Russian invasion of Ukraine + pandemic + monetary policy normalization = perfect storm

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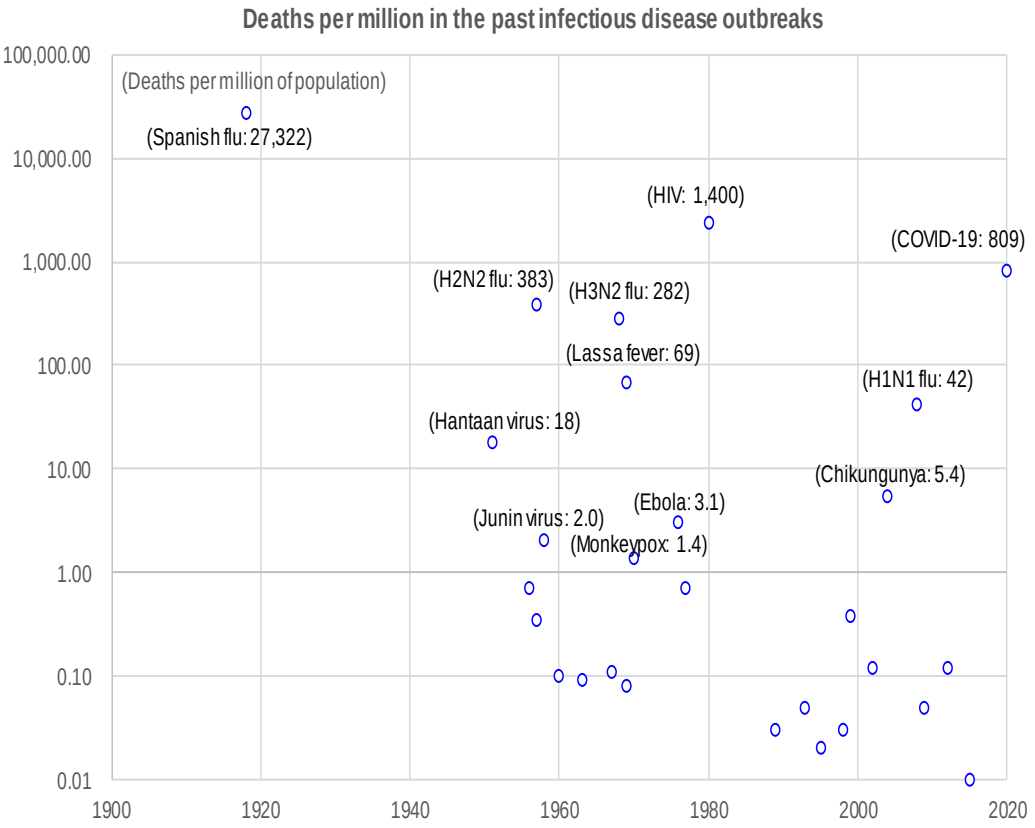
SARS-CoV-2 infectivity and lethality

Deaths per million of population in the past infectious disease outbreaks

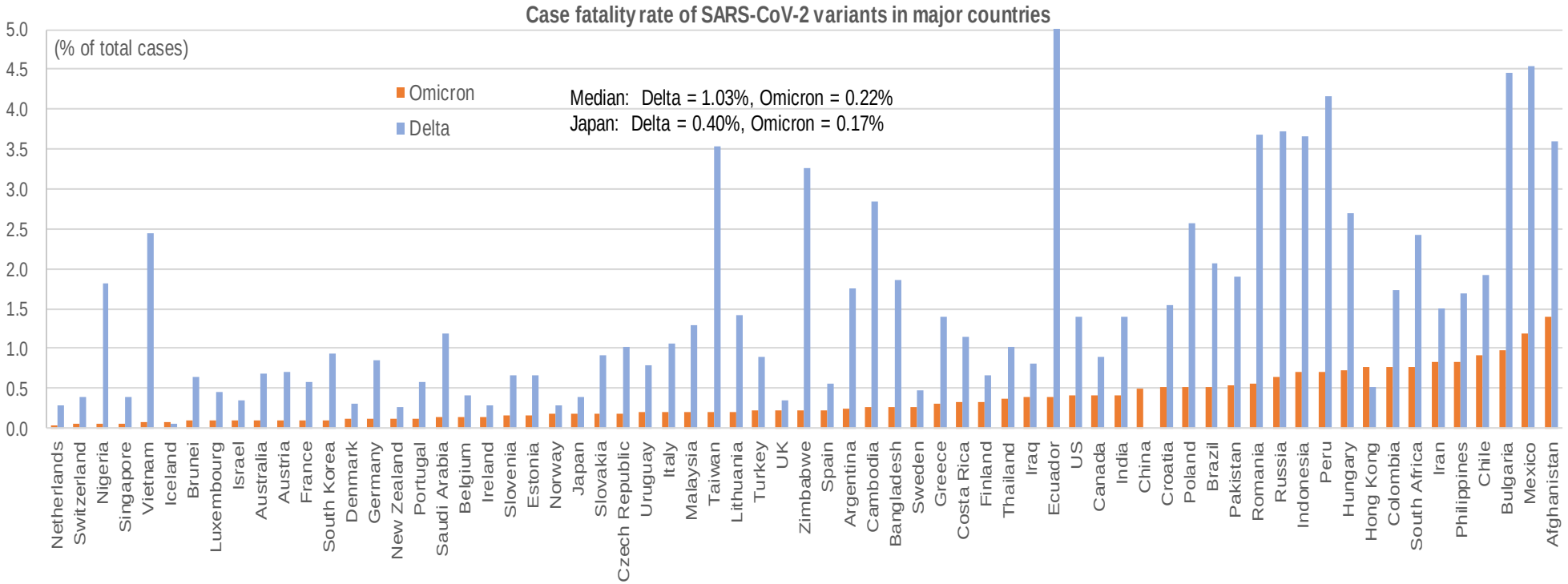
Virus	Year	Deaths	World population	Deaths per million
Spanish influenza	1918	50,000,000	1,830,000,000	27,322
Hantaan virus	1951	46,430	2,584,034,261	18
South American hantaviruses	1956	1,990	2,822,443,282	0.71
Kyasanur forest disease	1957	1,000	2,873,306,090	0.35
H2N2 influenza	1957	1,100,000	2,873,306,090	383
Junin virus	1958	5,900	2,925,686,705	2.02
Lacrosse virus	1960	300	3,034,949,748	0.10
Machupo virus	1963	290	3,211,001,009	0.09
Marburg virus	1967	370	3,478,769,962	0.11
H3N2 influenza	1968	1,000,000	3,551,599,127	282
Lassa fever	1969	250,000	3,625,680,627	69
Venezuelan equine encephalitis	1969	300	3,625,680,627	0.08
Monkeypox	1970	5,000	3,700,437,046	1.35
Ebola	1976	12,930	4,154,666,864	3.11
Rift Valley fever	1977	3,000	4,229,506,060	0.71
HIV	1980	10,700,000	4,458,003,514	2,400
Puumala virus	1980	10	4,458,003,514	0.00
Guanrito virus	1989	140	5,237,441,558	0.03
Sin Nombre virus	1993	260	5,581,597,546	0.05
Andes	1995	130	5,744,212,979	0.02
Nipah	1998	200	5,984,793,942	0.03
West Nile	1999	2,330	6,064,239,055	0.38
SARS	2002	770	6,301,773,188	0.12
Chikungunya	2004	35,000	6,461,159,389	5.42
H1N1 influenza	2008	284,000	6,789,088,686	42
Severe fever thrombocytopenia syndrome	2009	370	6,872,767,093	0.05
MERS	2012	860	7,125,828,059	0.12
Zika	2015	50	7,379,797,139	0.01
COVID-19	2020	6,309,439	7,794,798,739	809

Source: Bernstein, A.S., et al, "The costs and benefits of primary prevention of zoonotic pandemics", Science Advances, 8, abl4183 (2022), February 4, 2022. Table 1 https://www.science.org/doi/epdf/10.1126/sciadv.abl4183, SBI SECURITIES



Source: Bernstein, A.S., et al, "The costs and benefits of primary prevention of zoonotic pandemics", Science Advances, 8, abl4183 (2022), February 4, 2022. Table 1 https://www.science.org/doi/epdf/10.1126/sciadv.abl4183, SBI SECURITIES

SARS-CoV-2 variants and fatality rate



Note: Total cases for Delta ... Jun 1, 2021– Nov 30, 2021; for Omicron ... Dec 1, 2021 – Jun 15, 2022; Total deaths for Delta ... Jun 22, 2021 – Dec 21, 2021; for Omicron ... Dec 22, 2021 – Jul 7, 2022
Sources: CEIC Database, Johns Hopkins University, SBI SECURITIES

- The decline in Japan's case fatality rate (from 0.40% under Delta to 0.18% under Omicron) has been smaller than that in other developed countries.
- It is because of the delay in the start of the third dose campaign and the constraints on the availability of beds, where the healthcare supply capacity was unable to respond to a surge in new cases and hospitalizations.
- It is important to monitor the real numbers (the number of cases, hospitalizations, serious illness, and deaths) instead of the probability of serious illness and the fatality rate.
- A case fatality rate of 0.1% roughly corresponds to that of the seasonal flu.

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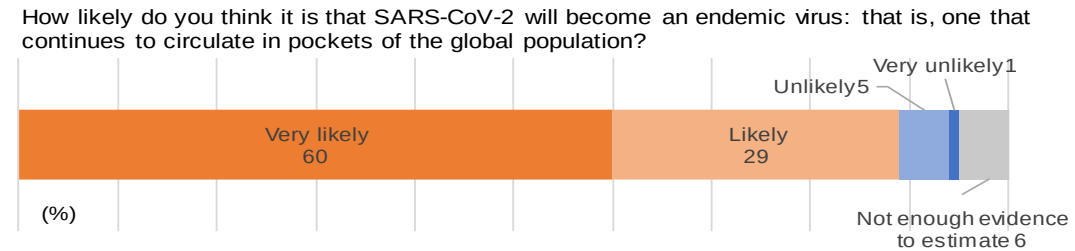
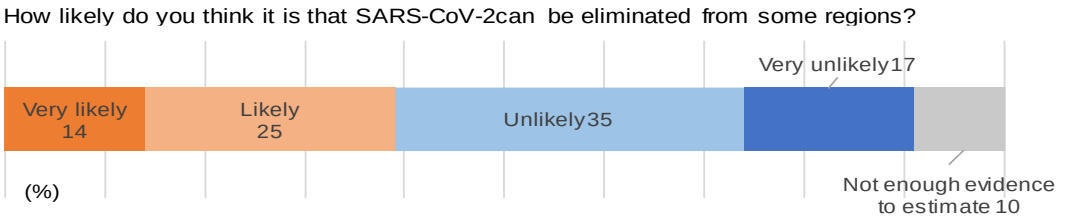
Experts' opinion about Herd Immunity Threshold (HIT)

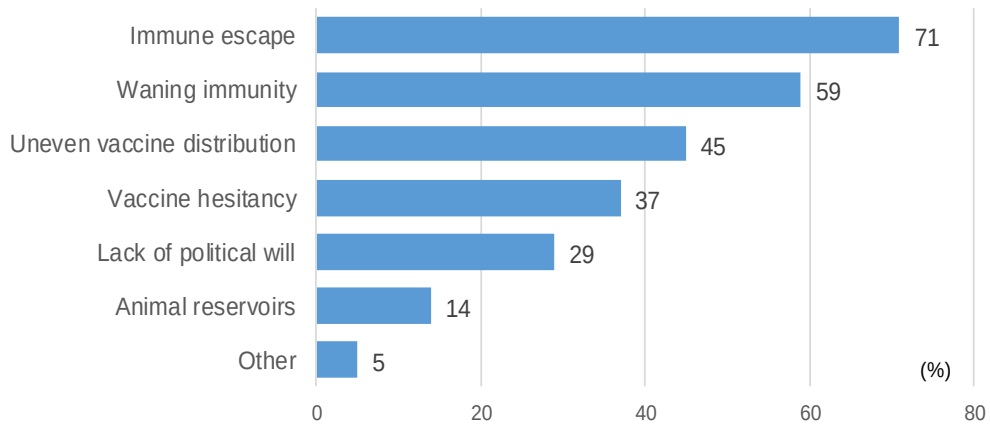
How likely will SARS-CoV-2 become an endemic?





Note: Replies from 119 immunologists, infectious-disease researchers and virologists from 23 countries.
Sources: Nature survey, SBI SECURITIES.

Driving factors for SARS-CoV-2 to stay as an endemic



Note: Replies from 119 immunologists, infectious-disease researchers and virologists from 23 countries. Sources: Nature survey, SBI SECURITIES.

The demise of capitalism: disappearance of growth frontiers and profit opportunities (1)

- The driving engine of capitalism is a pursuit of profit opportunities (or growth frontiers). Disappearance of profit opportunities portends the demise of capitalism and is consistent with the declines in the economy's potential growth and the natural interest rate.
- Disappearance of growth frontiers since the 2008 GFC (a shift to a closed-economy regime with diminishing marginal returns to international trade; a series of one-off events to benefit international trade took place in 1990–2008 [a rise in EM countries, former Eastern Europe having joined free-trade bloc, a single currency euro], followed by a reversal of globalization)
- Constraints for credit creation: a shift from a fiat-monetary regime to a semi-hard currency regime (tougher financial regulations, a rise in the ratios of total assets of financial institutions to GDP and nonfinancial sector debt to GDP does not continue forever.)
- Difficult to find investment projects with high expected returns despite the low costs of funds (decline in potential growth, lack of competition under oligopolies, and a decline in optimal capital stock)
- The ongoing pandemic reinforces this trend.
- Profit margins under perfect competition converge to zero.
- Creative destruction with large social frictions is unlikely to materialize under a mature capitalist economy. Despite the presence of a reallocation shock, employment retention and survival of businesses are given top priority, resulting in low interest rates, economic stagnation, and a rise of zombie companies.

(Example 1) When we put bacteria and nutrients in a petri dish and seal it, the bacteria continue to grow until they consume all of the nutrients.

(Example 2) When we put human beings and capitalism on earth and watch for 250 years, capitalism has proliferated but gets stuck once profit opportunities disappear.

The demise of capitalism: disappearance of growth frontiers and profit opportunities (2)

Symptoms of the disappearance of profit opportunities

1. slower global trade growth and a decline in global trade dependence
2. financial surplus of private nonfinancial businesses in developed countries
3. a continued decline in the share of gross fixed capital formation to global GDP
4. a rise in the capital coefficient (ratio of capital stock to GDP) in developed countries
5. declining operating surplus to total assets returns for the private nonfinancial business sector in developed countries
6. a slowdown in the labor productivity growth rate in developed countries
7. a decline in the global rate of return on foreign investment
8. an end of the catching up process for EM countries: an end to the per-capita income ratio of EM to developed countries after the 2008 GFC

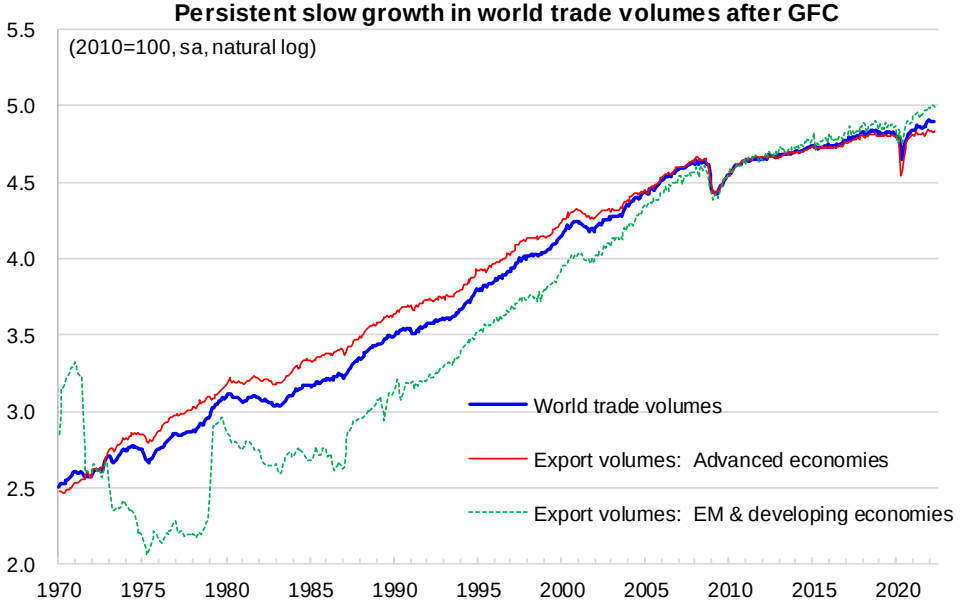
Implications of the demise of capitalism for asset prices may not be as desperate as those for the real economy, because of the following support factors:

1. equities becoming “chimera equities” which possess characteristics of both equities and bonds under a semi-hard currency regime
2. GDP growth higher than 10-year bond yields under a large-scale QE

Side effects of a large-scale QE includes a rise in asset prices, divergence between the real economy and the financial markets, and a rise in inequality of income and wealth. However, a large part of the rise in income and wealth inequality is attributable to fiscal policy. Desirable responses should include higher top tax rates on both corporate and individual income taxes, broadening the taxable income base, strengthening of capital gains taxes, and an introduction of a financial transaction tax.

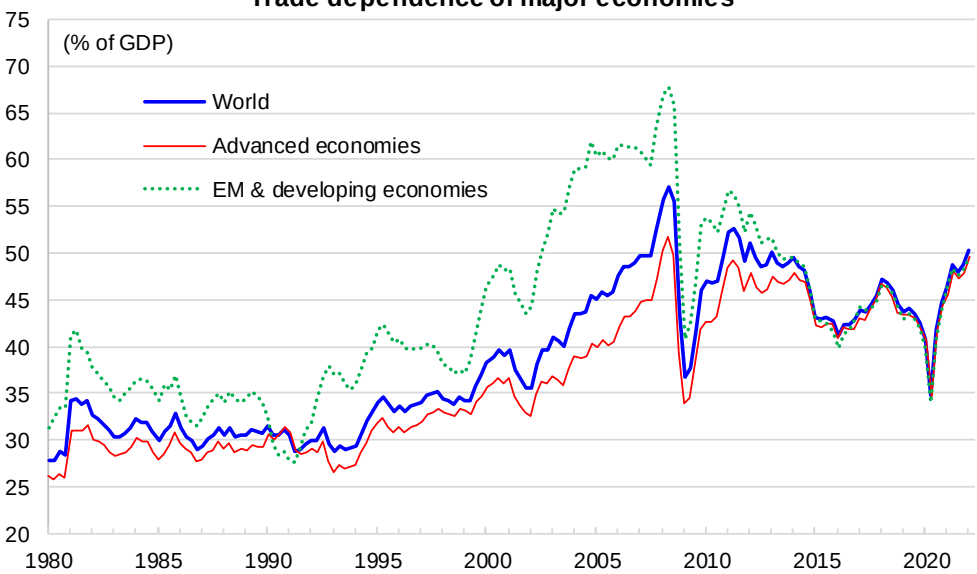
Symptoms of the demise of capitalism (1)

Persistent slow growth in world trade volumes after GFC



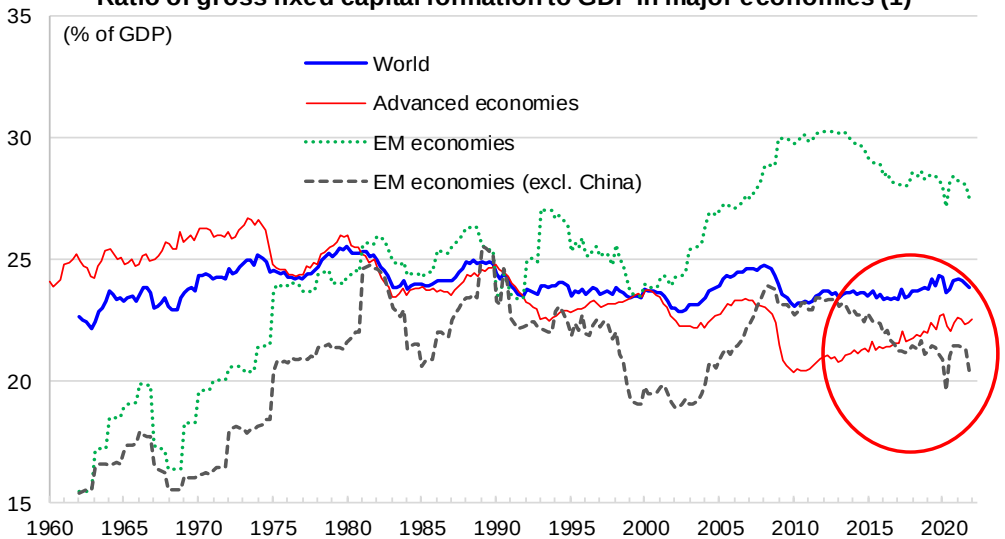
Sources: CEIC Database, CPB, IMF, SBI SECURITIES

Trade dependence of major economies



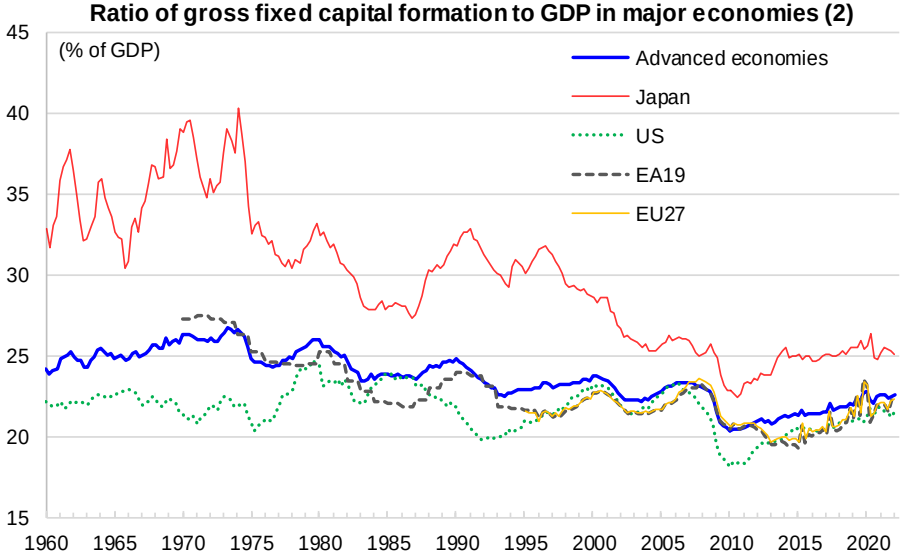
Note: Trade dependence = (goods exports + goods imports) / GDP.
Sources: CEIC Database, IMF, SBI SECURITIES

Ratio of gross fixed capital formation to GDP in major economies (1)



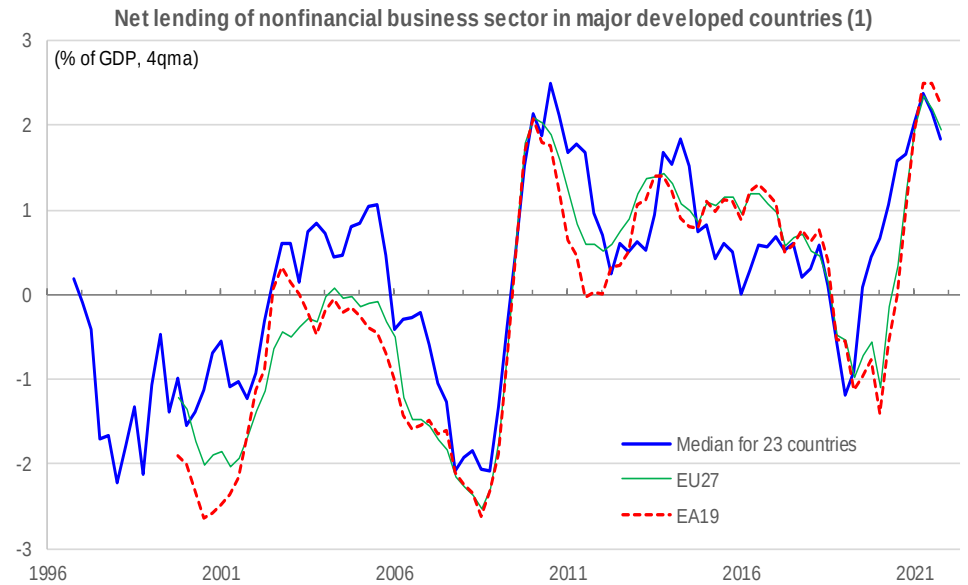
Notes: 33 advanced economies and 20 EM economies; weighted by nominal GDP in 2010.
Sources: CEIC Database, national sources, IMF, World Bank, SBI SECURITIES

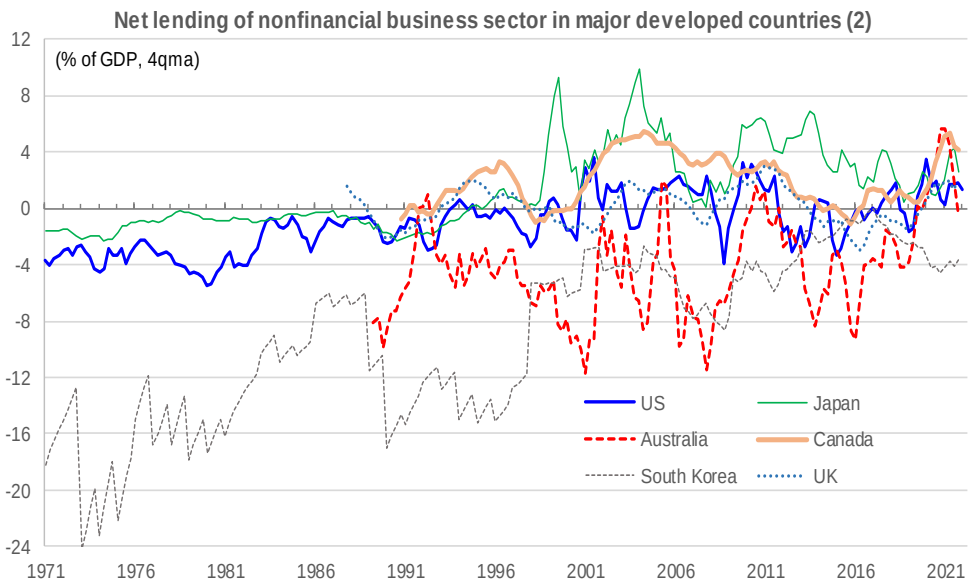
Ratio of gross fixed capital formation to GDP in major economies (2)

