment.

With respect to Fixed Income Research: Recommendations fall into two categories: tactical, which typically last up to three months; or strategic, which typically last from 6-12 months. However, trade recommendations may be reviewed at any time as circumstances change. 'Stop loss' levels for trades are also provided; which, if hit, closes the trade recommendation automatically. Prices and yields shown in recommendations are taken at the time of submission for publication and are based on either indicative Bloomberg, Reuters or Nomura prices and yields at that time. The prices and yields shown are not necessarily those at which the trade recommendation can be implemented.

The securities described herein may not have been registered under the US Securities Act of 1933 (the '1933 Act'), and, in such case, may not be offered or sold in the US or to US persons unless they have been registered under the 1933 Act, or except in compliance with an exemption from the registration requirements of the 1933 Act. Unless governing law permits otherwise, any transaction should be executed via a Nomura entity in your home jurisdiction.

This document has been approved for distribution in the UK as investment research by NIplc. NIplc is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. NIplc is a member of the London Stock Exchange. This document does not constitute a personal recommendation within the meaning of applicable regulations in the UK, or take into account the particular investment objectives, financial situations, or needs of individual investors. This document is intended only for investors who are 'eligible counterparties' or 'professional clients' for the purposes of applicable regulations in the UK, and may not, therefore, be redistributed to persons who are 'retail clients' for such purposes.

This document has been approved for distribution in the European Economic Area as investment research by Nomura Financial Products Europe GmbH ("NFPE"). NFPE is a company organized as a limited liability company under German law registered in the Commercial Register of the Court of Frankfurt/Main under HRB 110223. NFPE is authorized and regulated by the German Federal Financial Supervisory Authority (BaFin).

This document has been approved by NIHK, which is regulated by the Hong Kong Securities and Futures Commission, for distribution in Hong Kong by NIHK. This document is intended only for investors who are 'professional investors' for the purposes of applicable regulations in Hong Kong and may not, therefore, be redistributed to persons who are not 'professional investors' for such purposes.

This document has been approved for distribution in Australia by NAL, which is authorized and regulated in Australia by the ASIC.

This document has also been approved for distribution in Malaysia by NSM.

In Singapore, this document has been distributed by NSL, an exempt financial adviser as defined under the Financial Advisers Act (Chapter 110), among other things, and regulated by the Monetary Authority of Singapore. NSL may distribute this document produced by its foreign affiliates pursuant to an arrangement under Regulation 32C of the Financial Advisers Regulations. Where the recipient of this document is not an accredited, expert or institutional investor as defined by the Securities and Futures Act (Chapter 289), NSL accepts legal responsibility for the contents of this document in respect of such recipient only to the extent required by law. Recipients of this document in Singapore should contact NSL in respect of matters arising from, or in connection with, this document. **THIS DOCUMENT IS INTENDED FOR GENERAL CIRCULATION. IT DOES NOT TAKE INTO ACCOUNT THE SPECIFIC INVESTMENT OBJECTIVES, FINANCIAL SITUATION OR PARTICULAR NEEDS OF ANY PARTICULAR PERSON. RECIPIENTS SHOULD TAKE INTO ACCOUNT THEIR SPECIFIC INVESTMENT OBJECTIVES, FINANCIAL SITUATION OR PARTICULAR NEEDS BEFORE MAKING A COMMITMENT TO PURCHASE ANY SECURITIES, INCLUDING SEEKING ADVICE FROM AN INDEPENDENT FINANCIAL ADVISER REGARDING THE SUITABILITY OF THE INVESTMENT, UNDER A SEPARATE ENGAGEMENT, AS THE RECIPIENT DEEMS FIT.**

Unless prohibited by the provisions of Regulation S of the 1933 Act, this material is distributed in the US, by NSI, a US-registered broker-dealer, which accepts responsibility for its contents in accordance with the provisions of Rule 15a-6, under the US Securities Exchange Act of 1934. The entity that prepared this document permits its separately operated affiliates within the Nomura Group to make copies of such documents available to their clients.

This document has not been approved for distribution to persons other than 'Authorised Persons', 'Exempt Persons' or 'Institutions' (as defined by the Capital Markets Authority) in the Kingdom of Saudi Arabia ('Saudi Arabia') or a 'Market Counterparty' or a 'Professional Client' (as defined by the Dubai Financial Services Authority) in the United Arab Emirates ('UAE') or a 'Market Counterparty' or a 'Business Customer' (as defined by the Qatar Financial Centre Regulatory Authority) in the State of Qatar ('Qatar') by Nomura Saudi Arabia, NIplc or any other member of the Nomura Group, as the case may be.

Neither this document nor any copy thereof may be taken or transmitted or distributed, directly or indirectly, by any person other than those authorised to do so into Saudi Arabia or in the UAE or in Qatar or to any person other than 'Authorised Persons', 'Exempt Persons' or 'Institutions' located in Saudi Arabia or a 'Market Counterparty' or a 'Professional Client' in the UAE or a 'Market Counterparty' or a 'Business Customer' in Qatar. Any failure to comply with these restrictions may constitute a violation of the laws of the UAE or Saudi Arabia or Qatar.