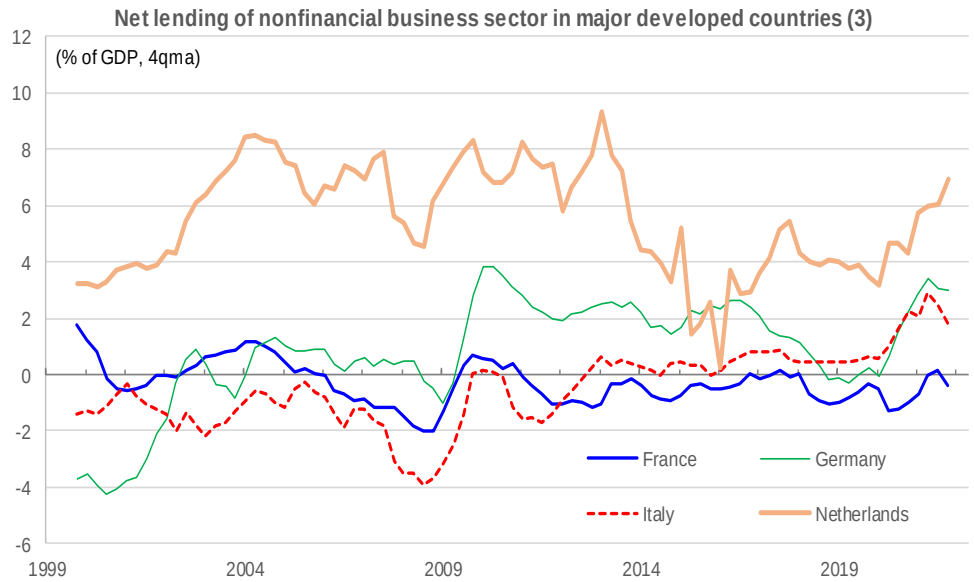


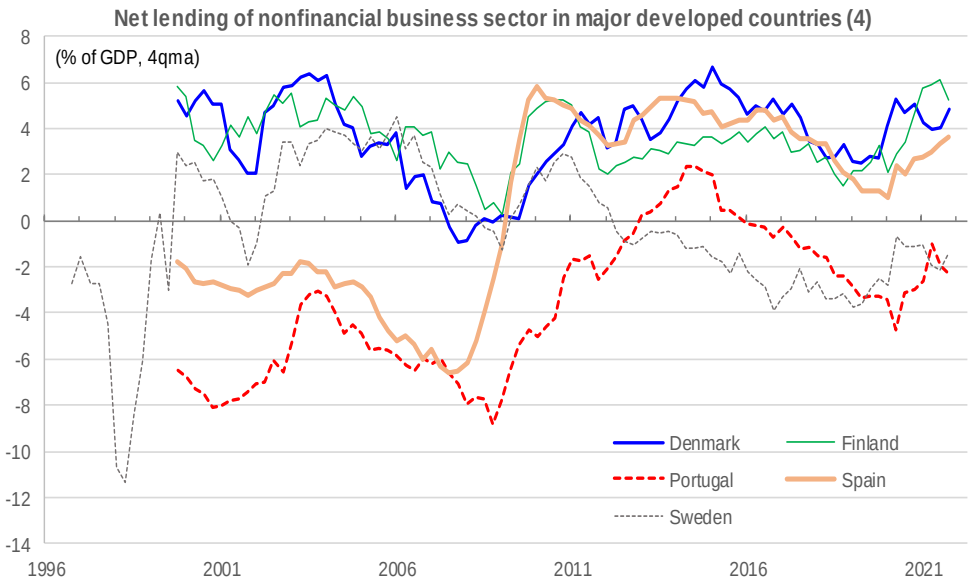
Notes: 33 advanced economies and 20 EM economies; weighted by nominal GDP in 2010.
Sources: CEIC Database, national sources, IMF, World Bank, SBI SECURITIES

Symptoms of the demise of capitalism (2)



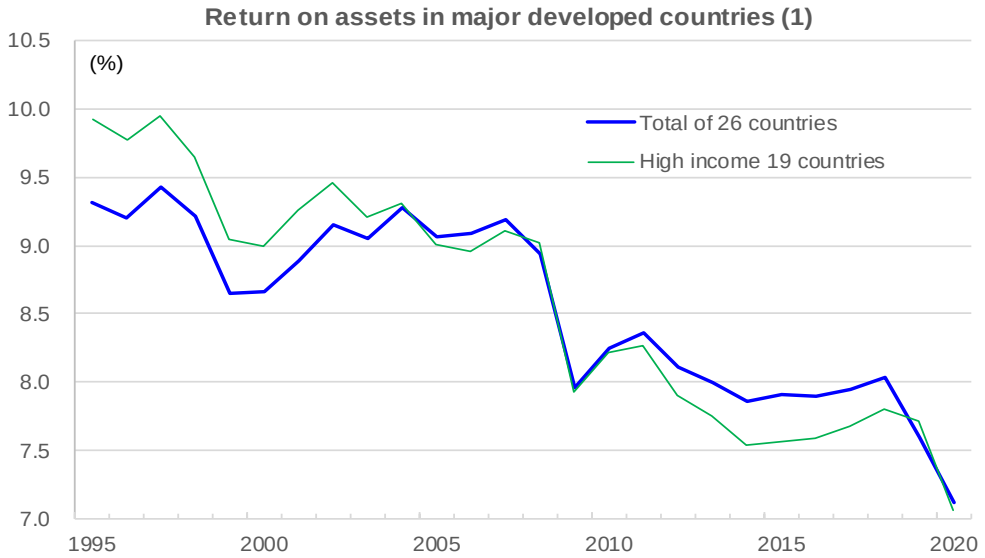


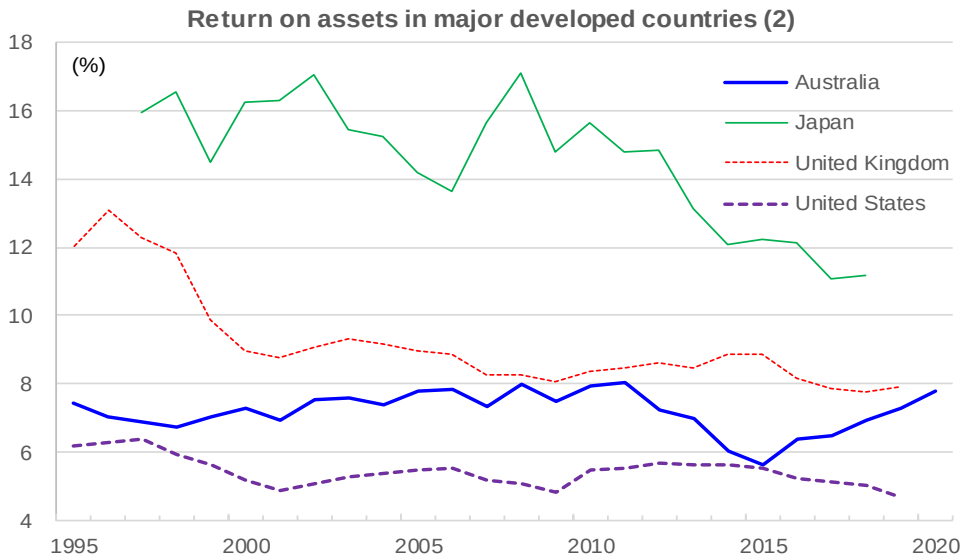


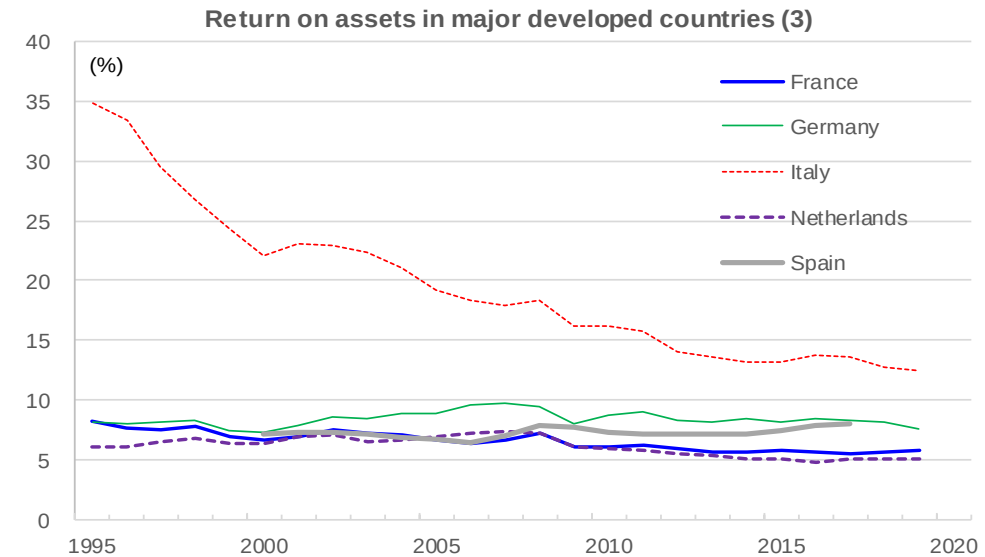


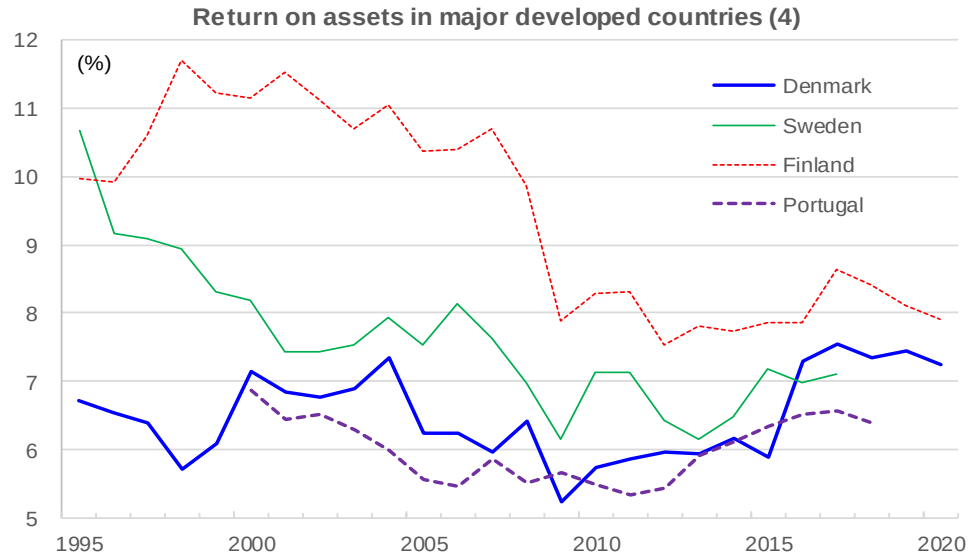
Sources: Eurostat, CEIC Database, SBI SECURITIES

Symptoms of the demise of capitalism (3)





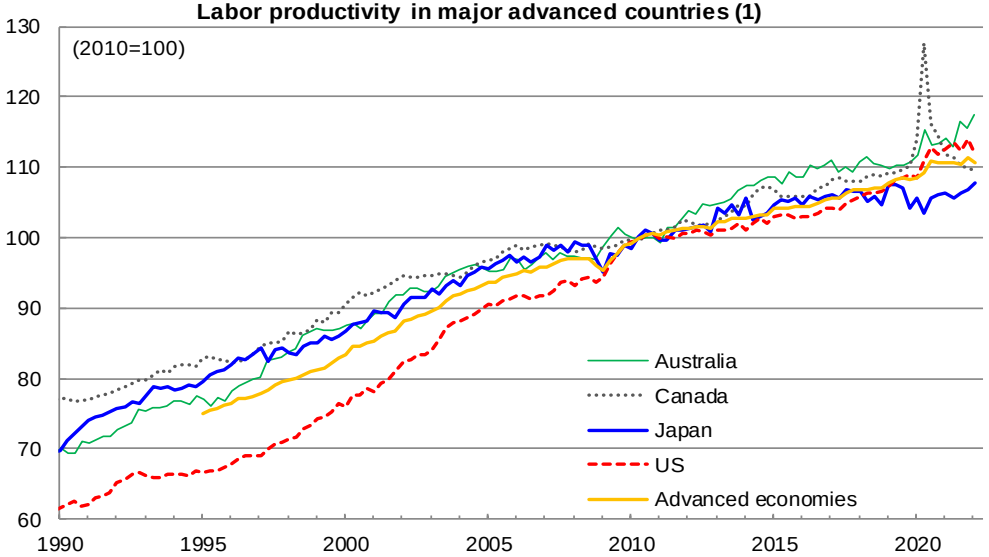




Notes: Return on assets = operating surplus and mixed income / (net fixed assets excluding dwellings + financial assets).
Operating surplus and mixed icnome, and financial assets are for nonfinancial businesses. Net fixed assets are for the whole economy.
Sources: OECD, Eurostat, CEIC Database, SBI SECURITIES.

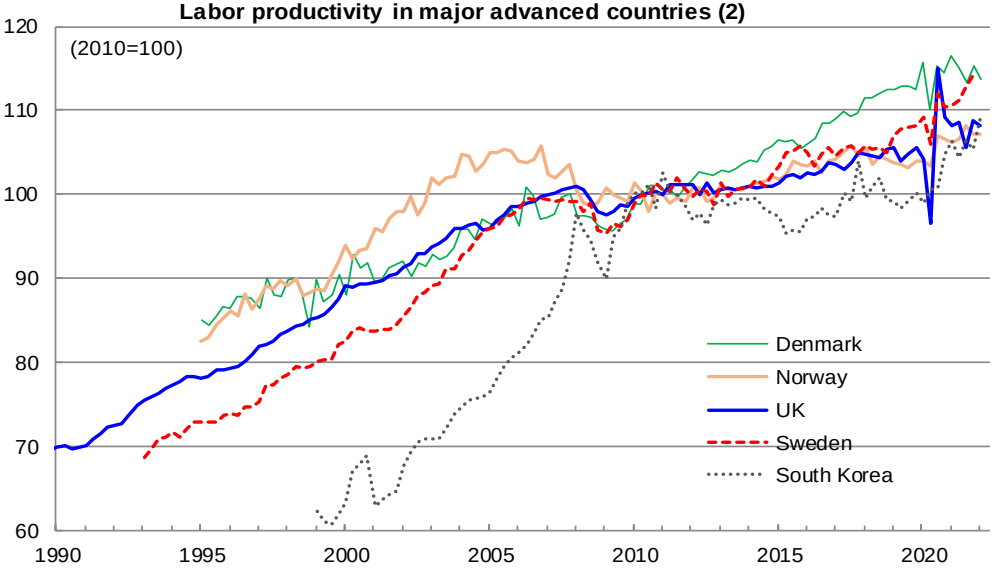
Symptoms of the demise of capitalism (4)

Labor productivity in major advanced countries (1)



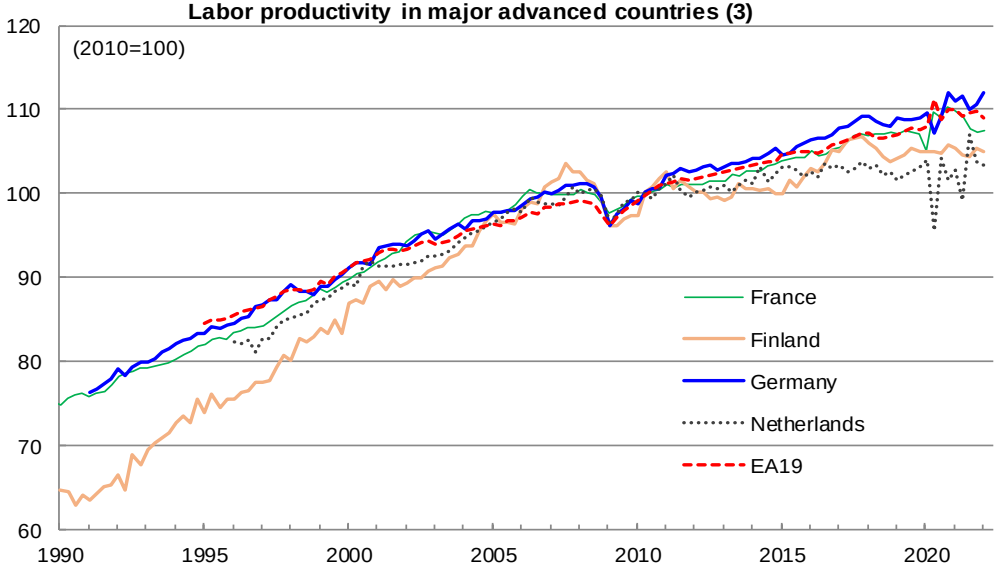
Notes: Labor productivity = real GDP / (employment x hours worked per person); non-farm sector in Korea, business sector in the US.
Sources: CEIC Database, ECB, SBI SECURITIES

Labor productivity in major advanced countries (2)



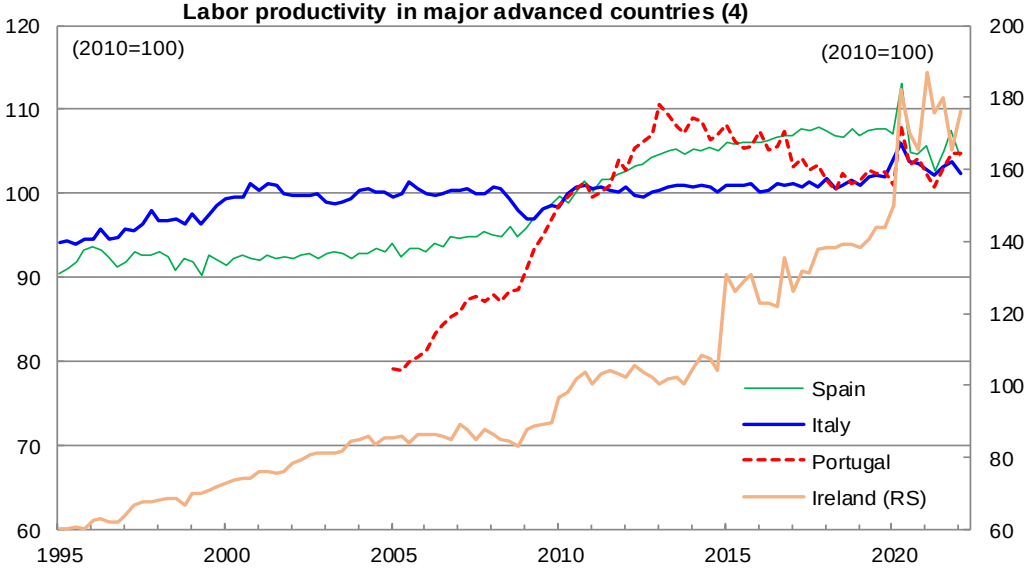
Note: Labor productivity = real GDP / (employment x hours worked per person).
Sources: CEIC Database, ECB, SBI SECURITIES

Labor productivity in major advanced countries (3)



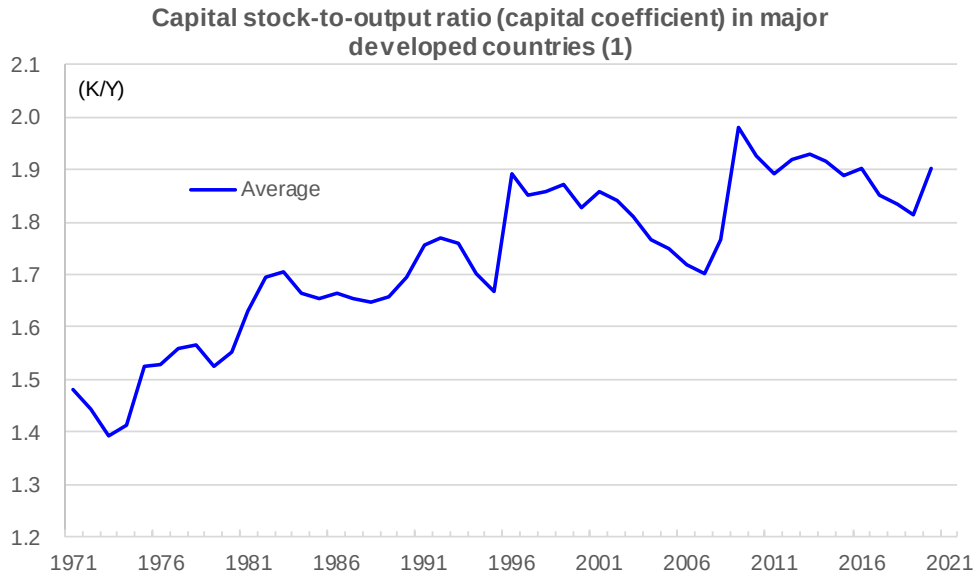
Note: Labor productivity = real GDP / (employment x hours worked per person).
Sources: CEIC Database, ECB, SBI SECURITIES

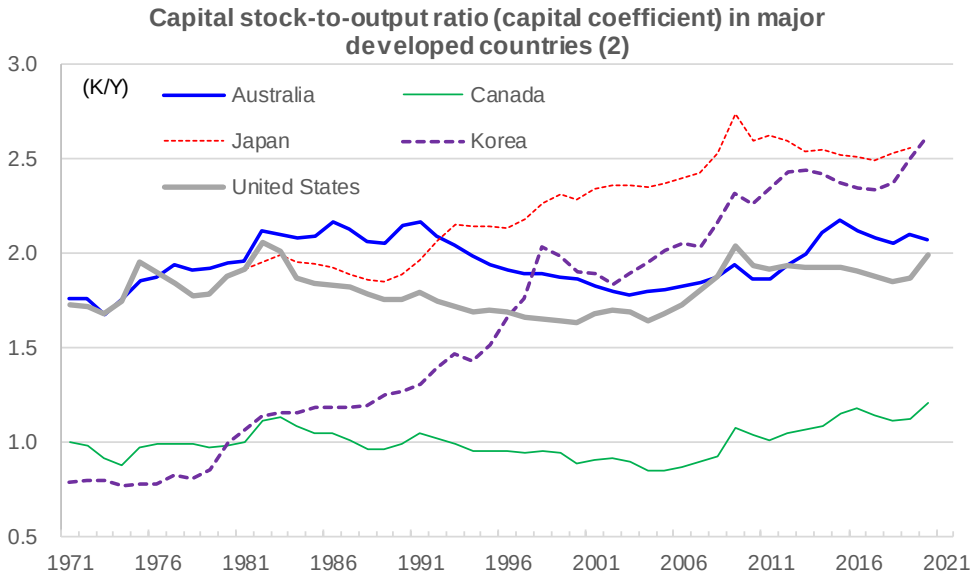
Labor productivity in major advanced countries (4)

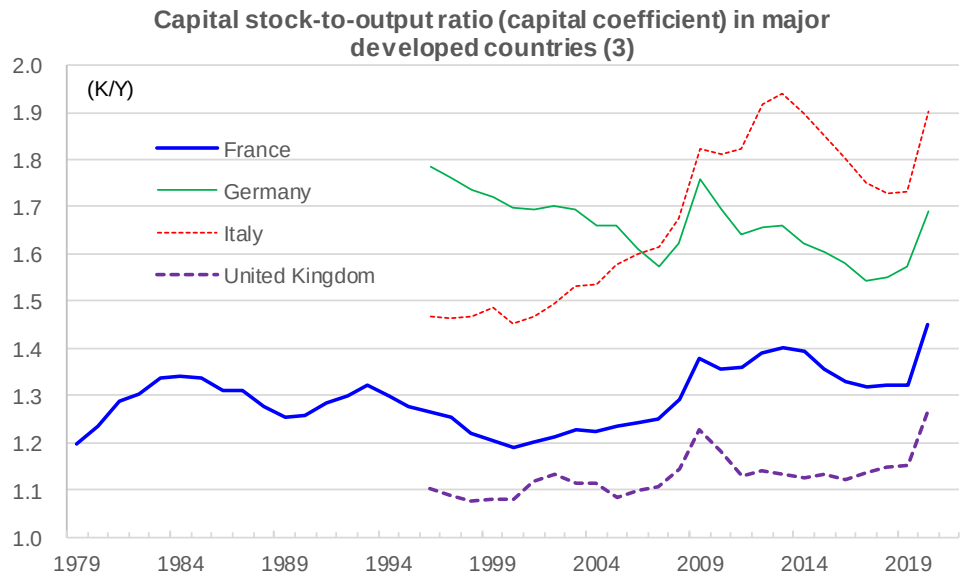


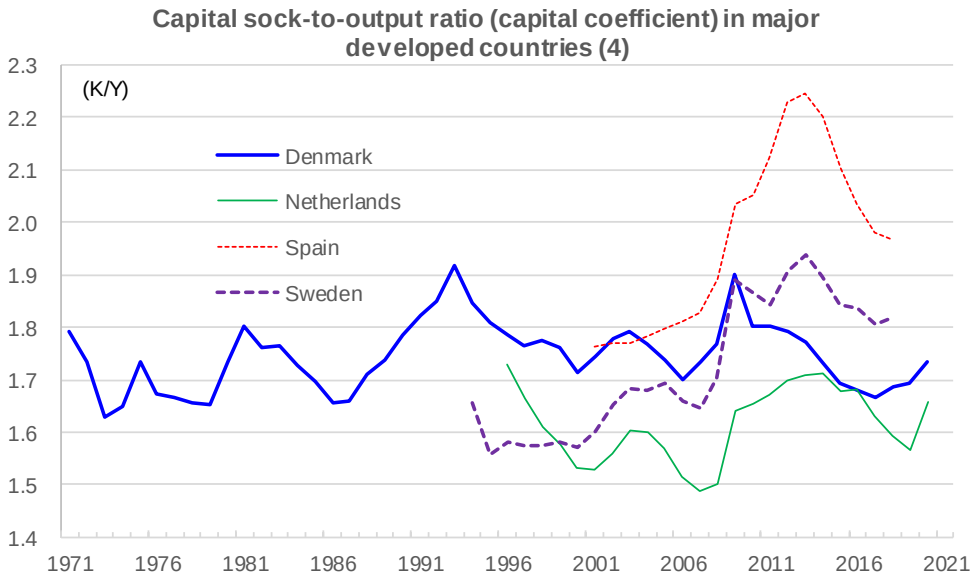
Note: Labor productivity = real GDP / (employment x hours worked per person).
Sources: CEIC Database, ECB, SBI SECURITIES

Symptoms of the demise of capitalism (5)



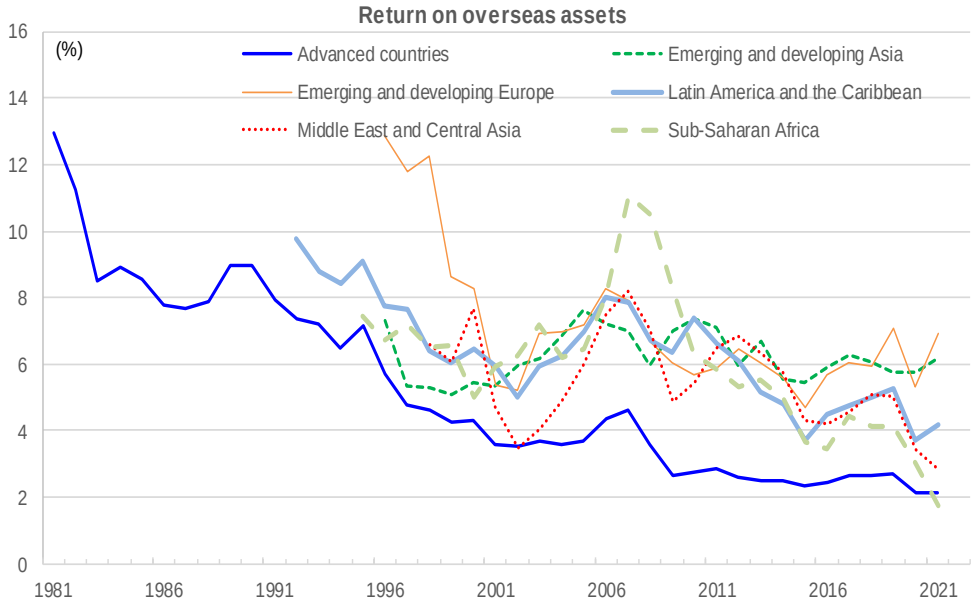




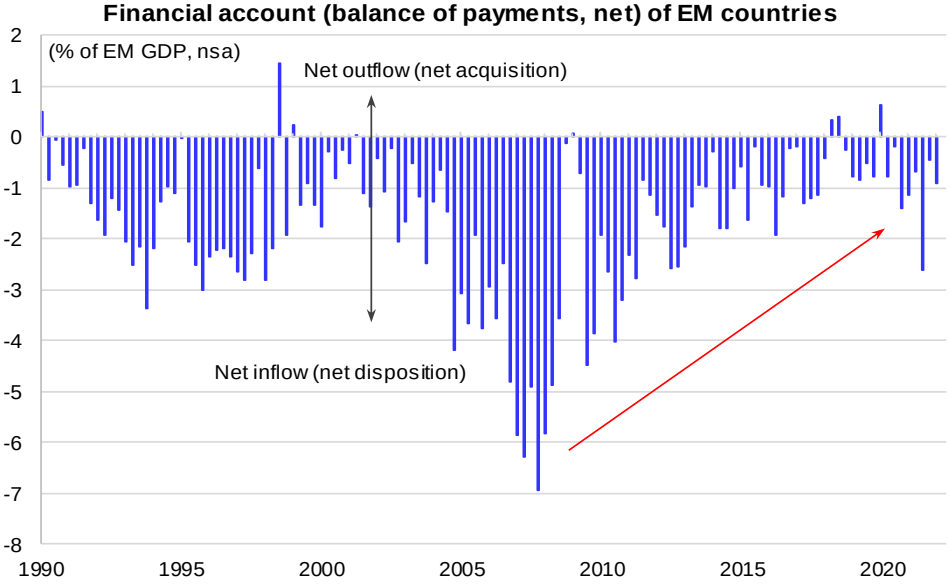


Notes: Capital-to-output ratio = net nominal fixed assets / nominal GDP. A simple average of 30 countries. Earlier years include smaller number of countries. Sources: OECD, SBI SECURITIES.

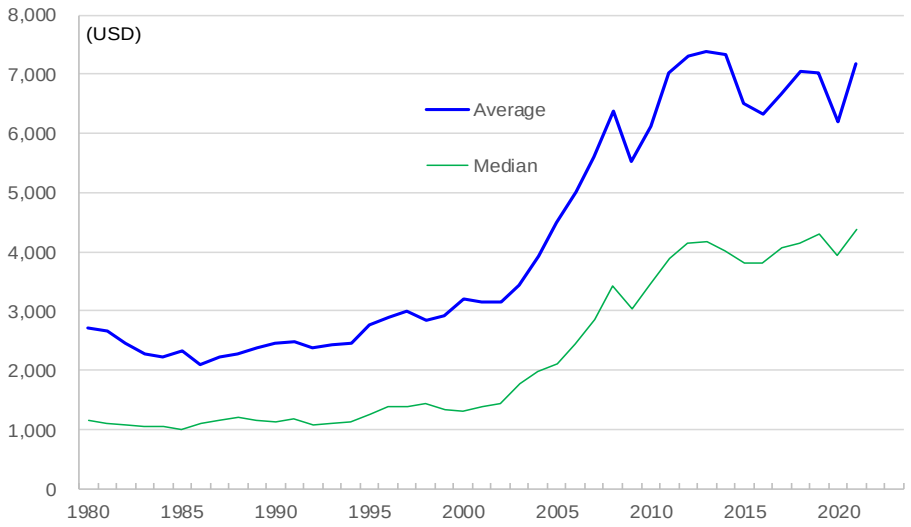
Symptoms of the demise of capitalism (6)



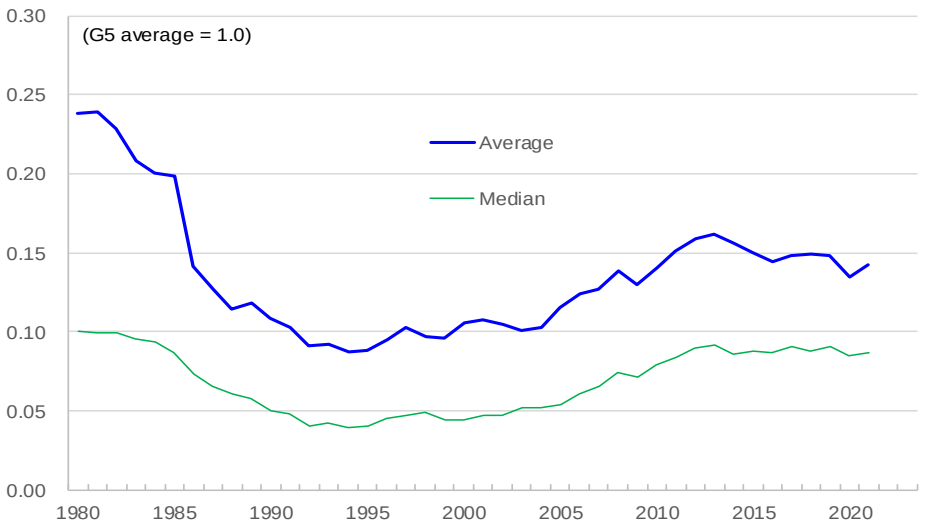
Note: Return on overseas assets = primary income debit / gross external liabilities (previous year-end).
Sources: CEIC Database, IMF, SBI SECURITIES.



Note: Data for early periods (1990s, early 2000s) in many EM countries are missing.
This could exaggerate the gap in capital flows between the early periods and the post-GFC period.
Sources: CEIC Database, IMF, SBI SECURITIES



Note: EM average is taken as a simple average from 153 countries.
Sources: IMF, SBI SECURITIES

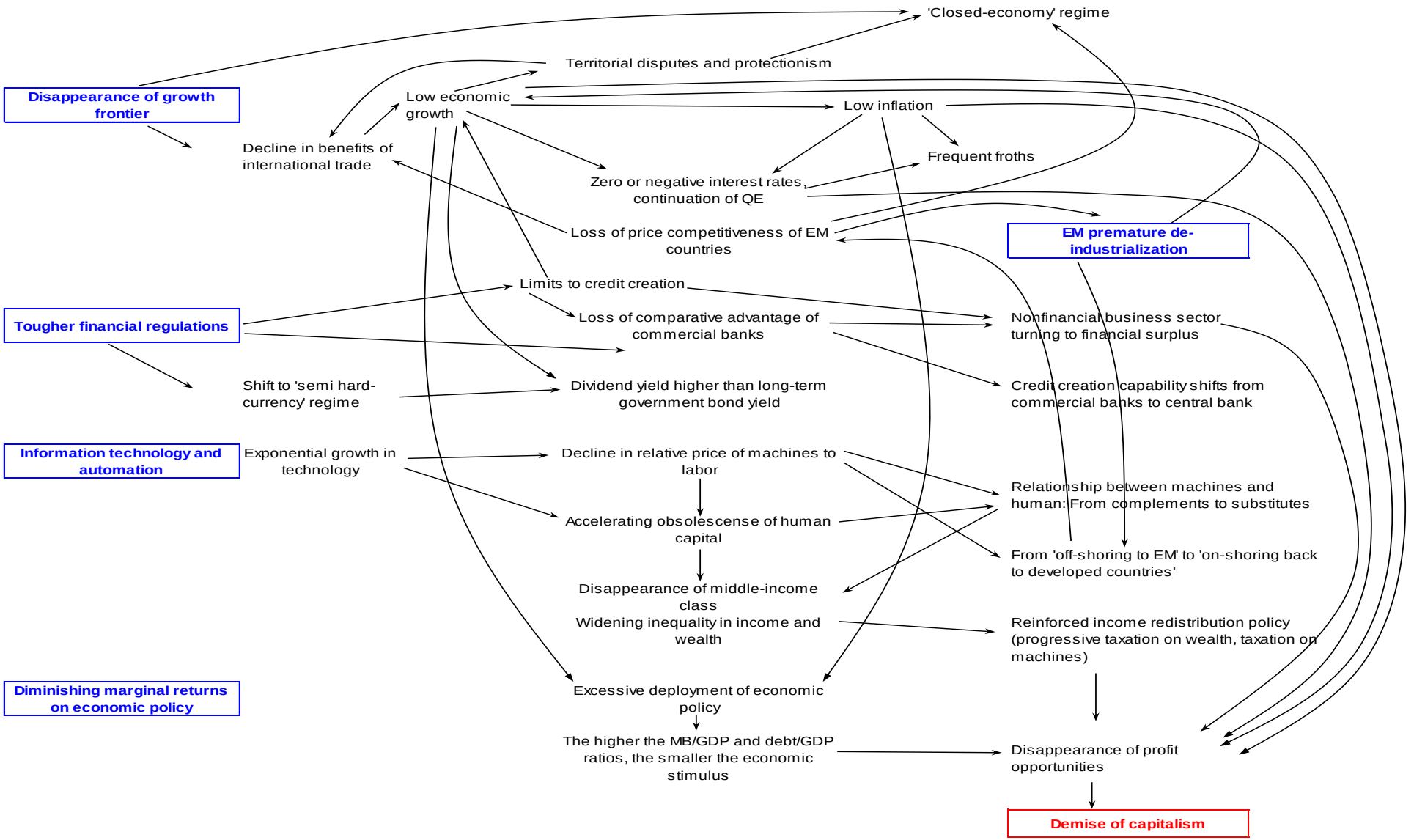


Note: EM average is taken as a simple average from 153 countries.
Sources: IMF, SBI SECURITIES

Five factors to reinforce 'self-defeating financial deepening'

Five factors to reinforce 'self-defeating financial deepening'

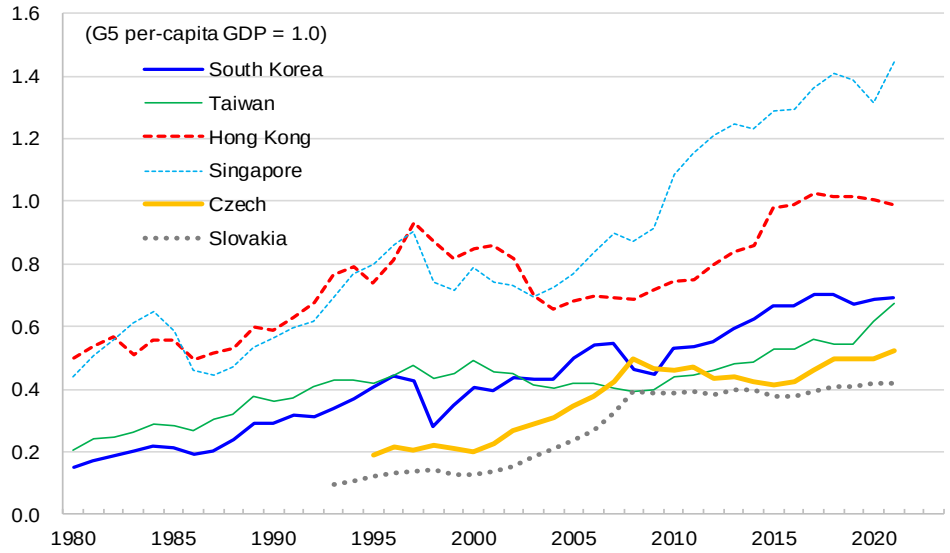
Demise of capitalism: Disappearance of profit opportunities
- 'Self-defeating financial deepening' as its precursor -



Source: SBI SECURITIES

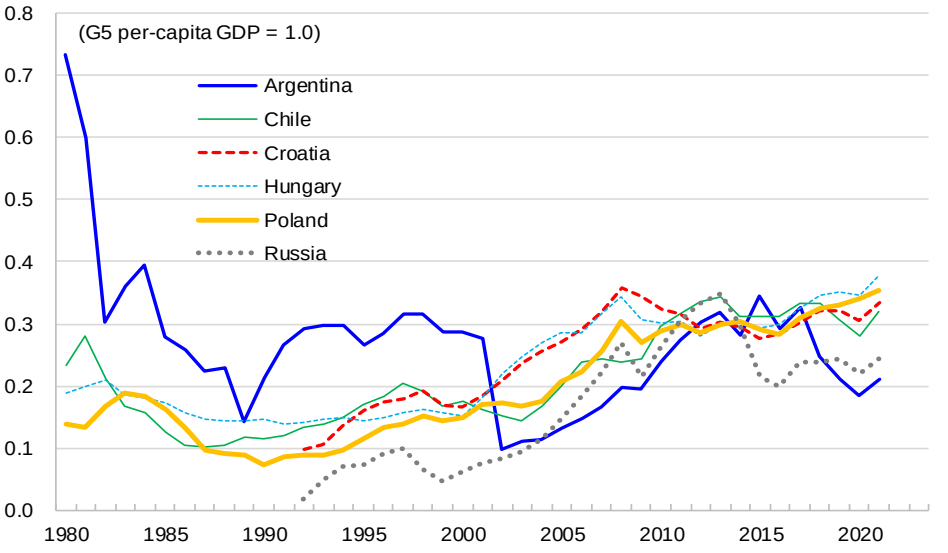
Disappearance of growth frontiers: Narrowing income disparity ended

Convergence of per-capita GDP to G5 (1)



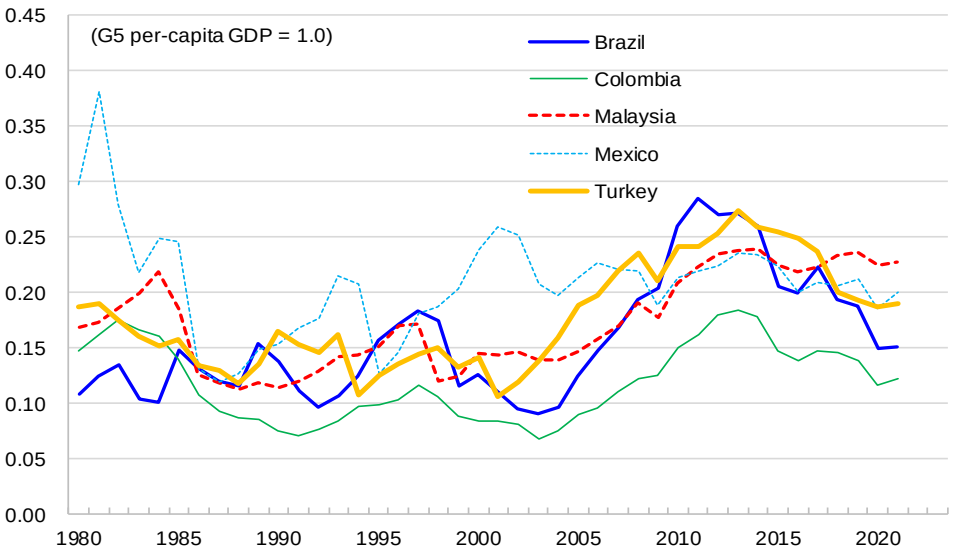
Sources: IMF, SBI SECURITIES

Convergence of per-capita GDP to G5 (2)



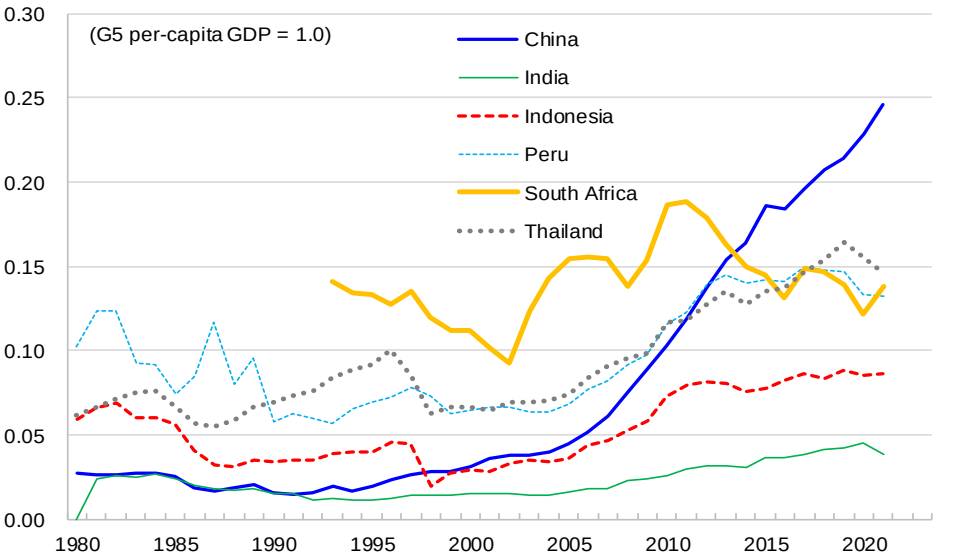
Sources: IMF, SBI SECURITIES

Convergence of per-capita GDP to G5 (3)



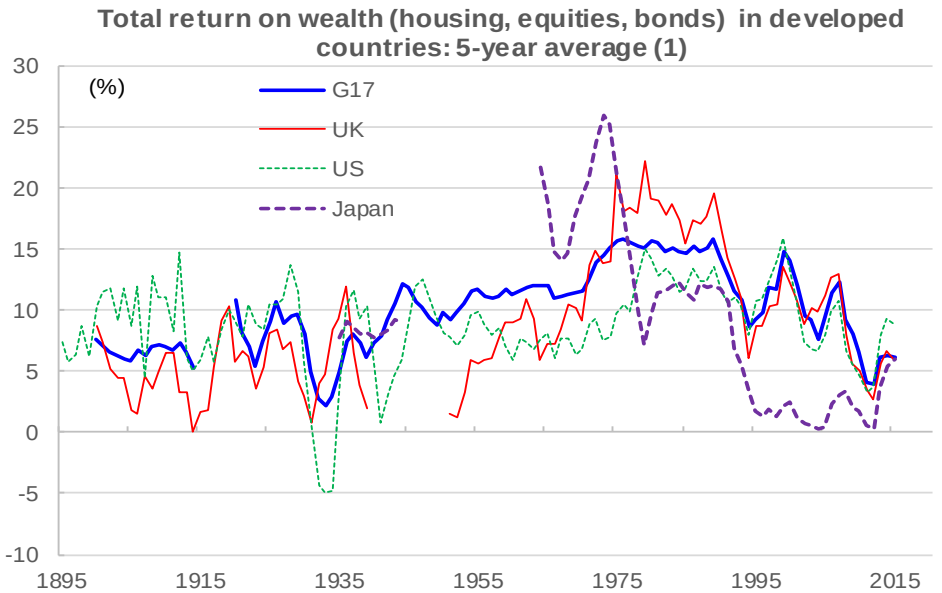
Sources: IMF, SBI SECURITIES

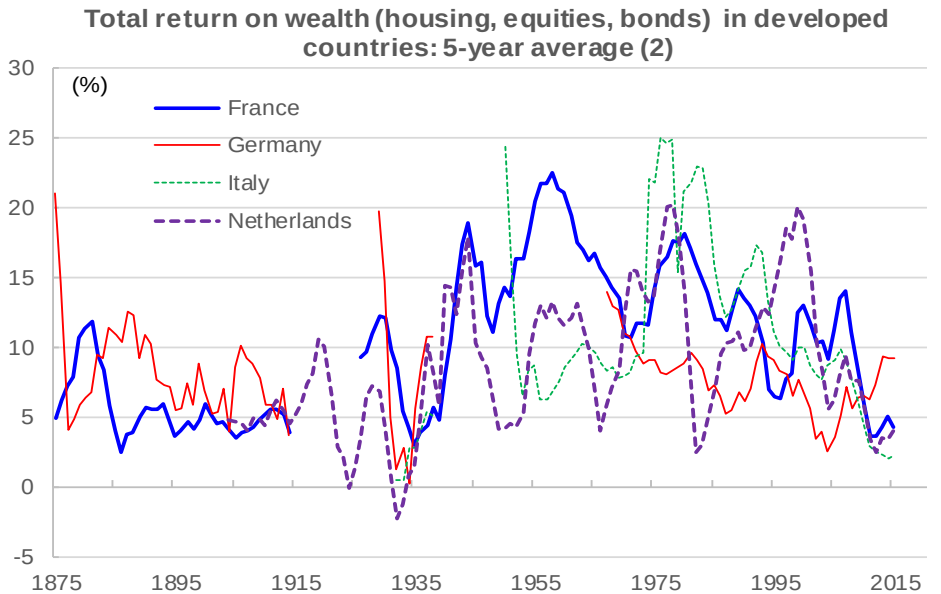
Convergence of per-capita GDP to G5 (4)

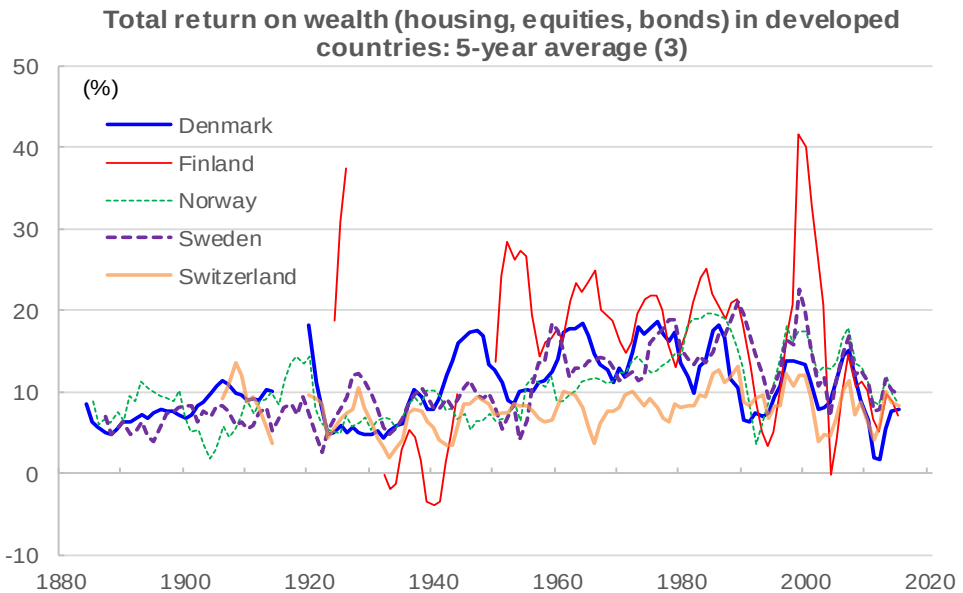


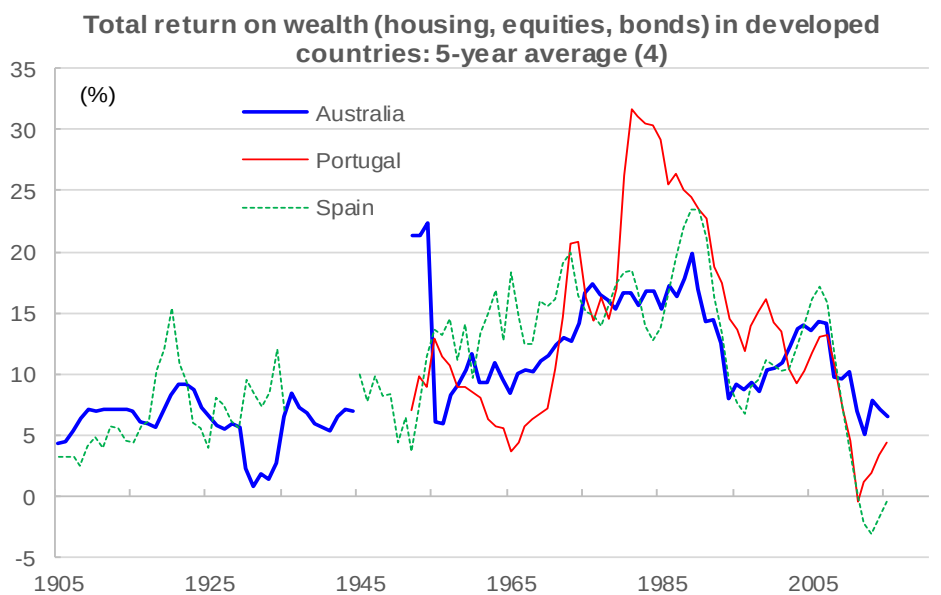
Sources: IMF, SBI SECURITIES

Secular decline in the total return on wealth in developed countries



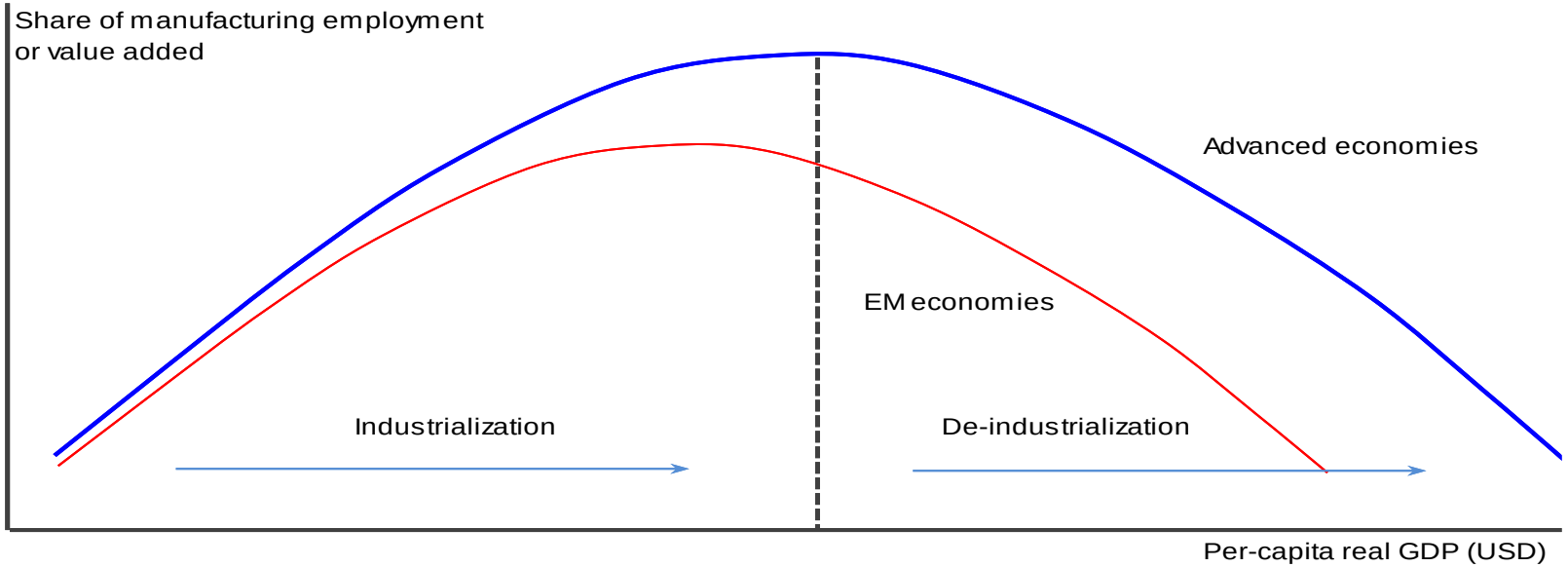




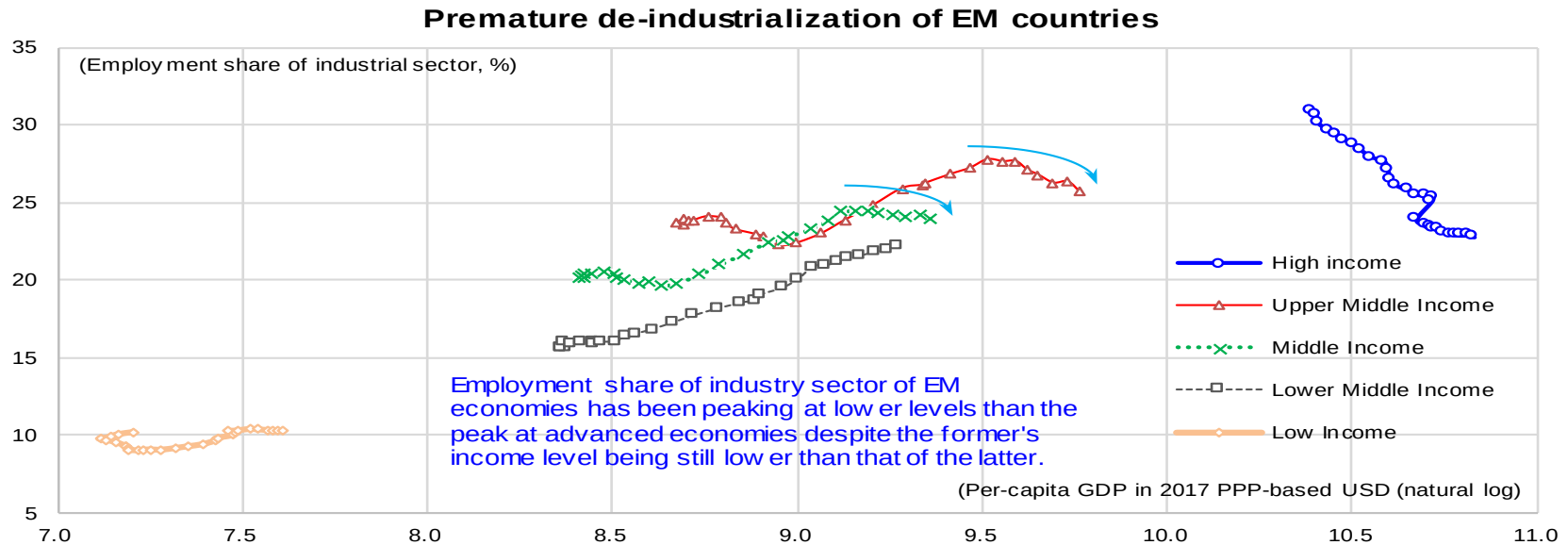


Sources: Òscar Jordà, Katharina Knoll, Dmitry Kuvshinov, Moritz Schularick, and Alan M. Taylor, "The Rate of Return on Everything, 1870-2015", Quarterly Journal of Economics, 134 (3), 1225-1298, August 2019. Downloaded as of August 27, 2021, SBI SECURITIES