For report with reference of TAIWAN public companies or authored by Taiwan based research analyst:

**THIS DOCUMENT IS SOLELY FOR REFERENCE ONLY.** You should independently evaluate the investment risks and are solely responsible for your investment decisions. **NO PORTION OF THE REPORT MAY BE REPRODUCED OR QUOTED BY THE PRESS OR ANY OTHER PERSON WITHOUT WRITTEN AUTHORIZATION FROM NOMURA GROUP.** Pursuant to Operational Regulations Governing Securities Firms Recommending Trades in Securities to Customers and/or other applicable laws or regulations in Taiwan, you are prohibited to provide the reports to others (including but not limited to related parties, affiliated companies and any other third parties) or engage in any activities in connection with the reports which may involve conflicts of interests. **INFORMATION ON SECURITIES / INSTRUMENTS NOT EXECUTABLE BY NOMURA INTERNATIONAL (HONG KONG) LTD., TAIPEI BRANCH IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT BE CONSTRUED AS A RECOMMENDATION OR A SOLICITATION TO TRADE IN SUCH SECURITIES / INSTRUMENTS.**

This material may not be distributed in Indonesia or passed on within the territory of the Republic of Indonesia or to persons who are Indonesian citizens (wherever they are domiciled or located) or entities of or residents in Indonesia in a manner which constitutes a public offering under the laws of the Republic of Indonesia. The securities mentioned in this document may not be offered or sold in Indonesia or to persons who are citizens of Indonesia (wherever they are domiciled or located) or entities of or residents in Indonesia in a manner which constitutes a public offering under the laws of the Republic of Indonesia.

This document is prepared by Nomura Group or its subsidiary or affiliate (collectively, "Offshore Issuers") that is not licensed in the People's Republic of China ("PRC", excluding Hong Kong, Macau and Taiwan, for the purpose of this document) to provide securities research and this research report is not approved or intended to be circulated in the PRC. The A-share related analysis (if any) is not produced for any persons located or incorporated in the PRC. The recipients should not rely on any information contained in the research report in making investment decisions and Offshore Issuers take no responsibility in this regard.

NO PART OF THIS MATERIAL MAY BE (I) COPIED, PHOTOCOPIED, REPRODUCED OR DUPLICATED IN ANY FORM, BY ANY MEANS; OR (II) REDISSEMINATED, REPUBLISHED OR REDISTRIBUTED WITHOUT THE PRIOR WRITTEN CONSENT OF A MEMBER OF THE NOMURA GROUP. If this document has been distributed by electronic transmission, such as e-mail, then such transmission cannot be guaranteed to be secure or error-free as information could be intercepted, corrupted, lost, destroyed, arrive late or incomplete, or contain viruses. The sender therefore does not accept liability (in negligence or otherwise, and in whole or in part) for any errors or omissions in the contents of this document, which may arise as a result of electronic transmission. If verification is required, please request a hard-copy version.

### Disclaimers required in Japan

Credit ratings in the text that are marked with an asterisk (\*) are issued by a rating agency not registered under Japan's Financial Instruments and Exchange Act ("Unregistered Ratings"). For details on Unregistered Ratings, please contact the Research Production Operation Dept. of Nomura Securities Co., Ltd.

Investors in the financial products offered by Nomura Securities may incur fees and commissions specific to those products (for example, transactions involving Japanese equities are subject to a sales commission (all figures on a tax-inclusive basis) of up to 1.43% of the transaction amount or a commission of ¥2,860 for transactions of ¥200,000 or less, while transactions involving investment trusts are subject to various fees, such as commissions at the time of purchase and asset management fees, such as commissions at the time of purchase and asset management fees (trust fees), specific to each investment trust).

In addition, all products carry the risk of losses owing to price fluctuations or other factors. Fees and risks vary by product. Please thoroughly read the written materials provided, such as documents delivered before making a contract, listed securities documents, or prospectuses.

### Nomura Securities Co., Ltd.

Financial instruments firm registered with the Kanto Local Finance Bureau (registration No. 142)

Member associations: Japan Securities Dealers Association; Japan Investment Advisers Association; The Financial Futures Association of Japan; and Type II Financial Instruments Firms Association.

The Nomura Group manages conflicts with respect to the production of research through its compliance policies and procedures (including, but not limited to, Conflicts of Interest, Chinese Wall and Confidentiality policies) as well as through the maintenance of Chinese Walls and employee training.

**Additional information regarding the methodologies or models used in the production of any investment recommendations contained within this document is available upon request by contacting the Research Analysts of Nomura listed on the front page. Disclosures information is available upon request and disclosure information is available at the Nomura Disclosure web page: <http://go.nomuranow.com/research/globalresearchportal/pages/disclosures/disclosures.aspx>**

Copyright © 2022 Nomura Securities Co., Ltd. All rights reserved.

Disclosures as of 04-Oct-2022.