Premature deindustrialization of EM economies (1)

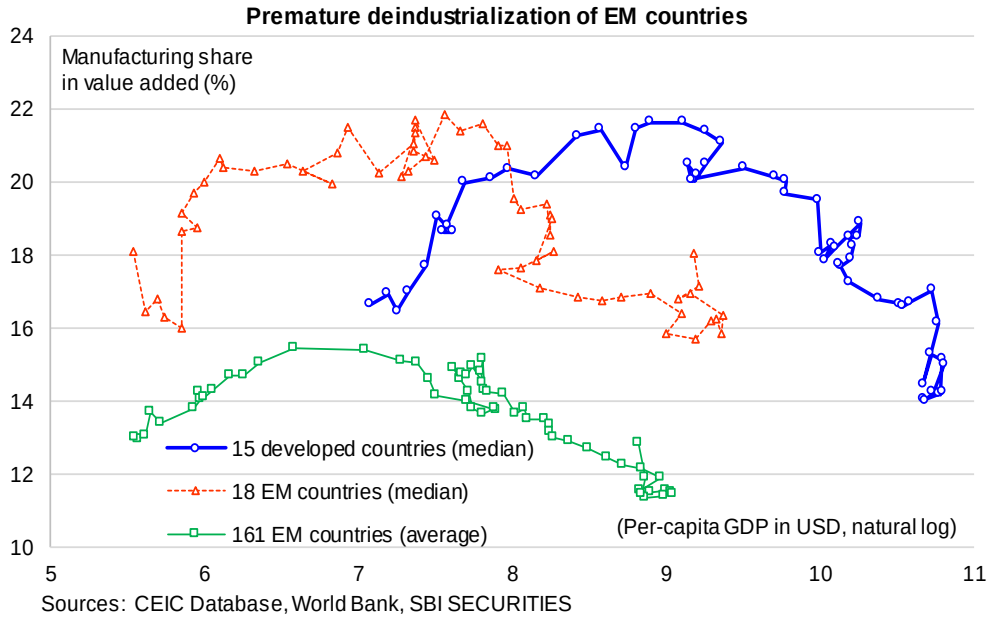


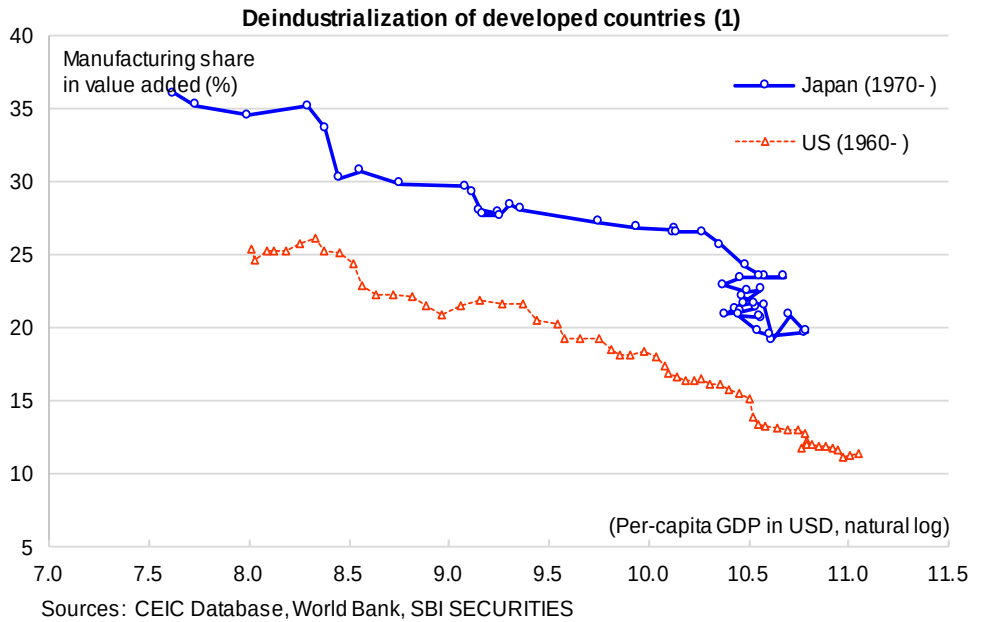
Source: SBI SECURITIES

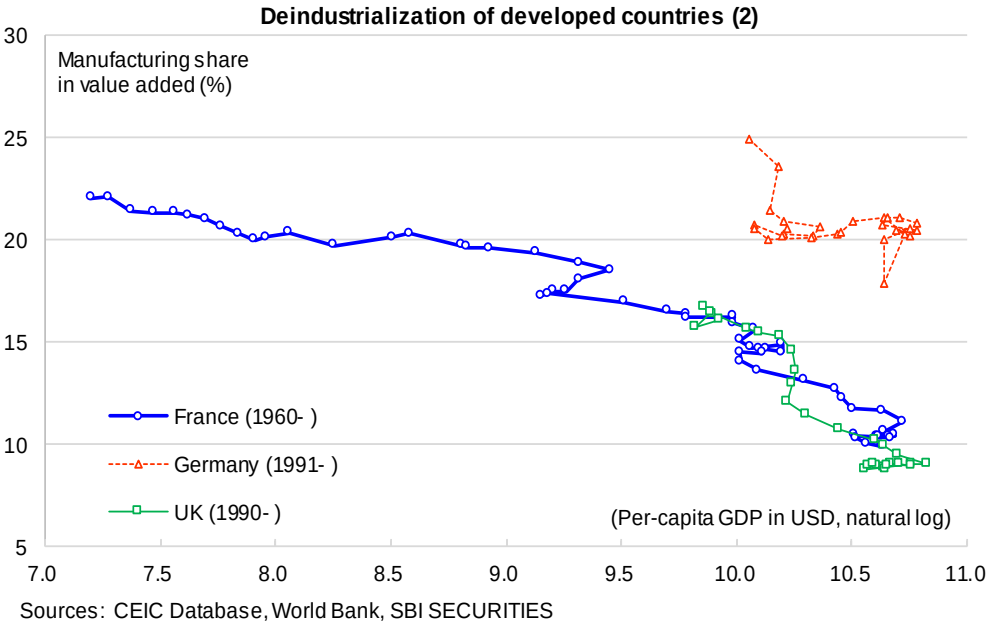


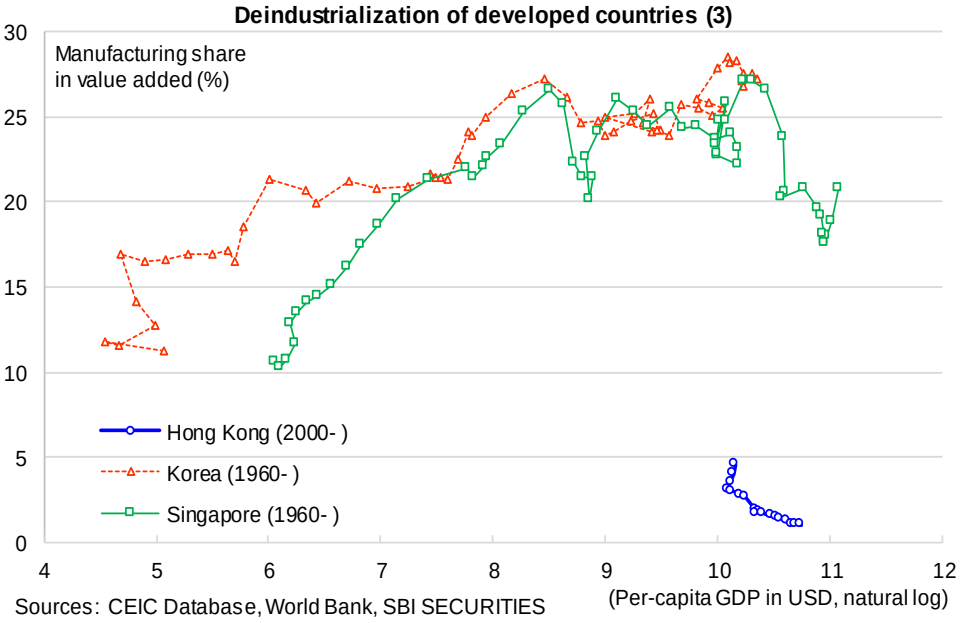
Notes: Industry sector includes manufacturing, mining and infrastructure. Sample period is 1991-2019.
Sources: CEIC Database, World Bank, SBI SECURITIES

Premature deindustrialization of EM economies (2)



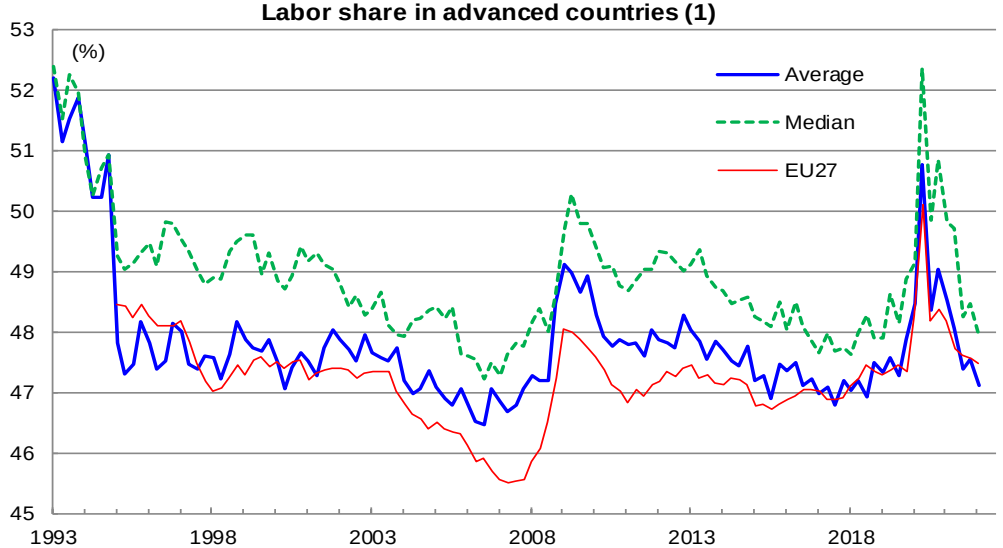






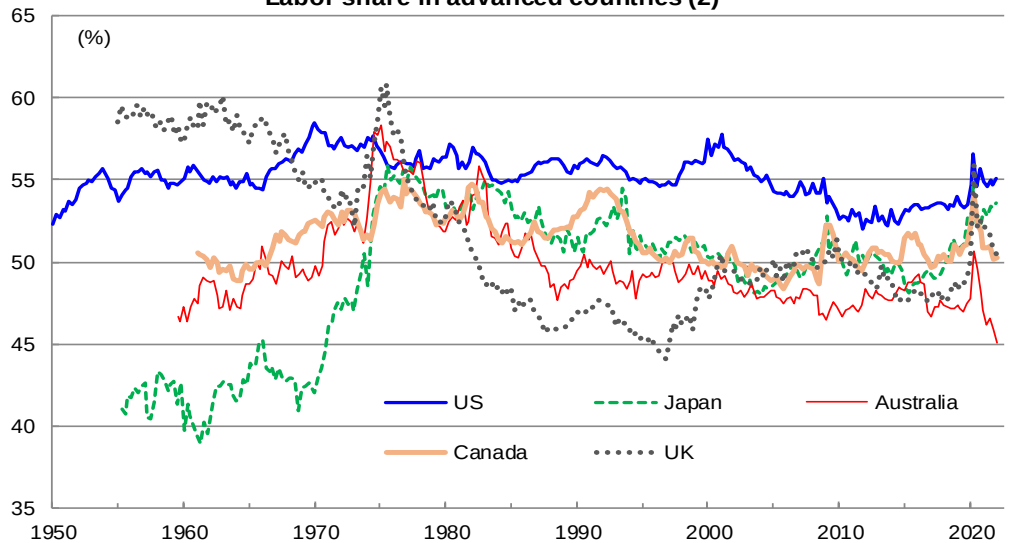
Labor share in major advanced economies: COVID-19 shock could raise the labor share

Labor share in advanced countries (1)



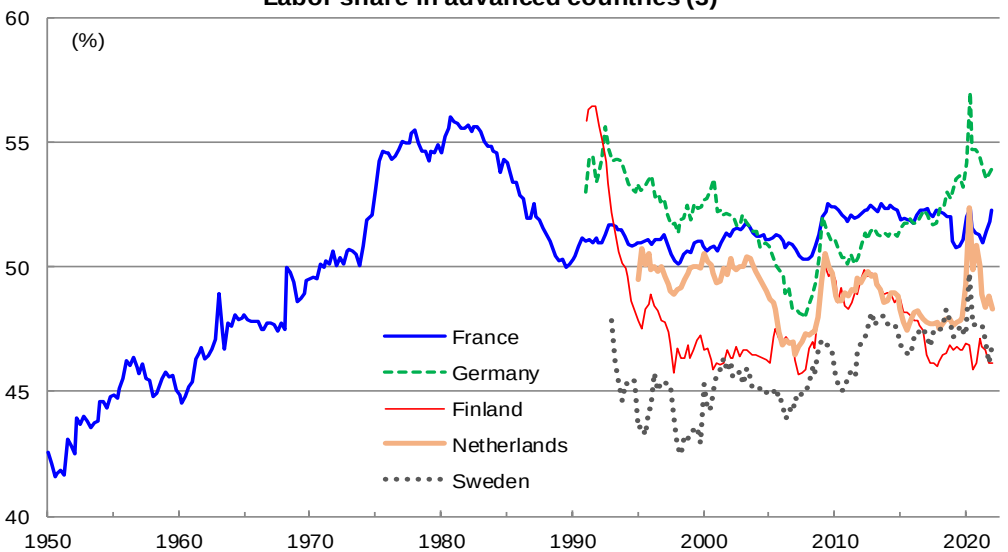
Notes: Average and median are obtained from 20 countries. Labor share = nominal compensation of employees / nominal GDP. Sources: CEIC Database, SBI SECURITIES

Labor share in advanced countries (2)



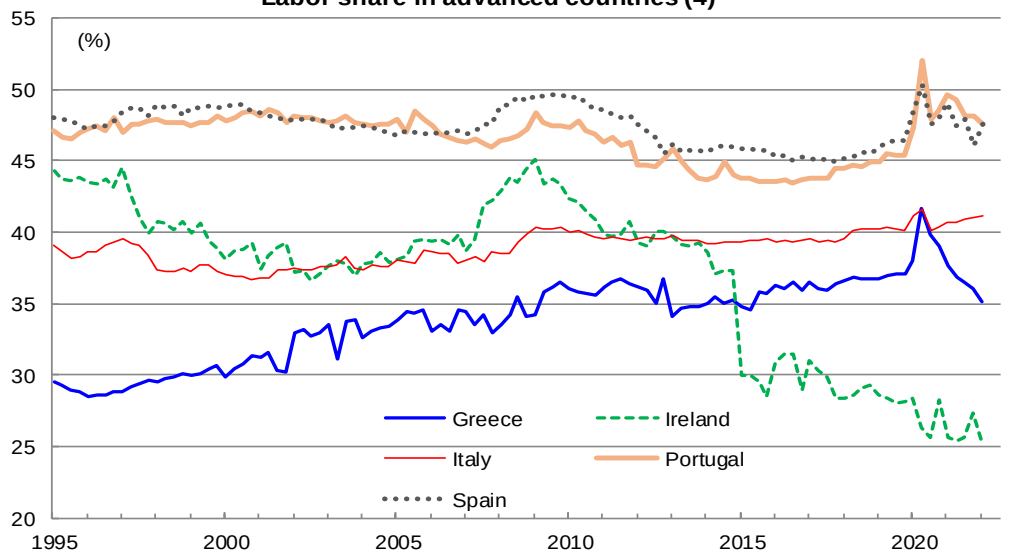
Note: Labor share = nominal compensation of emloyees / nominal GDP.
Sources: CEIC Database, SBI SECURITIES

Labor share in advanced countries (3)



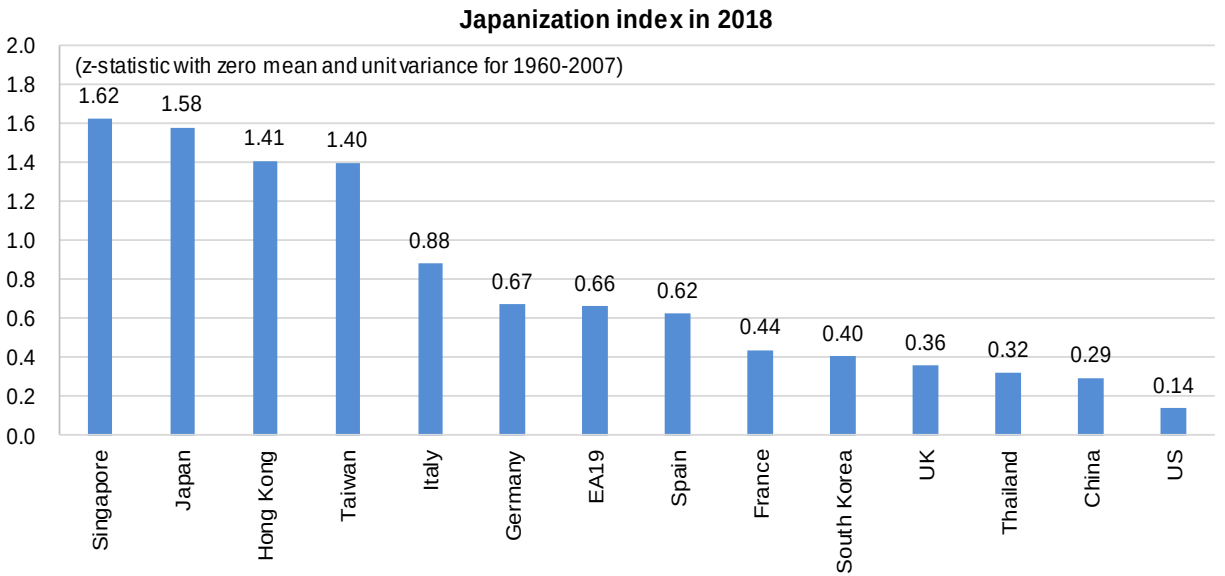
Note: Labor share = nominal compensation of emloyees / nominal GDP.
Sources: CEIC Database, SBI SECURITIES

Labor share in advanced countries (4)



Note: Labor share = nominal compensation of emloyees / nominal GDP.
Sources: CEIC Database, SBI SECURITIES

Japanization index (1)



Notes: This index consists of 11 indicators that are normalized to follow a standard normal distribution with zero mean and unit variance for observations in 1960-2007. Sources: CEIC Database, BIS, IMF, World Bank, national sources, SBI SECURITIES.

Components of Japanization index: 11 series

Total fertility rate
Net international investment position (% of GDP)
Current account balance (% of GDP)
General government gross debt (% of GDP)
CPI inflation (%)
Per-capita real GDP (USD in 2011 prices)
Nominal policy rate (%)
Nominal GDP growth (%, 5-year annualized)
Trade specialization index
Total assets of central banks (% of GDP)
Financial surplus/deficit of nonfinancial businesses (% of GDP)

Source: SBI SECURITIES

Various aspects of Japanization

1) Collapse of the large-scale bubble since the end of the 1980s

2) Inadequate policy responses, including subsequent unintended monetary tightening

3) Declines in inflation and nominal GDP growth into a negative territory

4) A decline in nominal interest rates followed by unconventional monetary easing

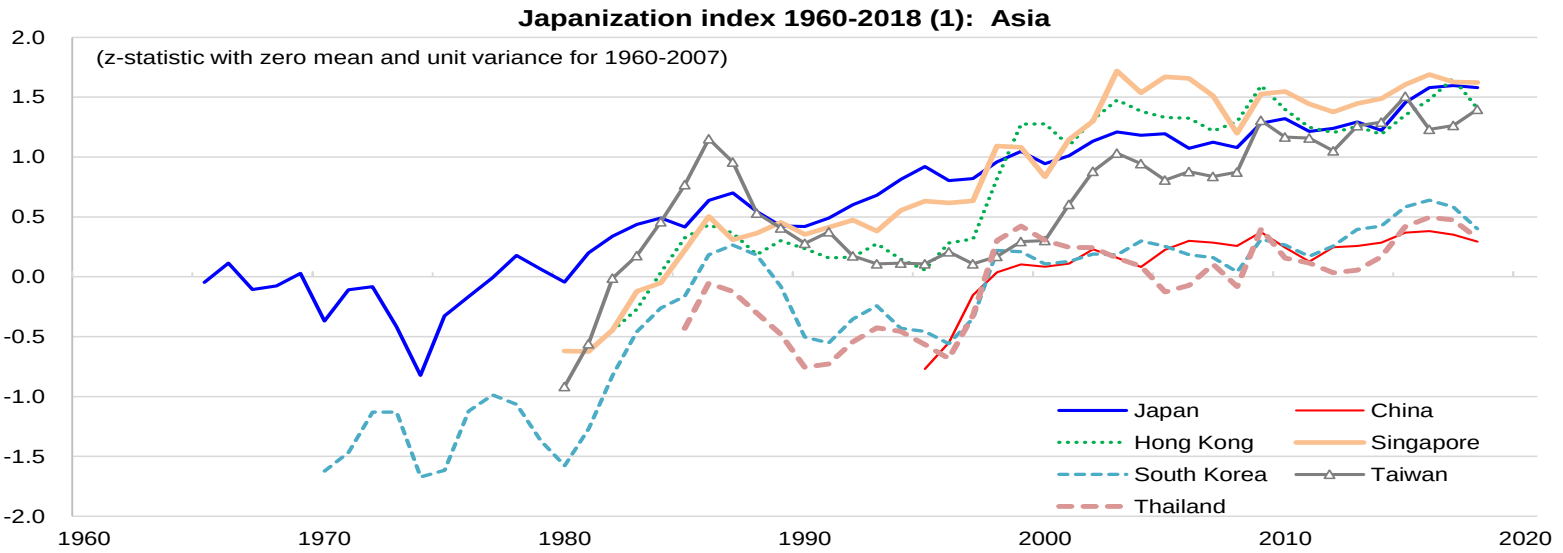
5) Repeated fiscal stimuli and resulting accumulation of the government debt

6) The declining birth rate and the aging population

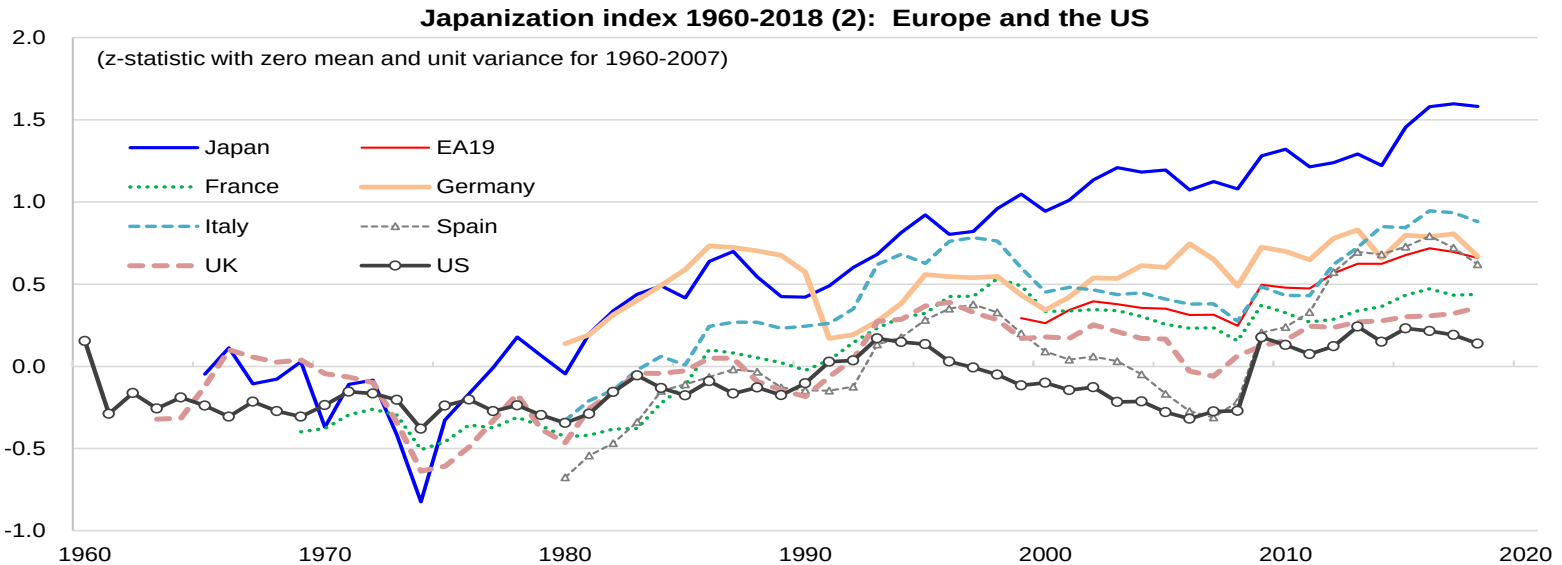
7) Continuing current account surplus and an expansion in net foreign assets

8) Lack of large-scale shocks which accompanied the Latin American debt crises in the 1980s and the euro crisis in the early 2010s (currency depreciation, capital flights, and fiscal tightening)

Japanization index (2)



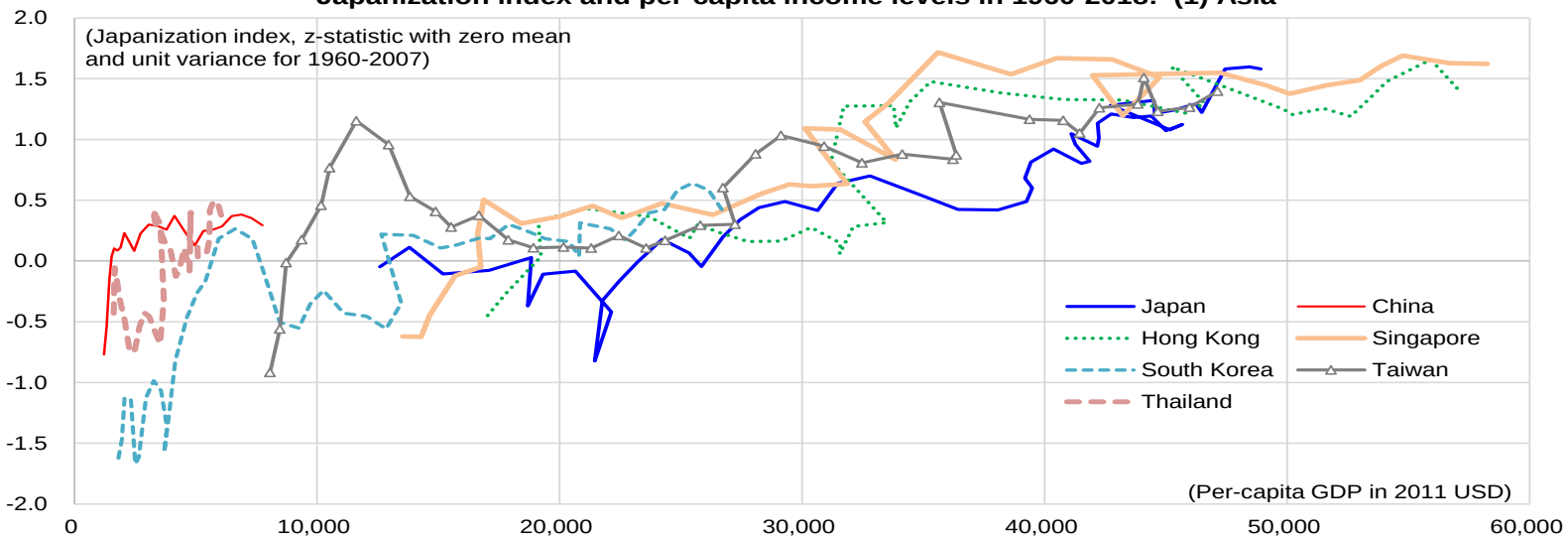
Notes: This index consists of 11 indicators that are normalized to follow a standard normal distribution with zero mean and unit variance for observations in 1960-2007. Sources: CEIC Database, BIS, IMF, World Bank, national sources, SBI SECURITIES.



Notes: This index consists of 11 indicators that are normalized to follow a standard normal distribution with zero mean and unit variance for observations in 1960-2007. Sources: CEIC Database, BIS, IMF, World Bank, national sources, SBI SECURITIES.

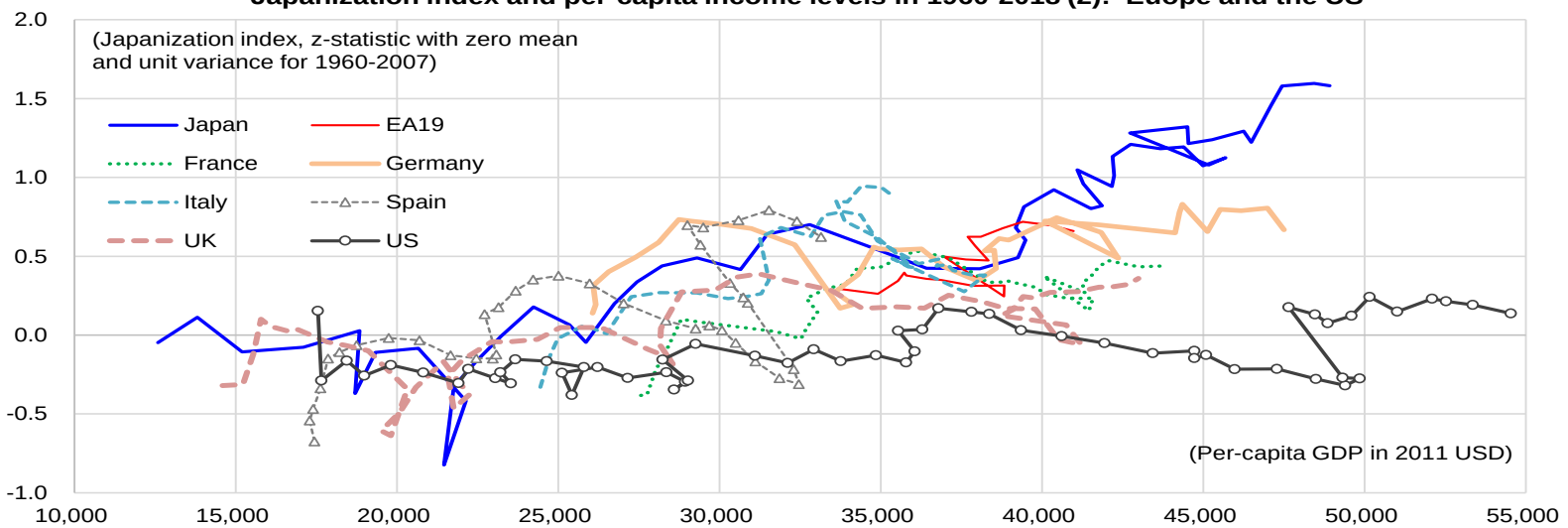
Japanization index (3)

Japanization index and per-capita income levels in 1960-2018: (1) Asia



Notes: This index consists of 11 indicators that are normalized to follow a standard normal distribution with zero mean and unit variance for observations in 1960-2007. The start year varies by country.
Sources: CEIC Database, BIS, IMF, World Bank, national sources, SBI SECURITIES.

Japanization index and per-capita income levels in 1960-2018 (2): Euope and the US

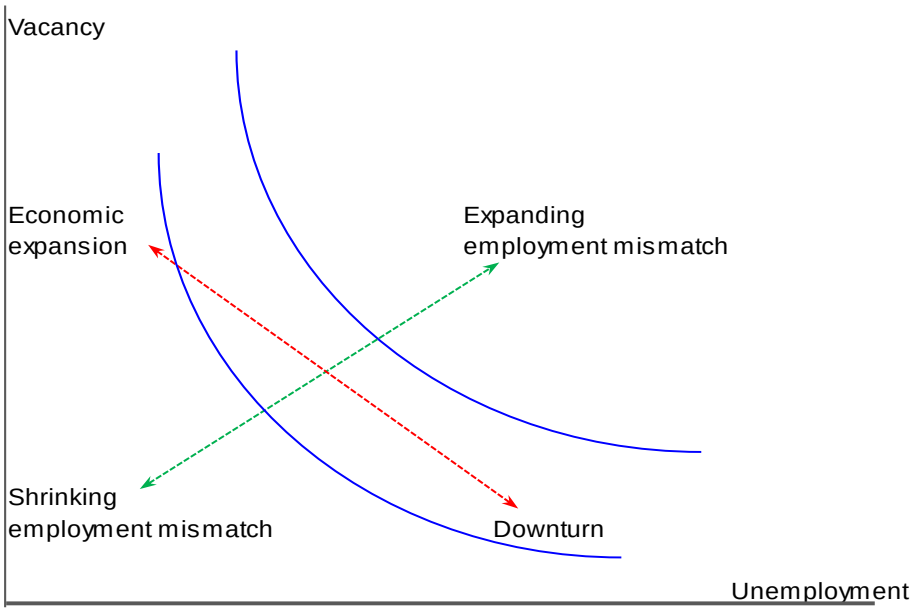


Notes: This index consists of 11 indicators that are normalized to follow a standard normal distribution with zero mean and unit variance for observations in 1960-2007. The start year varies by country.
Sources: CEIC Database, BIS, IMF, World Bank, national sources, SBI SECURITIES.

Reallocation shock and employment mismatch (1)

1. The pandemic induced a reallocation shock which forces shifts of factor inputs (labor, capital, and technology) through the shift in demand across industries (this trend has been in place over the last 10–15 years with the progress in information technology and automation, but has been accelerated by the COVID-19 shock).
2. The relationship between labor and capital is changing from complements to substitutes.
3. Industries facing a permanent decline in demand tend to be labor-intensive. Industries facing a permanent increase in demand tend to be labor-replacing. This lowers the ability of labor-intensive industries to create jobs and brings down the labor force participation rate.
4. A reallocation shock accompanies 1) an expansion in employment mismatch, 2) a rise in the natural unemployment rate, 3) a decline in the potential growth, and 4) an expansion in the dispersion of stock price returns across industries.
5. During this transition, the supply side cannot catch up with the speed of the shift of demand across industries, resulting in disequilibrium between supply and demand.
6. In goods and services markets and the labor market where demand exceeds supply, upward forces on prices and wages are likely to emerge.
7. However, higher wage growth in industries where demand has permanently declined is unlikely to be sustained.

Beveridge curve (UV curve)



Sources: SBI SECURITIES.

- Beveridge curve (or UV curve): the vacancy rate on the vertical axis and the unemployment rate on the horizontal axis. A shift of the Beveridge curve towards the top-right indicates an expanding employment mismatch while a shift towards the origin indicates a narrowing employment mismatch.
- A permanent rise in demand for some industries and a permanent decline in demand for some other industries show up as a rise in dispersion of stock returns across industries.

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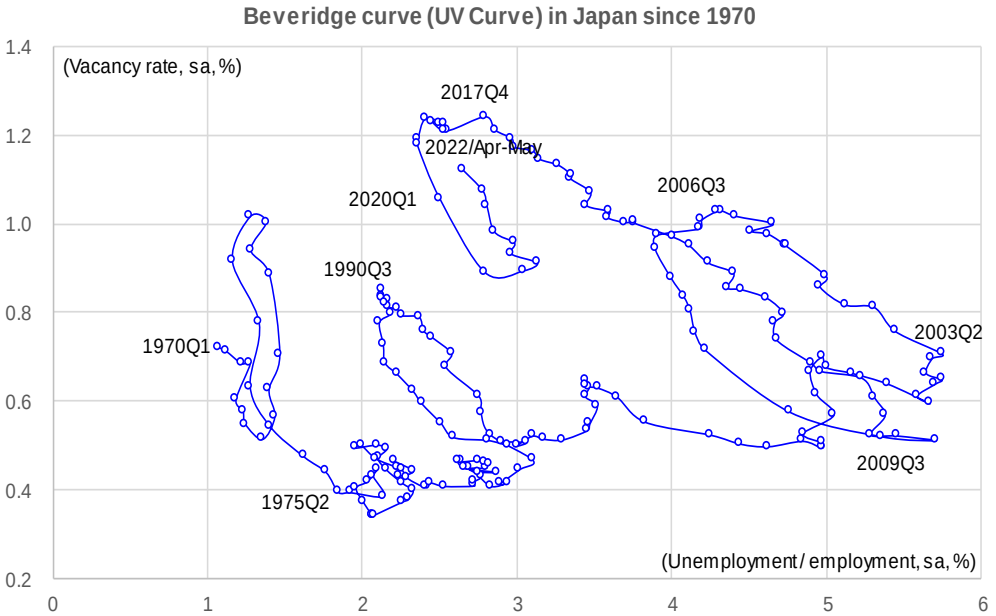
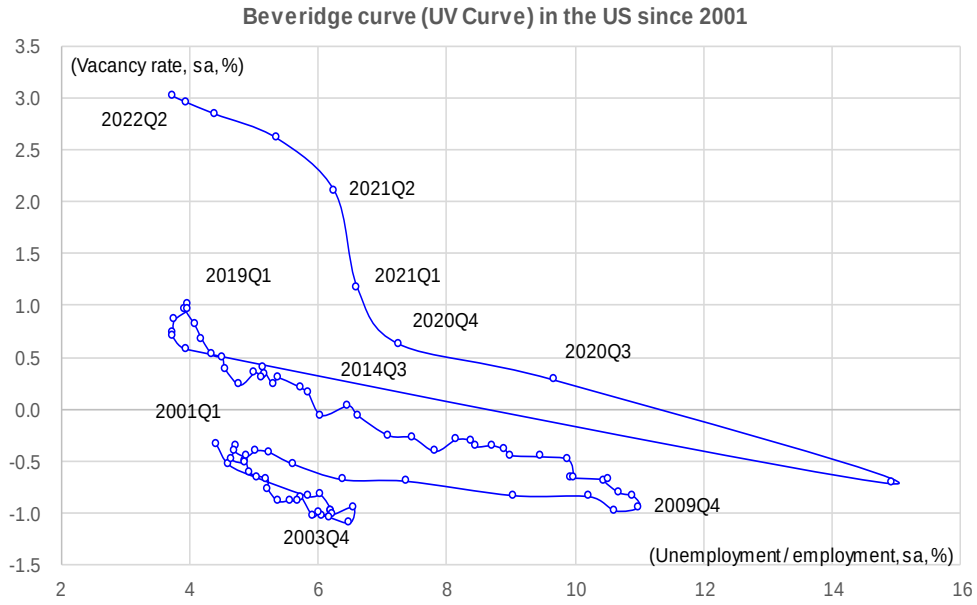
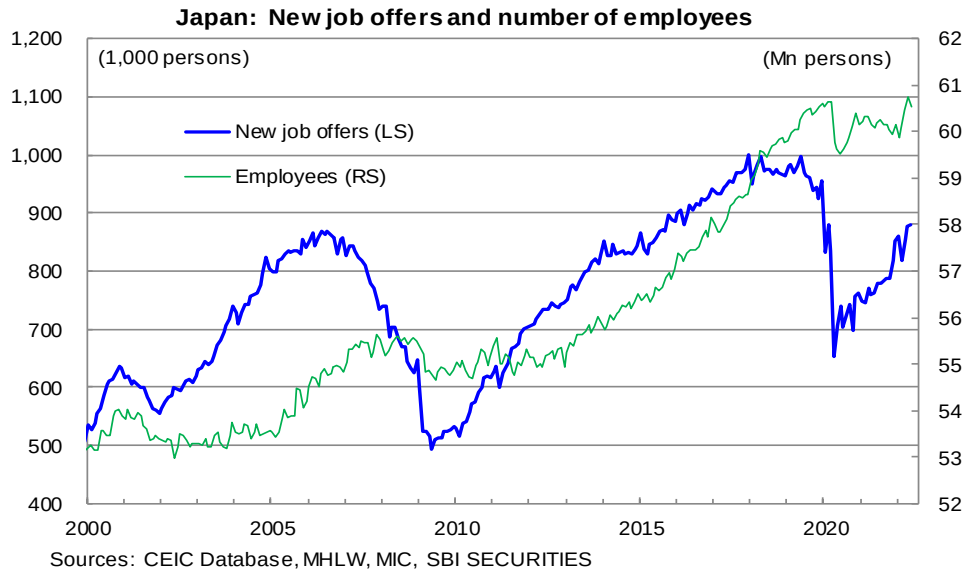
Reallocation shock and employment mismatch (2)



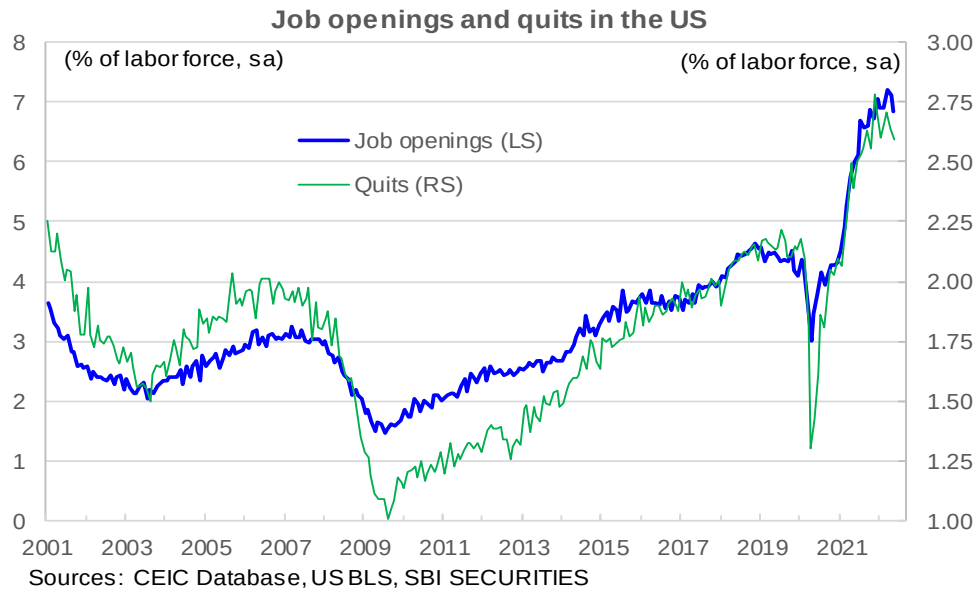
Note: Vacancy rate = (new job offers - jobs filled) / labor force. Sources: CEIC Database, MHLW, SBI SECURITIES.



Note: Vacancy rate = (job openings - hires) / labor force. Sources: CEIC Database, US BLS, SBI SECURITIES.



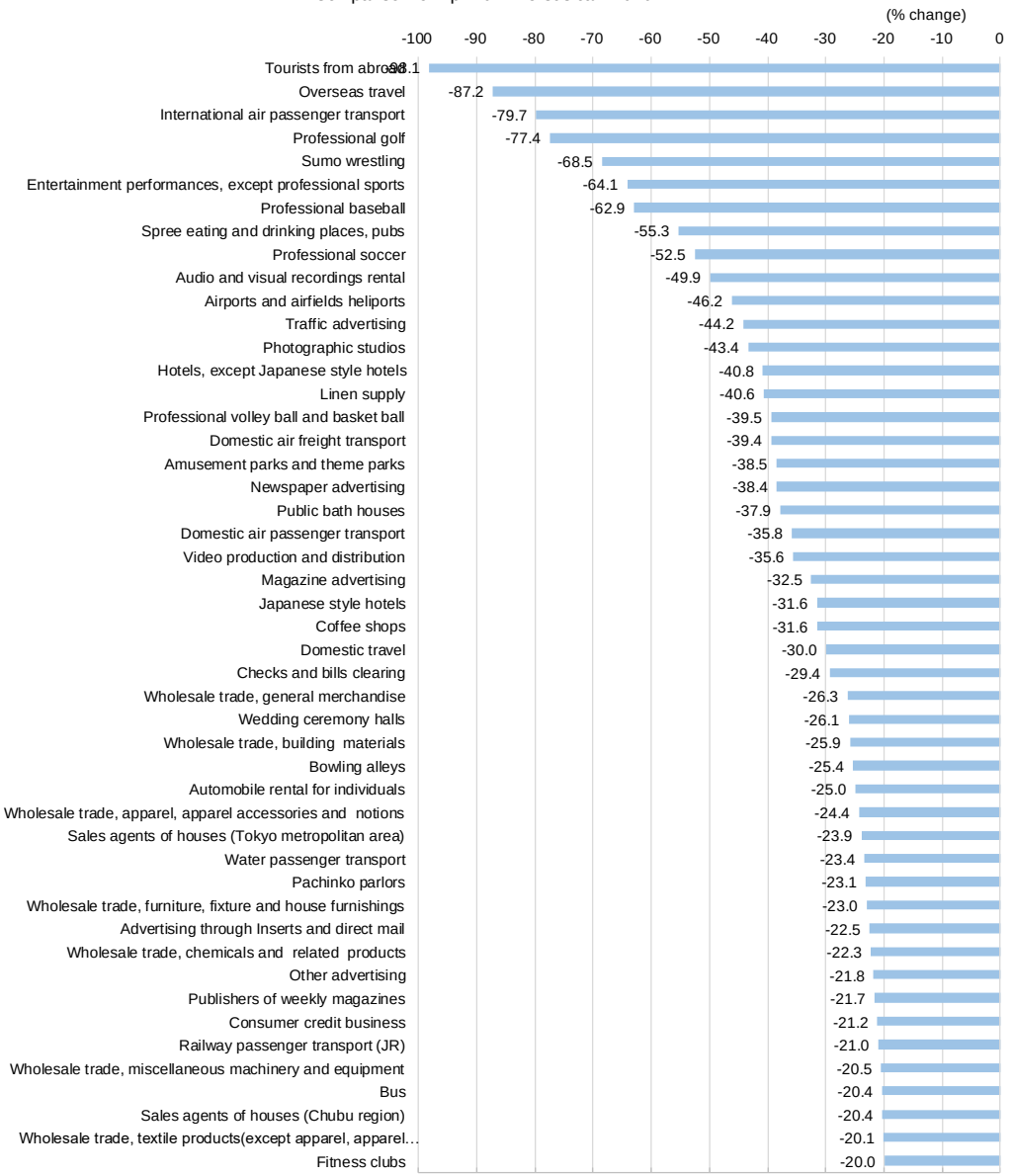
Sources: CEIC Database, MHLW, MIC, SBI SECURITIES



Sources: CEIC Database, US BLS, SBI SECURITIES

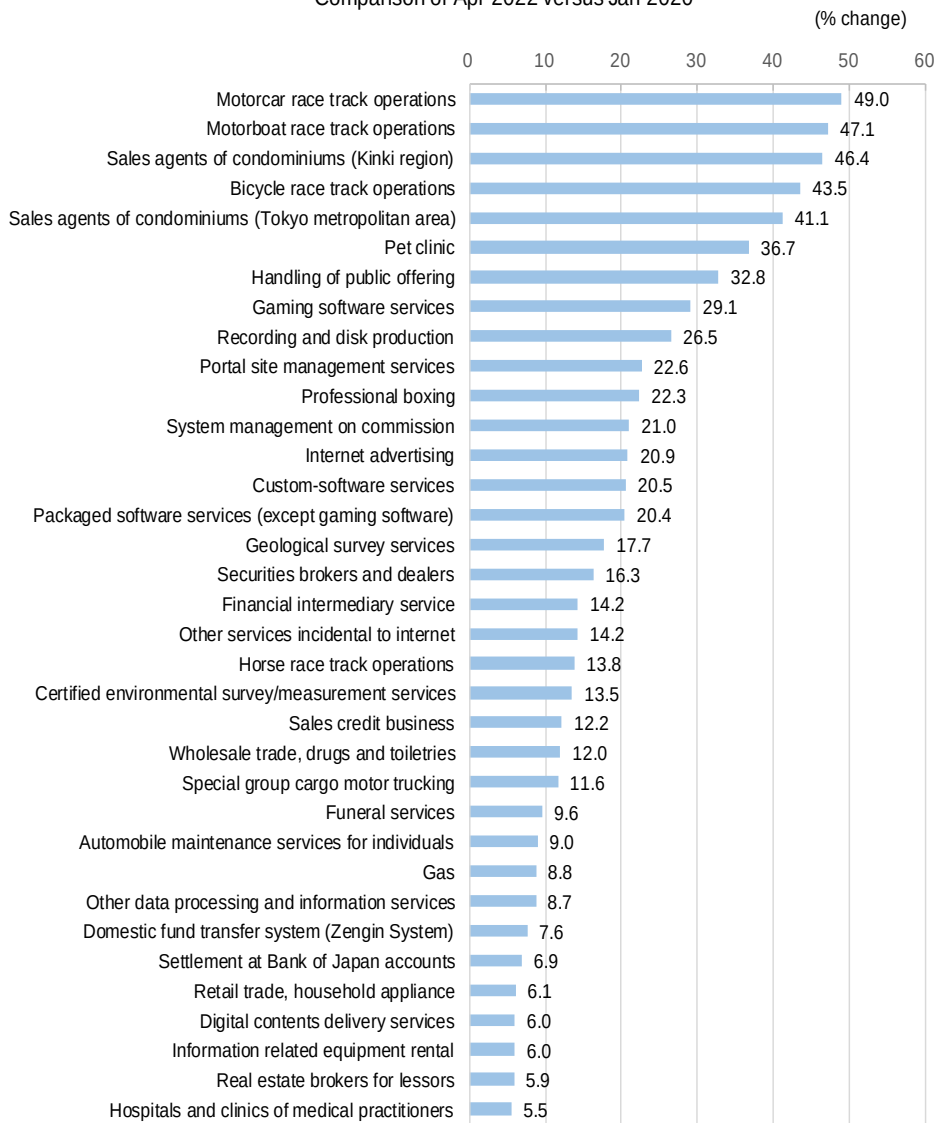
Pandemic-induced shift in demand in Japan: Supply-side statistics (Tertiary Industry Activity Index)

Declines in Japan's tertiary industry activity index
Comparison of Apr 2022 versus Jan 2020



Note: Industries whose activity level declined more than 20% from January 2020 to April 2022.
Sources: METI, SBI SECURITIES

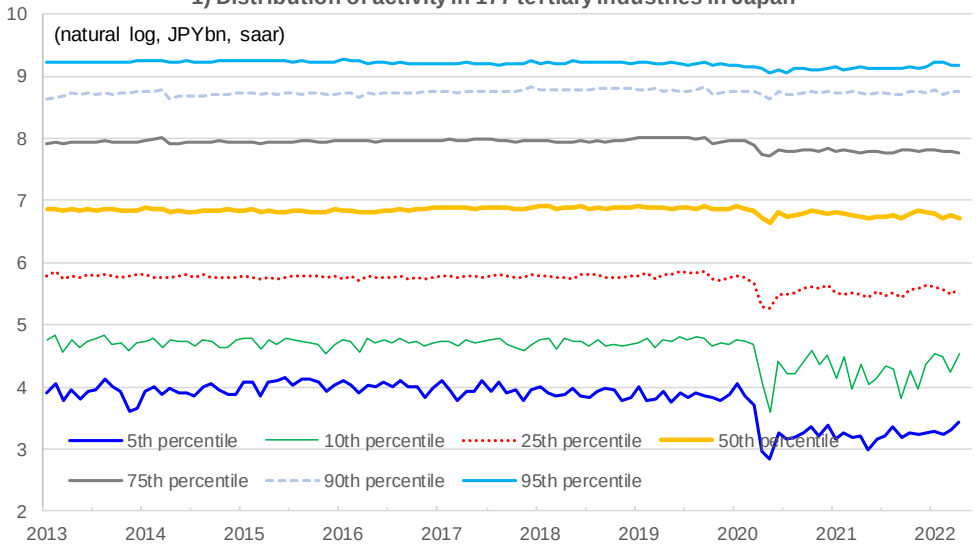
Increases in Japan's tertiary industry activity index
Comparison of Apr 2022 versus Jan 2020



Note: Industries whose activity level rose more than 5% in Apr 2022 from January 2020.
Sources: METI, SBI SECURITIES

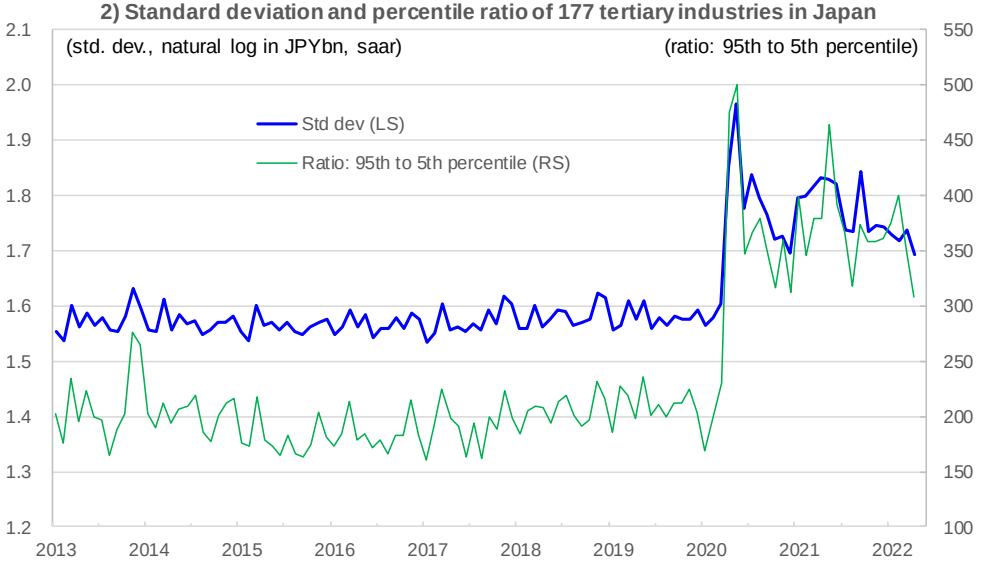
Ongoing shifts in demand across industries in Japan

1) Distribution of activity in 177 tertiary industries in Japan



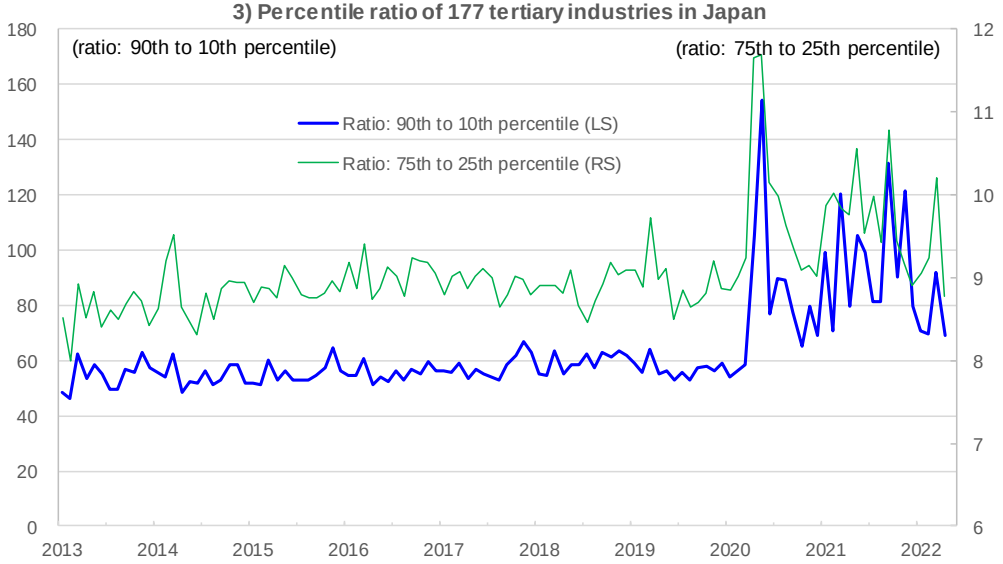
Note: Based on 177 tertiary industries, converted to JPYbn using 2015 GDP by industry.
Sources: METI, SBI SECURITIES

2) Standard deviation and percentile ratio of 177 tertiary industries in Japan



Note: Based on 177 tertiary industries, converted to JPYbn using 2015 GDP by industry.
Sources: METI, SBI SECURITIES

3) Percentile ratio of 177 tertiary industries in Japan



Note: Based on 177 tertiary industries, converted to JPYbn using 2015 GDP by industry.
Sources: METI, SBI SECURITIES

- A large jump in the standard deviation in activity of 177 tertiary industries and large jumps in the percentile ratios following the onset of the pandemic indicate an unprecedented shift of demand across industries, which is continuing to date.

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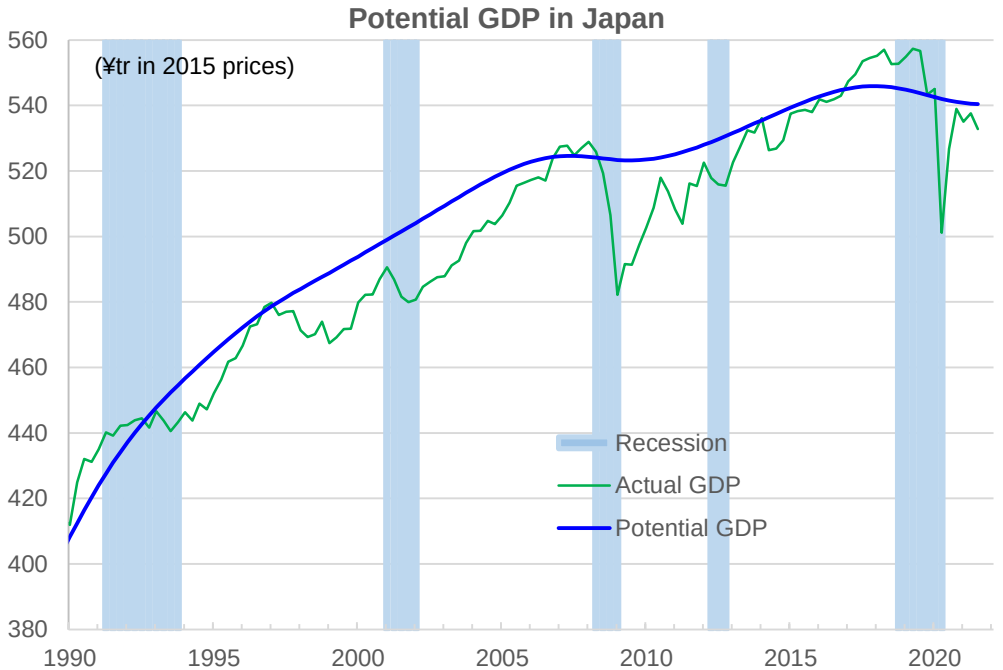
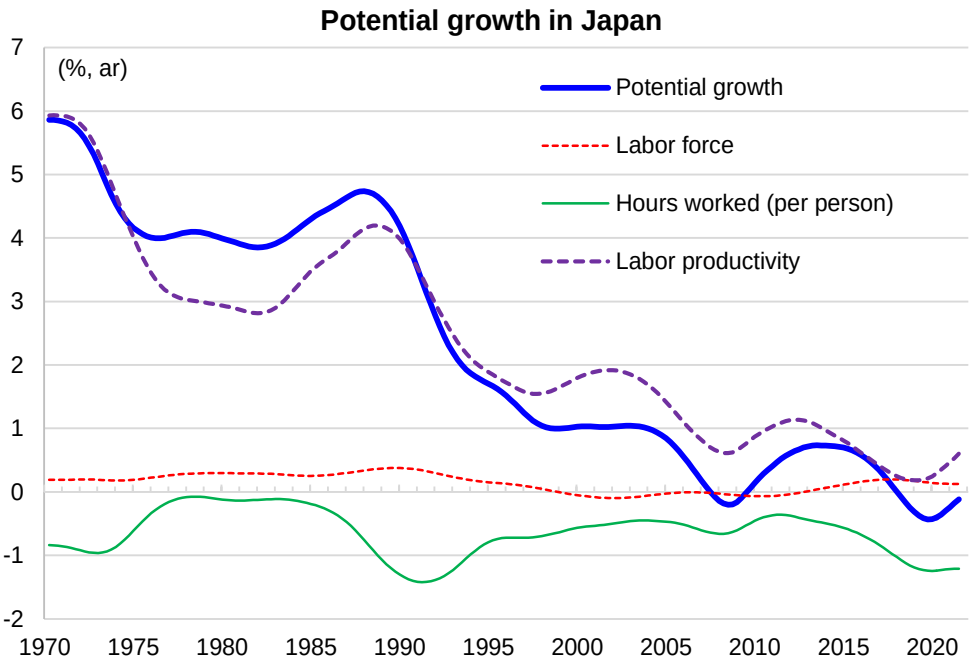
A downward shift in the economy's potential GDP and potential growth



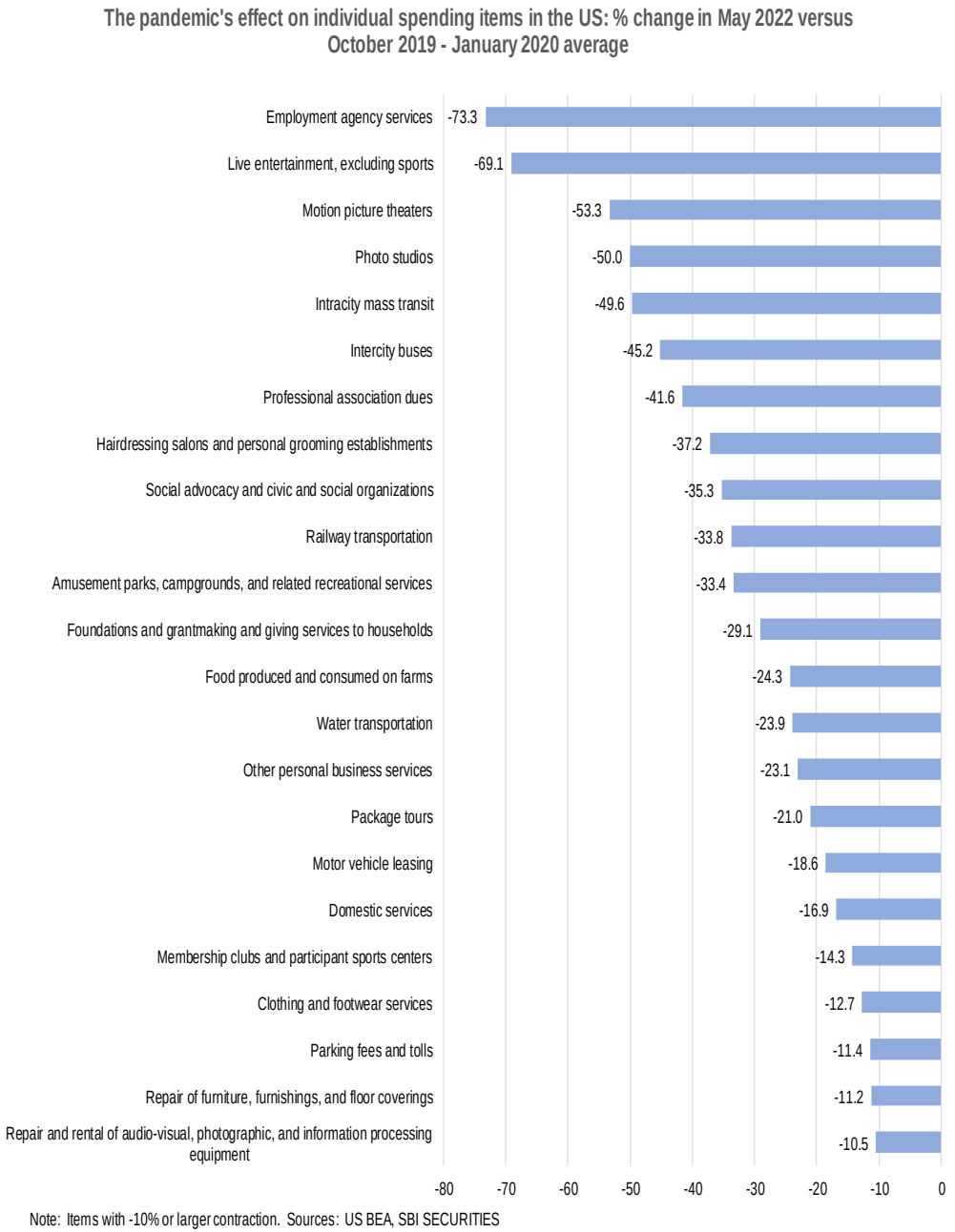
Notes: We assumed that actual and potential GDP were equal to each other in 1Q 1980. Potential growth = growth of workers + growth of hours worked (per person) + labor productivity growth. Sources: CEIC Database, Cabinet Office, MHLW, MIC, SBI SECURITIES.



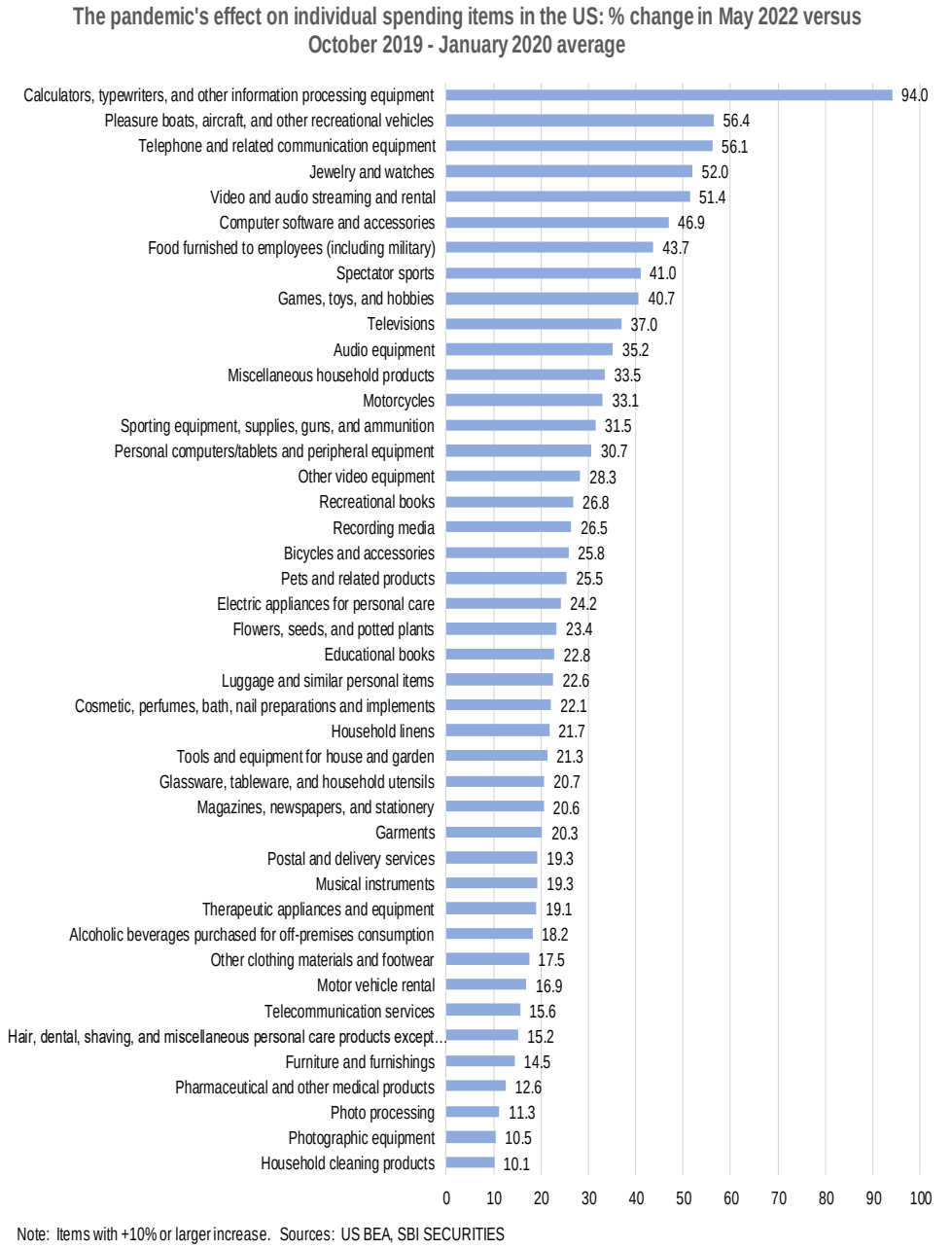
Note: We assumed that potential GDP and actual GDP were equal in 1Q 1980. Potential growth = growth of workers + growth of hours worked (per person) + labor productivity growth
Sources: CEIC Database, Cabinet Office, MIC, MHLW, SBI SECURITIES

- The economy's potential GDP is to shift downward by the scale of the permanent disappearance of aggregate demand (by 2.0%–2.8% of GDP).
- A zigzag path in economic activity kicks in before the economy reaches the new potential GDP level, with a slowing rate of economic recovery.
- A change in the relationship between labor and capital from complements to substitutes might limit the decline in labor productivity, but at the expense of a large decline in the labor input.

Shift in demand by the pandemic in US personal consumption expenditures: rate of change



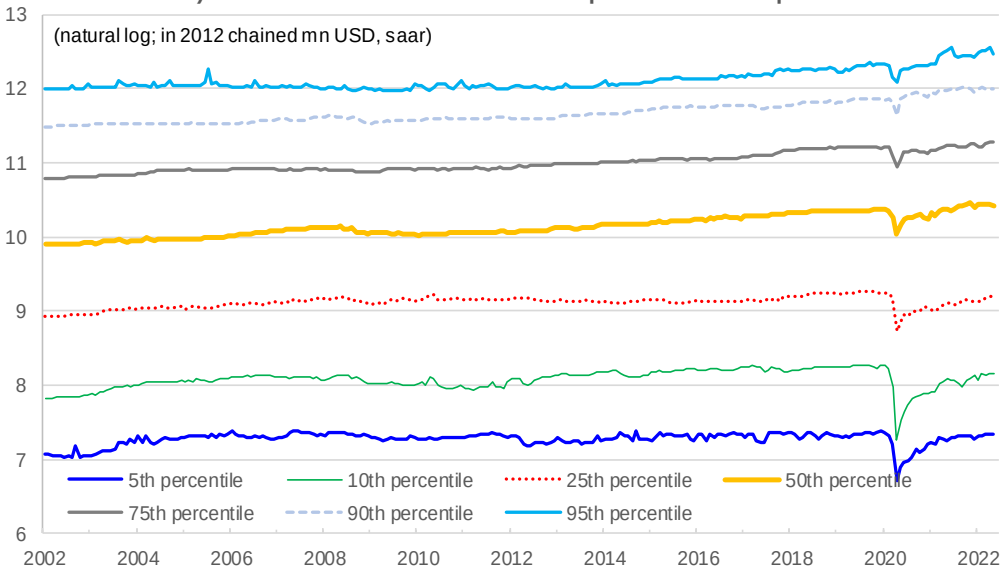
Note: Items with -10% or larger contraction. Sources: US BEA, SBI SECURITIES



Note: Items with +10% or larger increase. Sources: US BEA, SBI SECURITIES

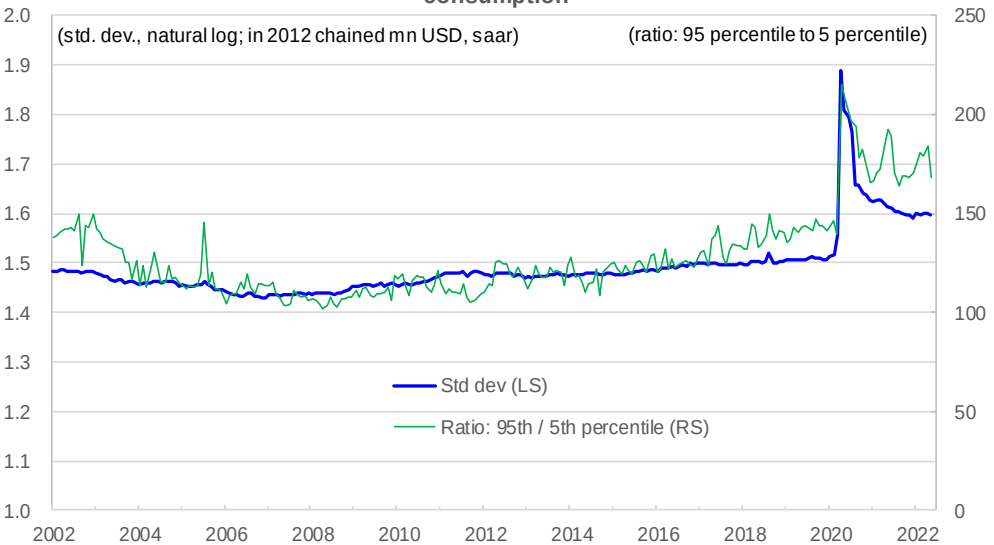
Ongoing shifts in US consumption across items

1) Distribution of 244 items in US real personal consumption



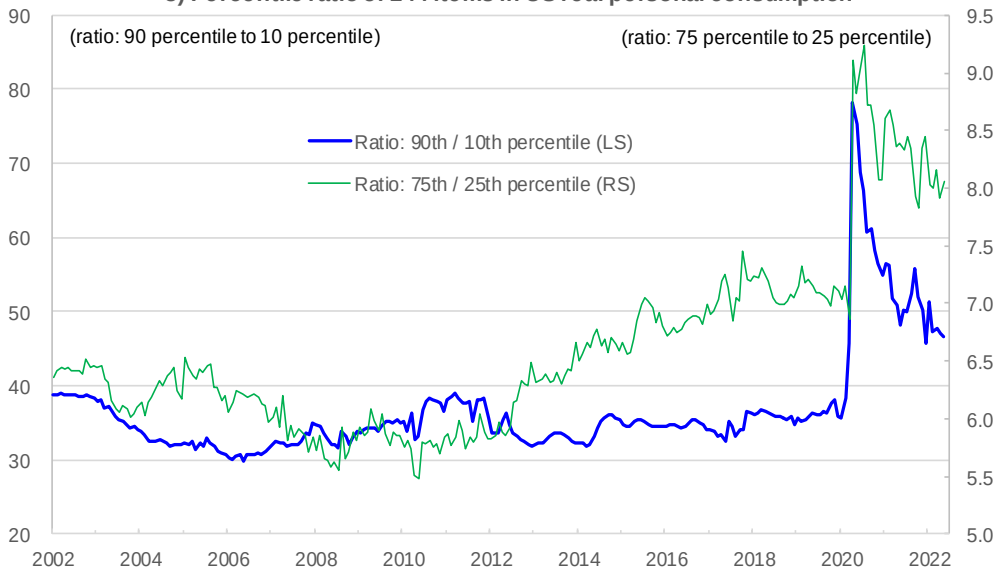
Note: 244 items in the smallest classification. Sources: US BEA, SBI SECURITIES.

2) Standard deviation and percentile ratio of 244 items in US real personal consumption



Note: 244 items in the smallest classification. Sources: US BEA, SBI SECURITIES.

3) Percentile ratio of 244 items in US real personal consumption



Note: 244 items in the smallest classification. Sources: US BEA, SBI SECURITIES.

- A large jump in the standard deviation among 244 consumption items and large jumps in the percentile ratios following the onset of the pandemic indicate an unprecedented shift of demand across consumption bundles, which is continuing to date.

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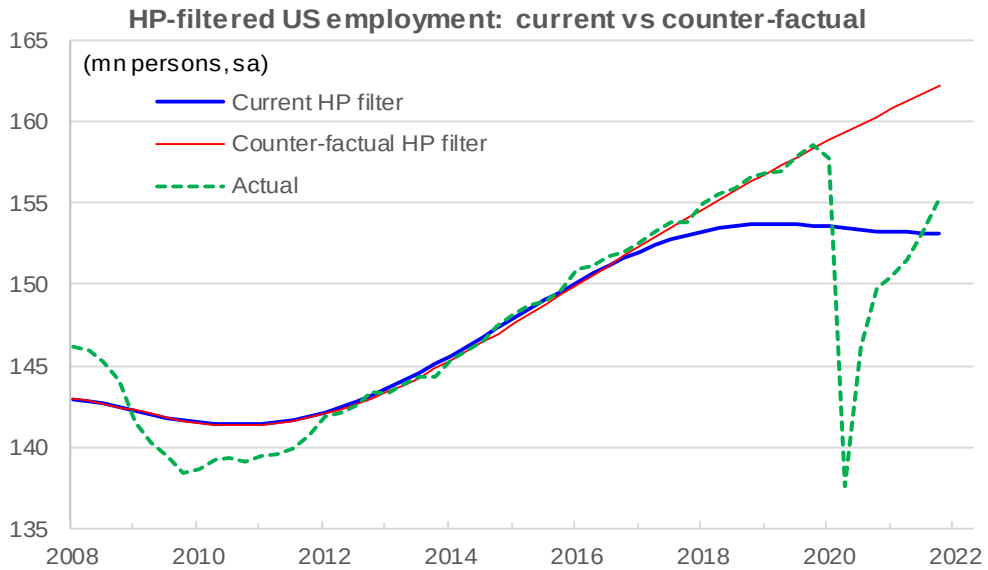
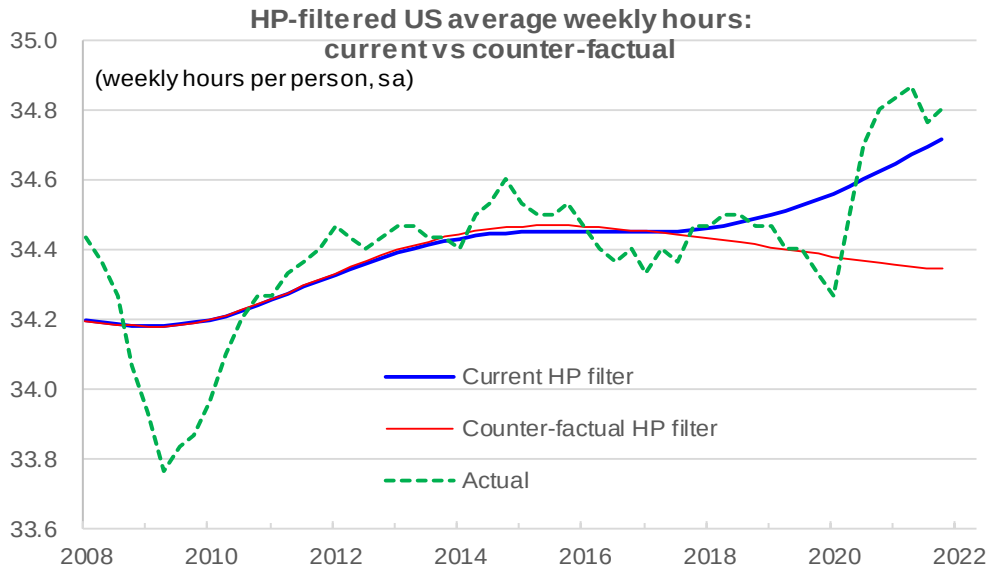
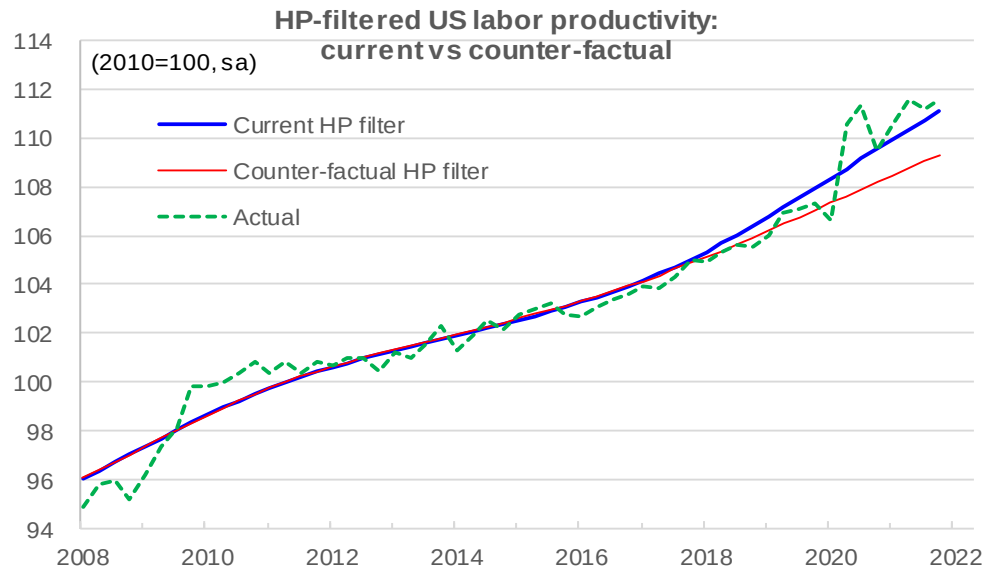
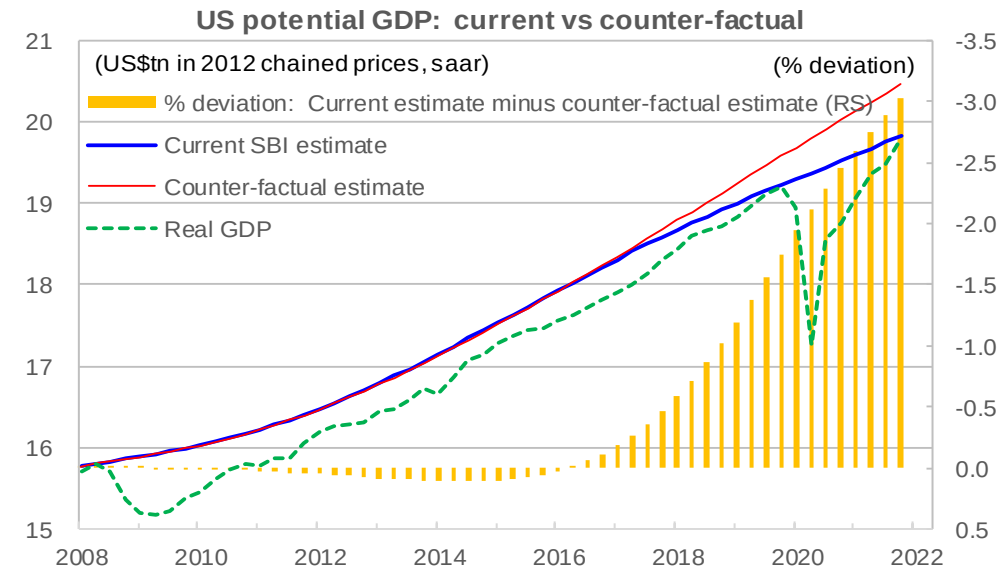
US potential GDP and its growth rate has fallen following the pandemic (1)



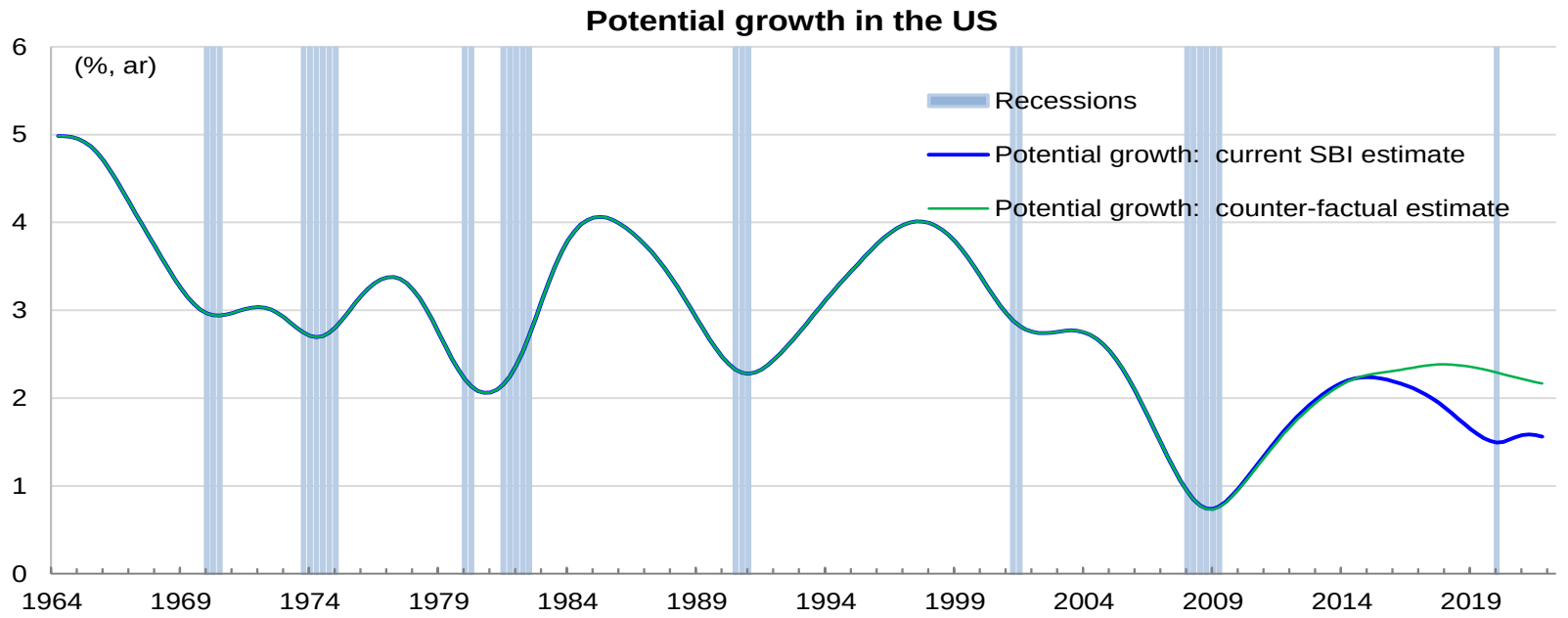






Notes: Counter-factual (hypothetical) values are obtained by setting the annual growth of 1.44m for the labor force, 1.80m for employment, zero growth for weekly work hours per person, and 0.95% for labor productivity for 1Q 2020–4Q 2025, and then applying HP filter through 4Q 2025. Sources: CEIC Database, US BEA, US BLS, SBI SECURITIES.

US potential GDP and its growth rate has fallen following the pandemic (2)

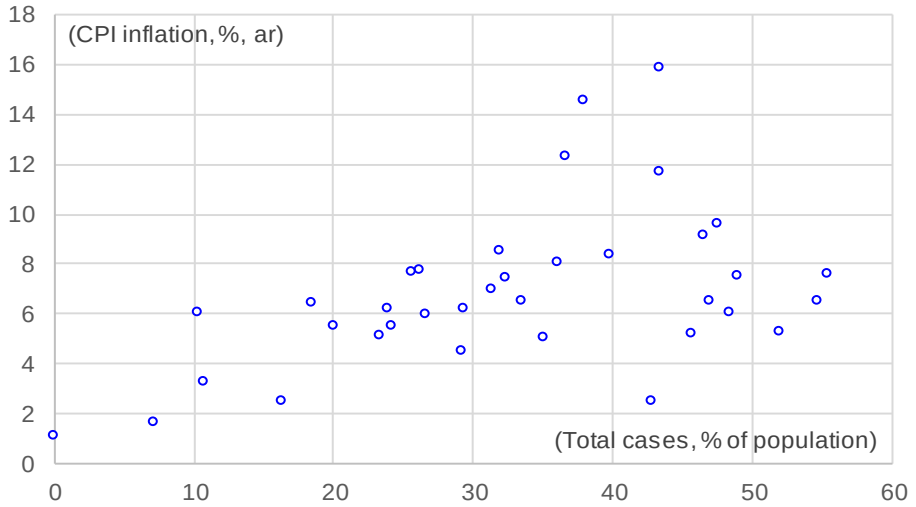


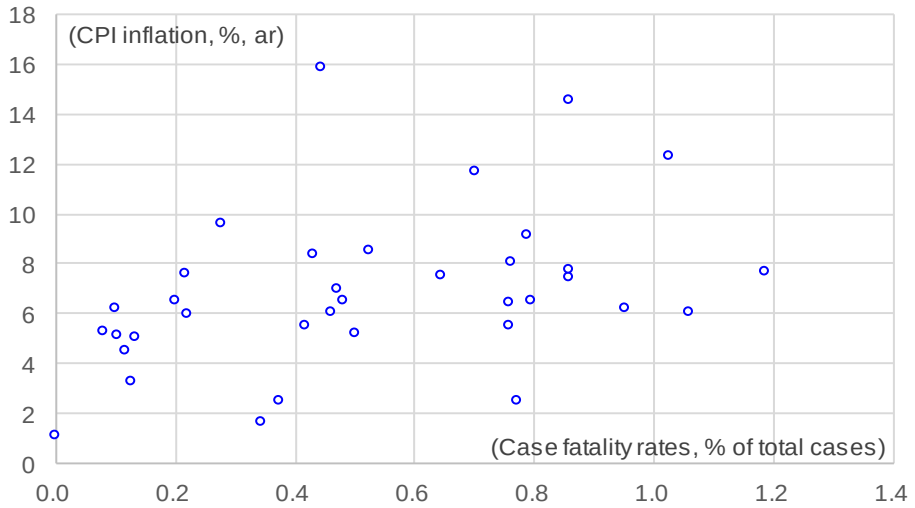
Notes: we assumed that potential GDP and actual GDP were equal in 1Q 1980. Potential growth = employment growth + growth in hours worked per person + labor productivity growth. Shading denotes recessions. The counter-factual potential growth estimate is obtained by setting hypothetical annual growth of 1.80m for employment, zero growth for weekly hours worked, and 0.95% growth for labor productivity during 1Q 2020 – 4Q 2025, and applying HP filter.
Sources: CEIC Database, US BEA, US BLS, CBO, NBER, SBI SECURITIES

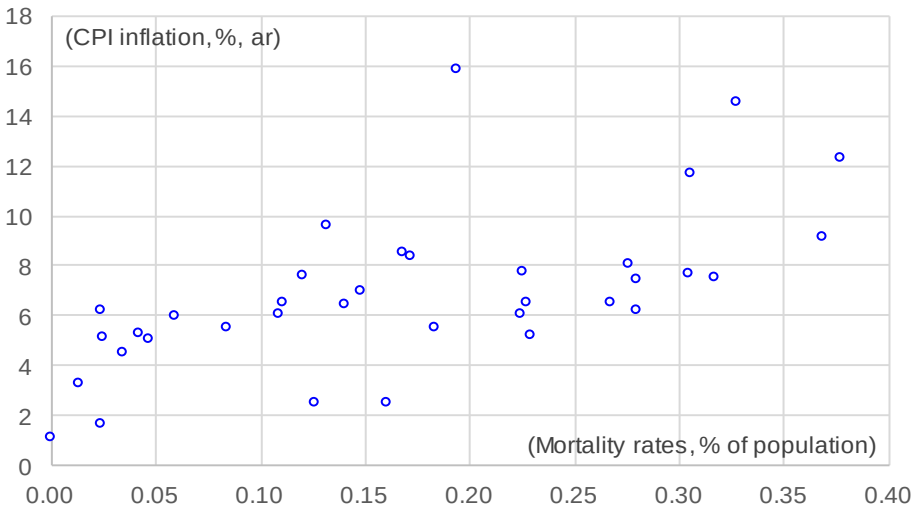
- The level of the US potential GDP has declined by as much as 3.8% (or at least by the range of 2.5% to 3.0%), while the potential growth has declined by 0.9% a year (2.2% without the pandemic versus 1.3% with the pandemic).
- 1) A rapid and substantial decline in the macroeconomic supply-side upper bound, and 2) an expanded disequilibrium between the supply and demand in industries that have been hit by the pandemic, could raise the near-term inflationary forces.
- However, the decline in the potential growth is disinflation over the medium to the long-term and lowers the neutral interest rate. Sustainability of wage growth in industries where demand disappeared is questionable.
- Even if the YoY CPI inflation peaks in March or April 2022, which is followed by a slower pace of the decline in inflation, the hawkish monetary policy stance by the US Federal Reserve is unlikely to be withdrawn, so that the stress on real economic activity could accumulate.

Pandemic-induced disturbances to labor market or severity of the pandemic influences inflation

Relationship between CPI inflation and employment disruption, and the pandemic in 36 developed countries



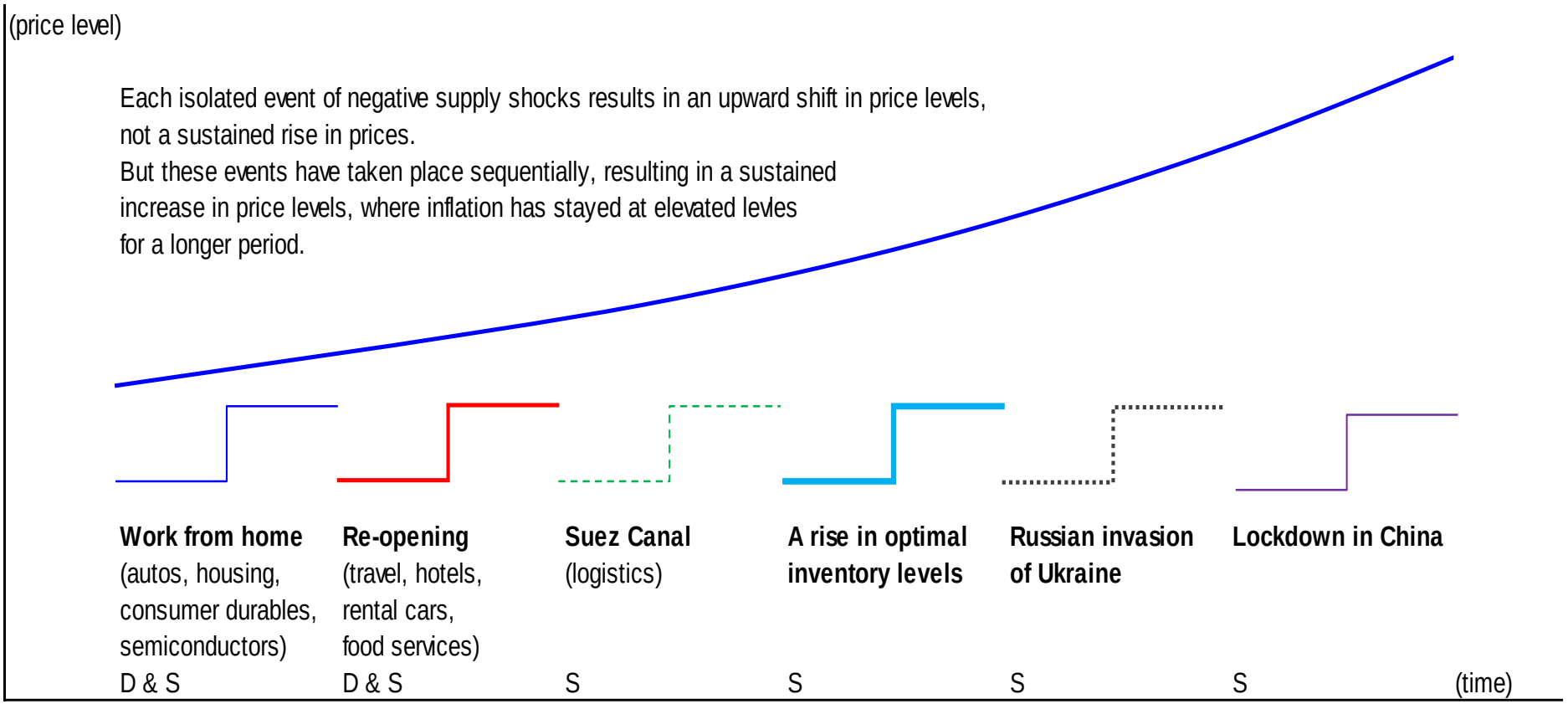




Notes: CPI inflation … annualized since January 2021.
Rate of employment deviation … geometric mean of percentage deviation of employment i) from pre-pandemic peak to the lowest level during 1Q 2020 – 1Q 2021, and ii) from that lowest to the latest period.
The number of total cases, the case fatality rate, and the mortality rate are as of June 7, 2022.
Sources: CEIC Database, CSSE at Johns Hopkins University, SBI SECURITIES

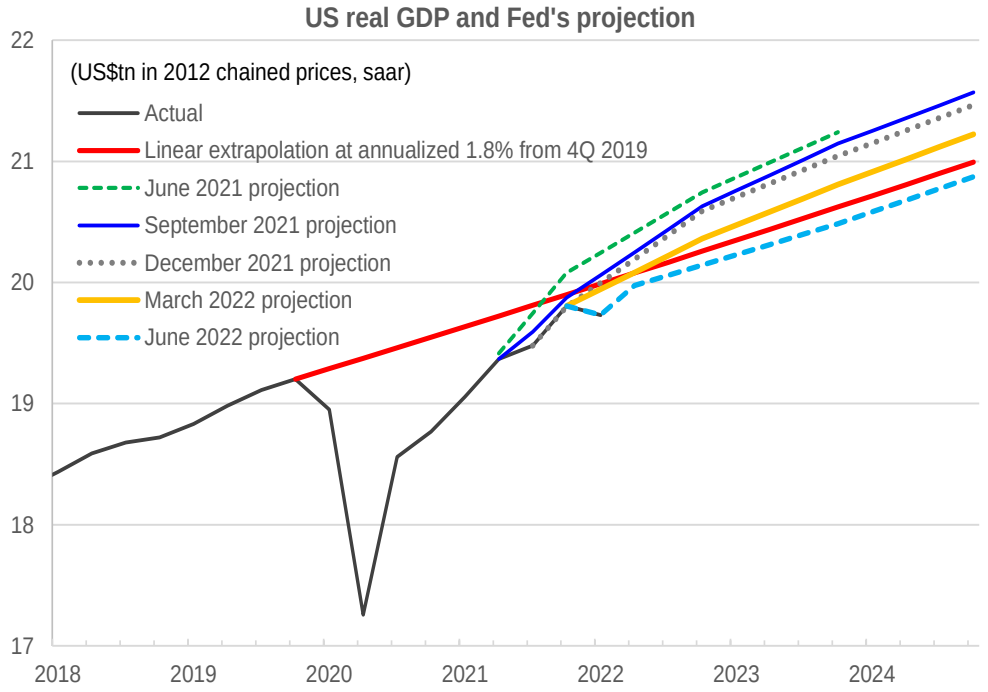
A series of independent supply shocks sequentially took place to raise inflation

Negative supply shocks having taken place sequentially to result in elevated levels of inflation for longer

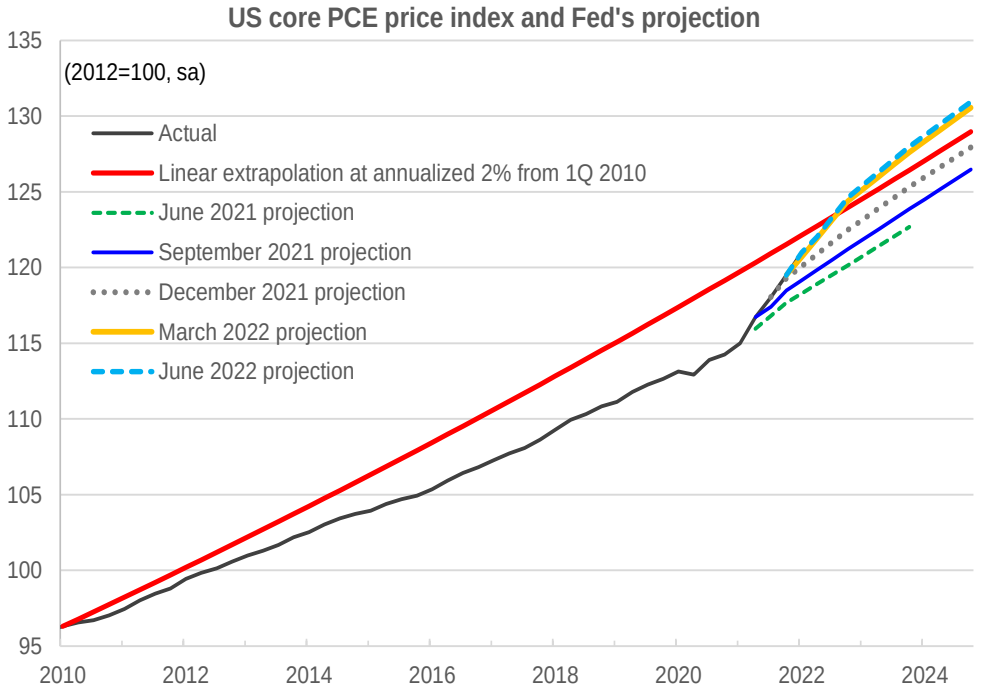


Note: D & S … Demand and supply factors; S … supply factors.
Source: SBI SECURITIES

Revision patterns of Fed's economic projection are consistent with negative supply shocks



Sources: CEIC Database, US BEA, Federal Reserve, SBI SECURITIES



Sources: CEIC Database, US BEA, Federal Reserve, SBI SECURITIES

- Fed's economic projection since June 2021 continues to show downgrading in economic growth and upgrading in inflation.
- Two mutually non-exclusive interpretations: 1) A large part of the shocks are negative supply shocks, 2) the decline in the economy's potential growth.

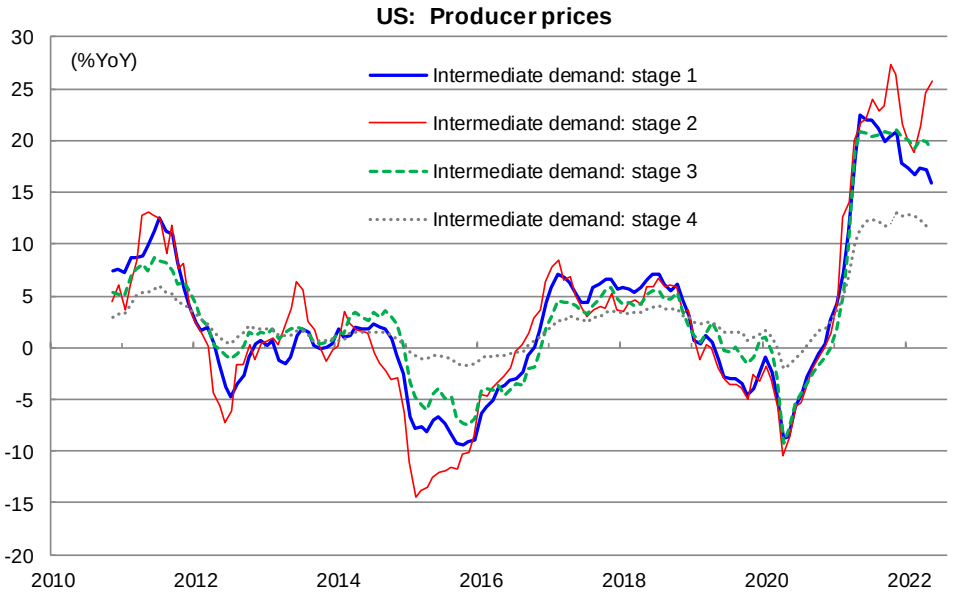
No signs of slowing in underlying US inflation yet

Various CPI and PCE PI measures to gauge underlying inflation in the US

		Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22
%MoM												
CPI all items	BLS	0.45	0.33	0.41	0.87	0.70	0.58	0.65	0.80	1.24	0.33	0.97
Core CPI	BLS	0.31	0.18	0.25	0.60	0.52	0.56	0.58	0.51	0.32	0.57	0.63
PCE PI	BEA	0.40	0.38	0.35	0.63	0.58	0.51	0.52	0.54	0.91	0.24	0.59
Core PCE PI	BEA	0.32	0.31	0.24	0.47	0.48	0.51	0.45	0.30	0.34	0.33	0.35
Sticky CPI	Atlanta Fed	0.28	0.28	0.31	0.46	0.35	0.36	0.60	0.53	0.47	0.57	0.60
Core sticky CPI	Atlanta Fed	0.23	0.26	0.29	0.43	0.33	0.34	0.60	0.53	0.48	0.58	0.59
Median CPI	Cleveland Fed	0.23	0.33	0.40	0.51	0.48	0.43	0.58	0.53	0.48	0.53	0.58
16% trimmed mean CPI	Cleveland Fed	0.39	0.41	0.48	0.70	0.52	0.48	0.63	0.55	0.55	0.45	0.77
55% trimmed mean PCE PI	Dallas Fed	0.24	0.25	0.36	0.35	0.35	0.37	0.52	0.33	0.25	0.24	0.43
%YoY												
CPI all items	BLS	5.28	5.21	5.39	6.24	6.83	7.10	7.53	7.91	8.56	8.22	8.52
Core CPI	BLS	4.20	3.96	4.04	4.59	4.95	5.48	6.04	6.42	6.44	6.13	6.01
PCE PI	BEA	4.16	4.24	4.44	5.06	5.65	5.78	6.00	6.27	6.64	6.29	6.35
Core PCE PI	BEA	3.60	3.60	3.70	4.19	4.69	4.89	5.13	5.31	5.22	4.92	4.69
Sticky CPI	Atlanta Fed	2.52	2.56	2.83	3.22	3.41	3.67	4.16	4.50	4.74	4.92	5.17
Core sticky CPI	Atlanta Fed	2.33	2.35	2.65	3.04	3.21	3.47	3.98	4.30	4.55	4.72	4.98
Median CPI	Cleveland Fed	2.28	2.43	2.73	3.08	3.50	3.78	4.25	4.58	4.91	5.23	5.53
16% trimmed mean CPI	Cleveland Fed	2.97	3.15	3.50	4.13	4.55	4.88	5.42	5.75	6.05	6.16	6.53
55% trimmed mean PCE PI	Dallas Fed	1.97	2.03	2.27	2.55	2.83	3.05	3.50	3.64	3.72	3.76	3.96

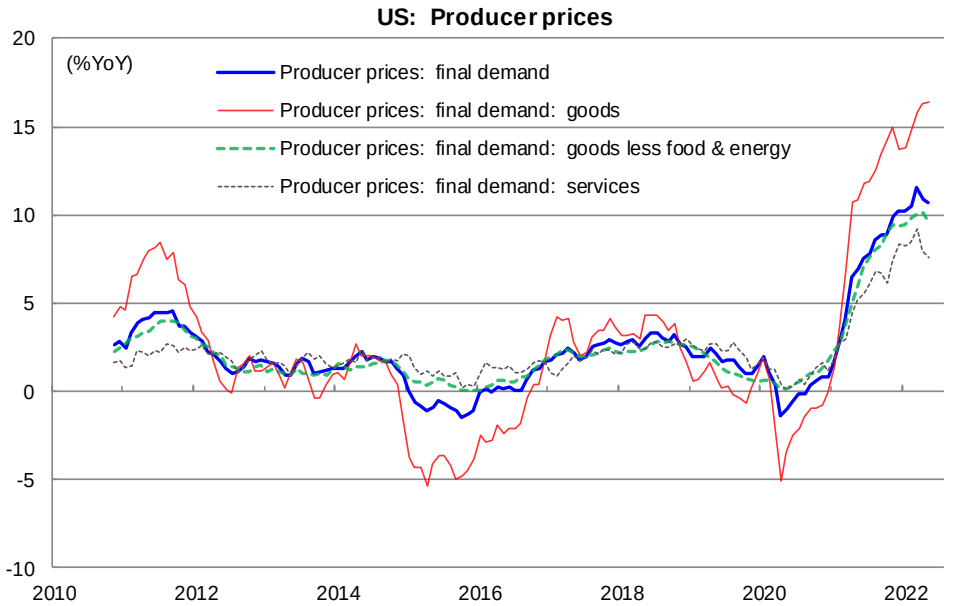
Sources: US BLS, US BEA, CEIC Database, Federal Reserve Banks of Atlanta, Cleveland, and Dallas, SBI SECURITIES.

Inertia in inflation (1)

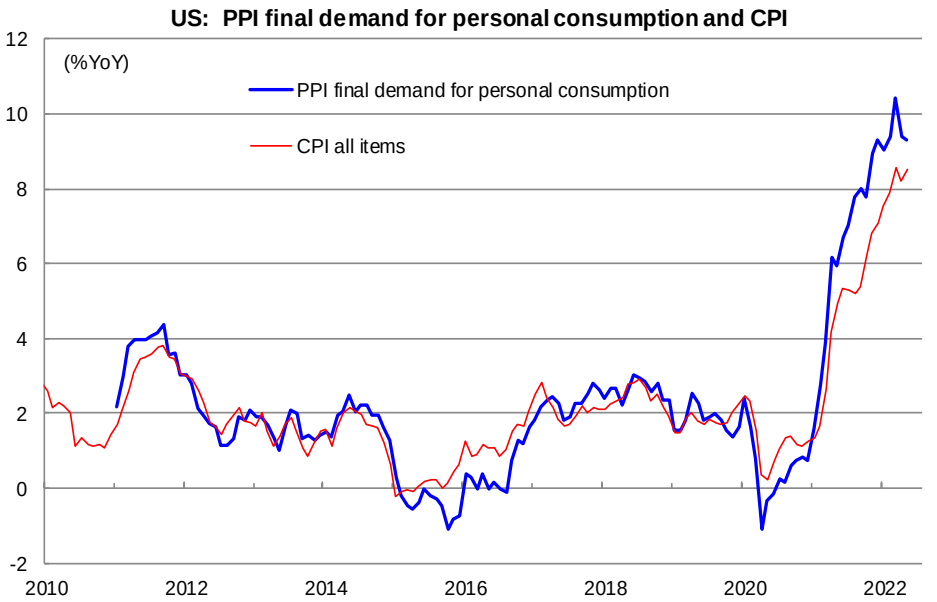


Sources: CEIC Database, US BLS, SBI SECURITIES

- PPI inflation (%YoY) has been peaking first in intermediate demand, followed by final demand, but is likely to remain high because of inflation inertia and the lack of clear declines in MoM inflation rate.
- CPI inflation is likely to follow a similar path: acceleration in inflation unlikely but inflation itself remains elevated.
- Monetary tightening in response to supply shock-induced higher inflation acts as additional drags to economic activity, in addition to the decline in real purchasing power that has been already in place.

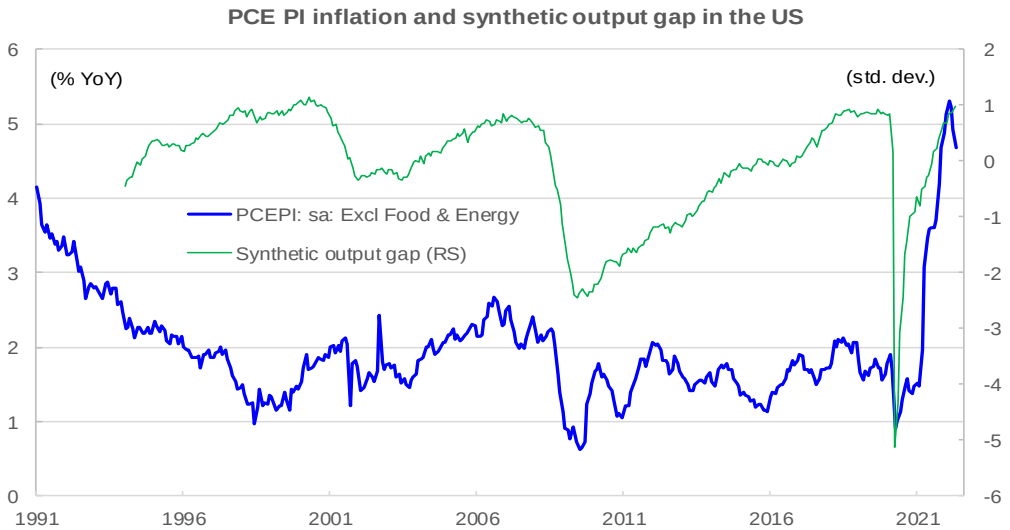


Sources: CEIC Database, US BLS, SBI SECURITIES

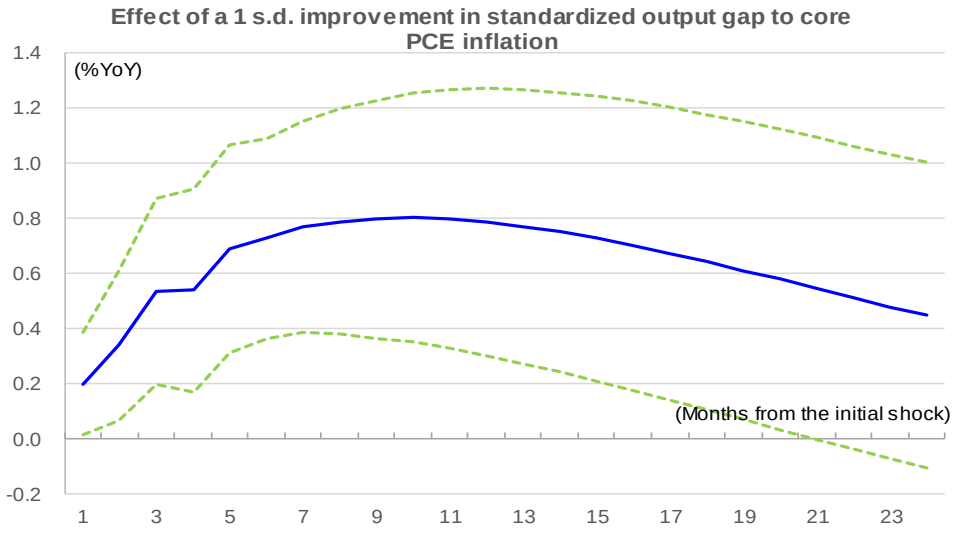


Sources: CEIC Database, US BLS, SBI SECURITIES

Inertia in inflation (2)



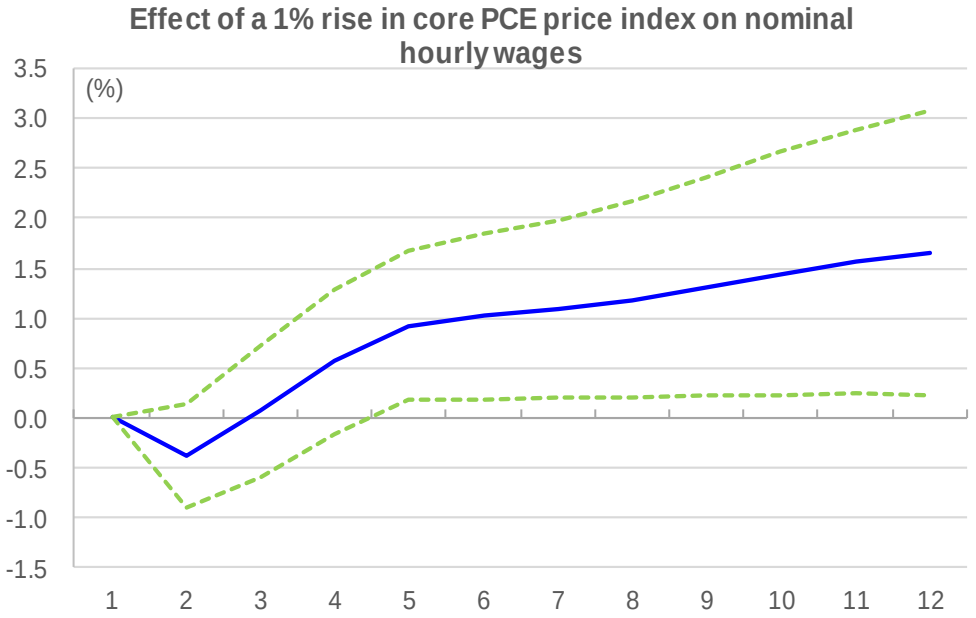
Notes: The synthetic output gap is the weighted sum of the industrial capacity utilization rate (weight = 0.33) and a modified unemployment rate (adding people not in the labor force but wanting a job to both the numerator and the denominator; weight = 0.67). Both components are normalized to follow a standard normal distribution of mean zero and unit variance.
Sources: CEIC Database, US BEA, US BLS, Federal Reserve, SBI SECURITIES

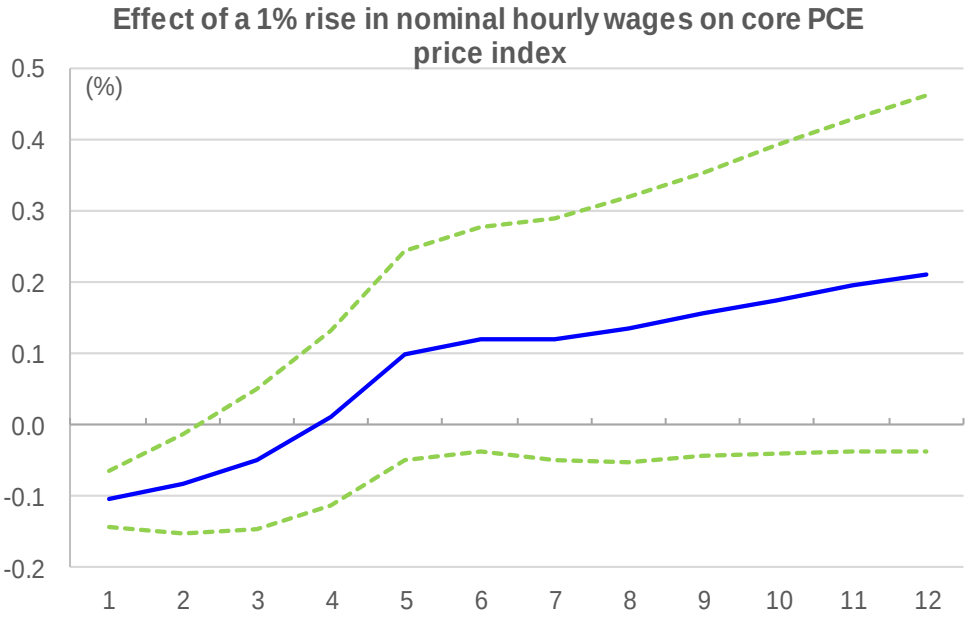


Notes: Results from a two-variable vector autoregression including the standardized output gap and core PCE inflation. Import price index is added as an exogenous variable.
Standardized output gap = 0.67 x modified unemployment rate + 0.33 x capacity utilization.
Modified unemployment adds those who are out of the labor force but want a job to both the denominator and the numerator of the unemployment rate.
Unemployment rate and capacity utilization are normalized using the period January 1994 - December 2019. Sample period: December 2002 - December 2019; Lag length is set to six.
Sources: CEIC Database, US BLS, Federal Reserve, SBI SECURITIES

- Not only the level of the output gap but also its rate of change affects inflation in the near term, though this effect disappears over the long-run.
- It takes ten months for the narrowing output gap to reach a peak in core PCE PI inflation. The decline in inflation thereafter tends to be slow.
- The cumulative improvement in the output gap since the onset of the pandemic was 6.0 s.d., which creates a deviation of inflation from the pre-pandemic trend by maximum 4.8ppt (=0.8 x 6.0). About a half of the deviation, corresponding to the 3 s.d. improvement in the output gap, remains even after 15 months since the effect on inflation peaked.
- We expect core PCE PI inflation to remain elevated through 3Q (Jul–Sep) 2022, followed by a gentle declining trend.

Price-wage spiral unlikely to materialize





Notes: Results from two-variable vector autoregression including nominal hourly wages and core PCE price index (excluding food and energy).
Lag length is set to four. Sample period: August 2006 – February 2022.
A solid center line is the average response. The dotted lines indicate a confidence interval with ± 2 standard errors.
Sources: CEIC Database, US BEA, US BLS, SBI SECURITIES

- Causality runs from prices to wages with a high sensitivity. However, the sensitivity of the reverse causality from wages to prices is low.
- Hourly wage growth has been slowing since its peak in November 2021.

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Problems with inflation targeting

1) The decline in the potential growth

Inflation is an increasing function of the potential growth, which has been falling for developed countries. However, inflation target has remained at 2%.

2) Accumulation of real and financial assets

The more capital accumulation proceeds, the increase of purchasing power due to monetary easing goes toward the purchase of assets, not the purchase of goods and services. Prices of goods and services (CPI) do not rise, but asset prices rise.

3) Country-specific institutional factors in imputed rents, healthcare and education

Japan is handicapped by as much as 109bp vis-à-vis the US due to these three factors. Central banks cannot (or should not) choose from i) reaching the 2% inflation target at the expense of market failures in the healthcare and education like in the US, and ii) missing the 2% inflation target under more affordable healthcare and education costs like in Japan.

4) Ambiguous responses to supply shocks

Weight and growth rate of imputed rents, healthcare and education in CPI

	Weight in 2019			Annual growth (Jan 2000 - Dec 2019)				Contribution from three items
(%)	Imputed rents	Healthcare	Education	Imputed rents	Healthcare	Education	Overall	
France	n.a.	10.52	0.04	n.a.	-0.23	2.16	1.58	-0.02
Germany	n.a.	4.61	0.90	n.a.	1.82	1.63	1.49	0.10
Japan	14.99	4.30	3.16	-0.10	0.27	-0.27	0.15	-0.01
UK	8.50	2.80	2.20	1.52	2.80	7.11	2.04	0.24
US	24.07	8.83	3.03	2.65	3.53	4.58	2.13	1.09

Note: Rents in the UK include rents from rental housses. Sources: CEIC Database, SBI SECURITIES

Nominal GDP growth targeting is preferable to inflation targeting

- The biggest accomplishment of the Japanese QE is the recovery in nominal growth (per person).

Nominal GDP growth targeting is superior to inflation targeting

No need for additional easing in response to positive supply shocks

- A decline in oil prices: improvement in the terms of trade and nominal trade balance raise nominal GDP.
- Currency appreciation: improvement in the terms of trade and a resulting rise in the purchasing power limit the deterioration in nominal trade balance.
- Deregulation: the decline in prices raises the demand for goods and services to limit the decline in nominal economic activity.

Additional monetary easing may be needed in response to negative supply shocks.

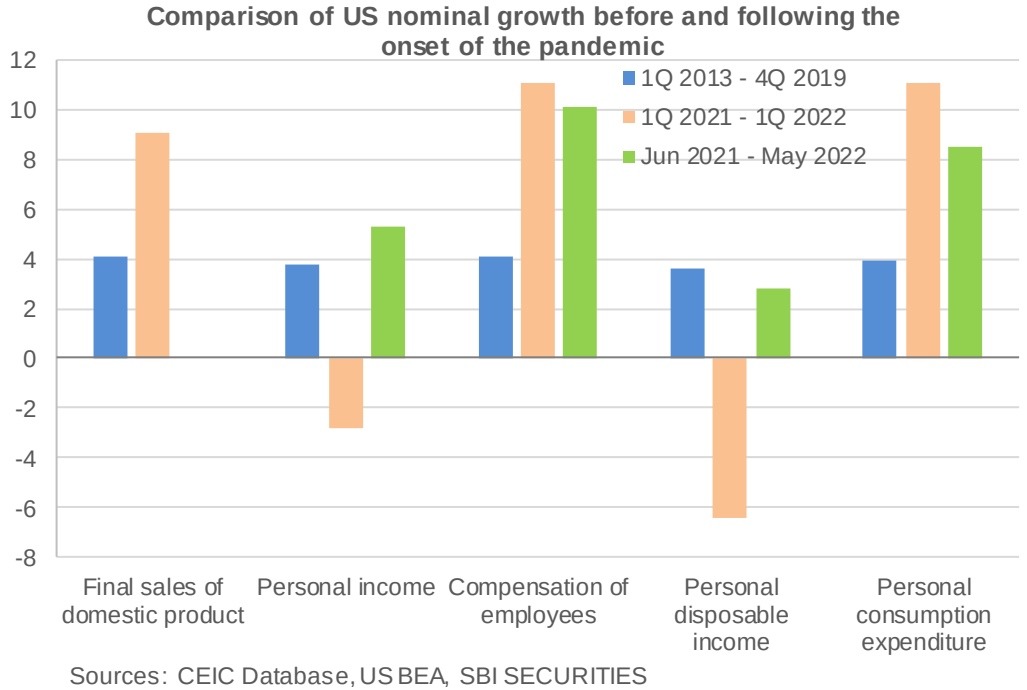
- A rise in oil prices: deterioration in the terms of trade and nominal trade balance could lower nominal GDP
- Currency depreciation: deterioration in the terms of trade and the decline in purchasing power could offset improvement in nominal trade balance.

Monetary policy normalization is subservient to normalization of the real economy.

- Past attempts to artificially raise the natural interest rate all failed (in 2000 and 2006 for the BoJ, in 2011 for the ECB, in 2013 and 2017-2018 for the Fed).

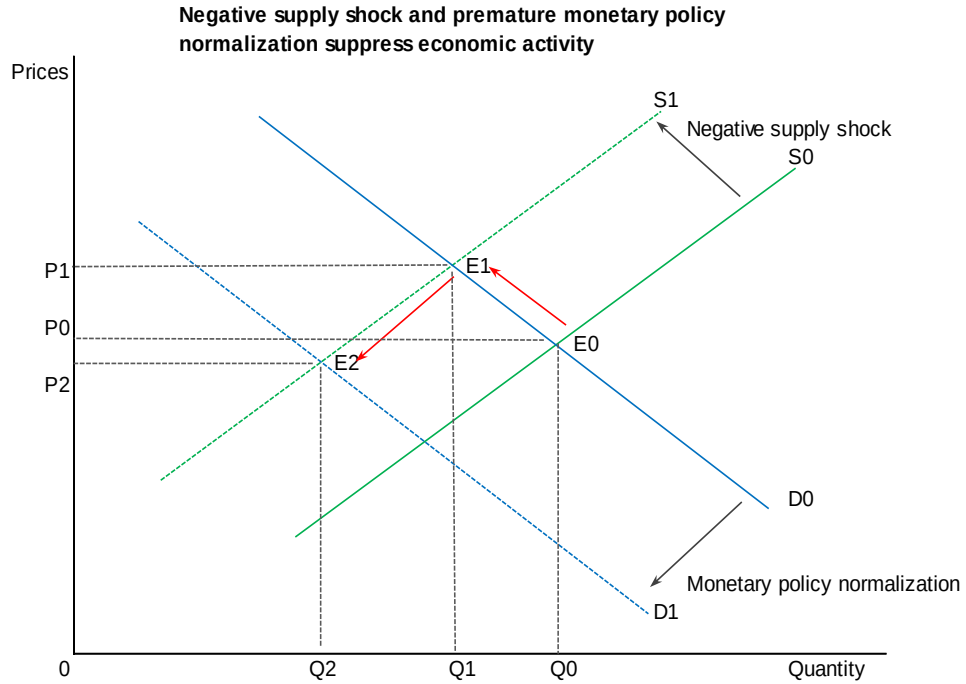
We expect to see discussions to change inflation target to nominal income target to rise.

What happens if nominal GDP targeting, not inflation targeting, were adopted?



Sources: CEIC Database, US BEA, SBI SECURITIES

- Monetary policy needs to respond to demand shocks but should wait for the supply shocks to pass.
- Demand shocks: prices and quantities move in the same direction.
- Supply shocks: prices and quantities move in the opposite direction
- **Inflation targets induces additional expectations for monetary policy actions that are not warranted.**
- **Problems with inflation target: prices send different signals from the demand shocks and from the supply shocks. This problem does not show up in nominal GDP growth target.**

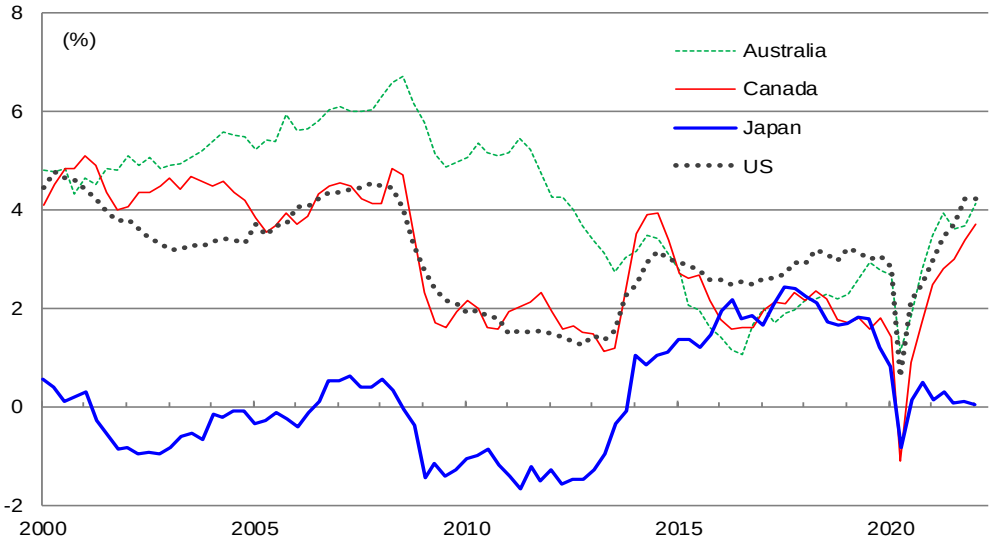


Source: SBI SECURITIES.

- **Under nominal GDP level/growth target, monetary tightening (easing) is needed when nominal GDP level or growth continues to deviate upward (downward).**
- Monetary tightening in response to the supply shock further lowers quantity and bring down prices (from a shift in equilibrium in E1 to E1).

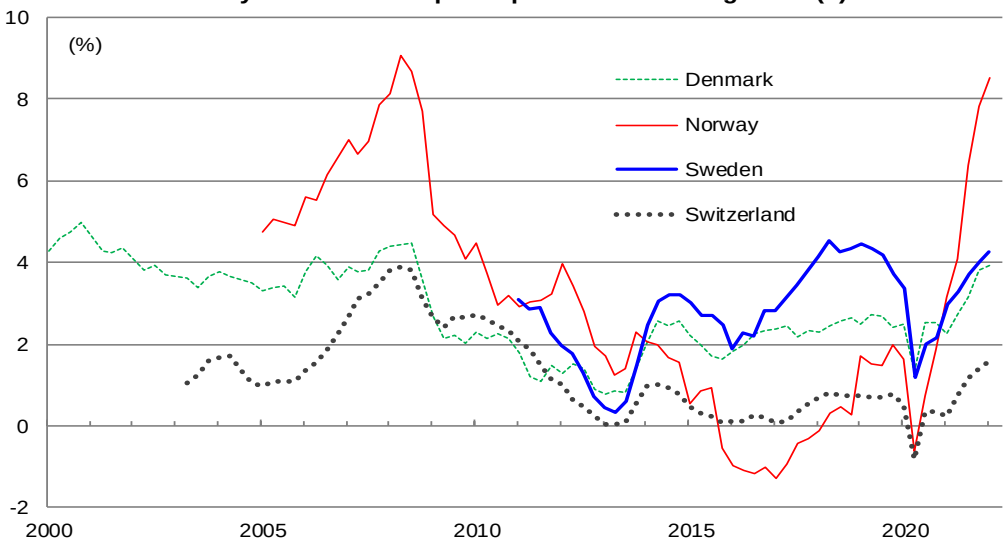
Monetary policy influences nominal economic activity over the long-run

Five-year annualized per-capita nominal GDP growth (1)



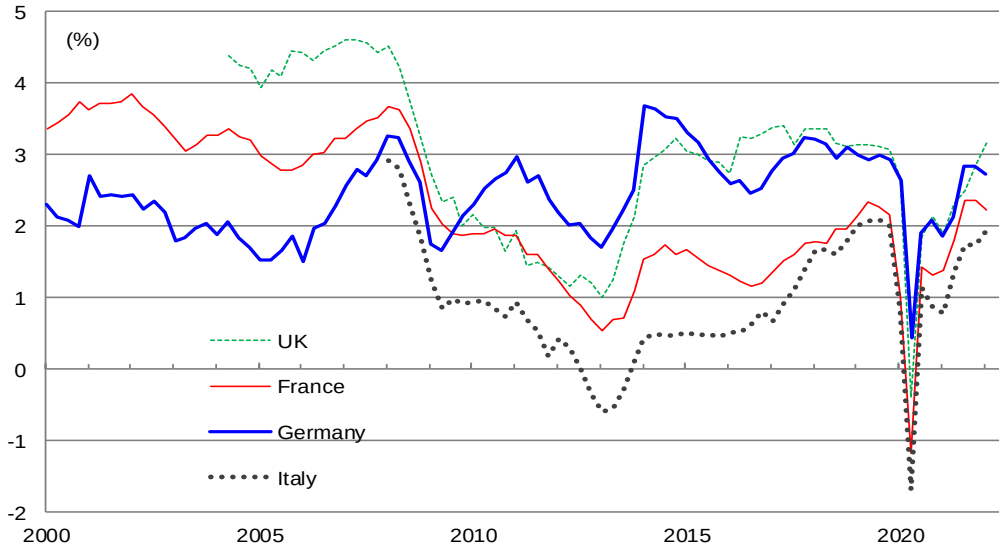
Note: Population of 15 years and above for Australia & Canada.
Sources: CEIC Database, SBI SECURITIES

Five-year annualized per-capita nominal GDP growth (2)



Note: Population of 15-74 years for Norway and Switzerland.
Sources: CEIC Database, SBI SECURITIES

Five-year annualized per-capita nominal GDP growth (3)



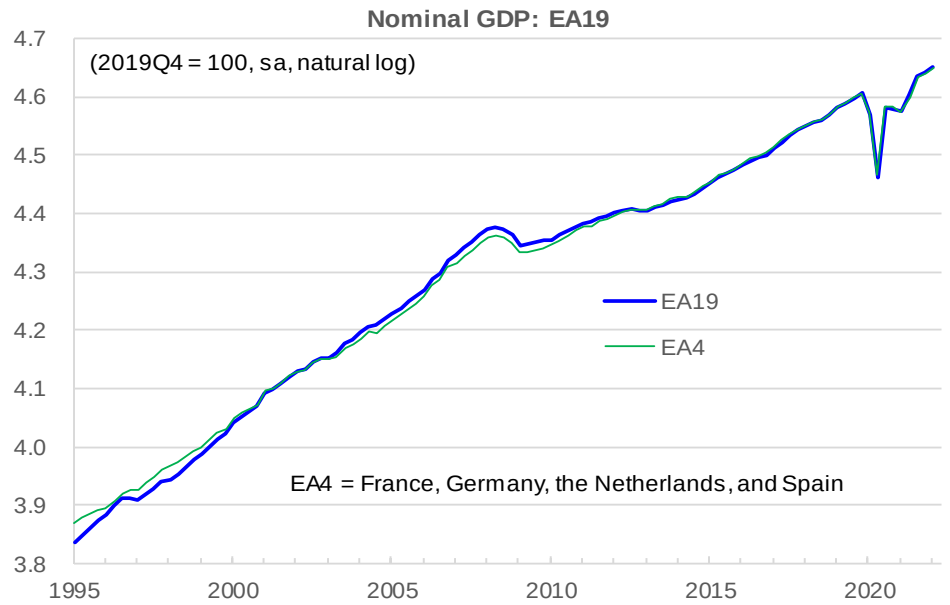
Note: Population of 15 years and above for the UK Sources: CEIC Database, SBI SECURITIES

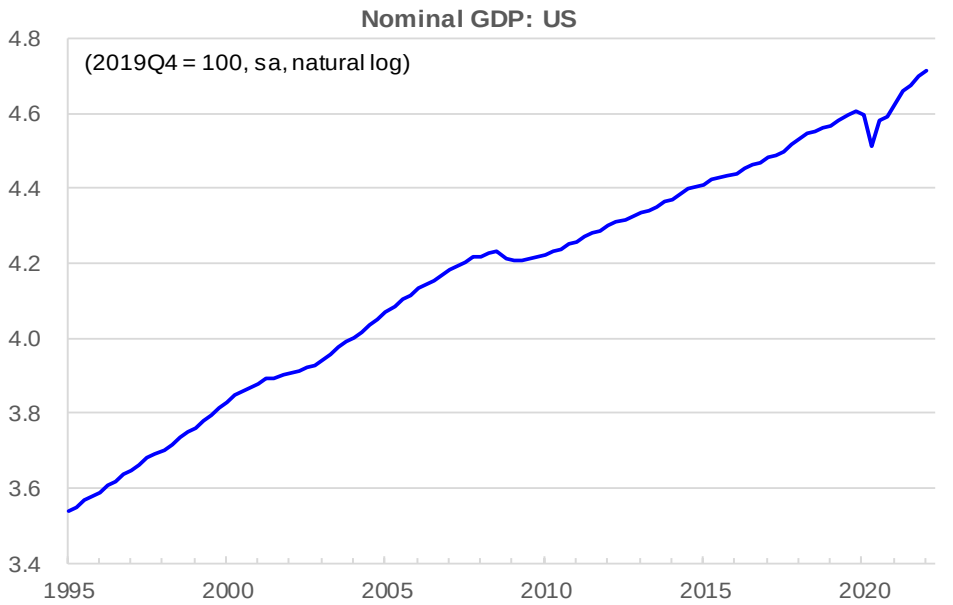
Nominal GDP growth (annaulized) in major developed countries

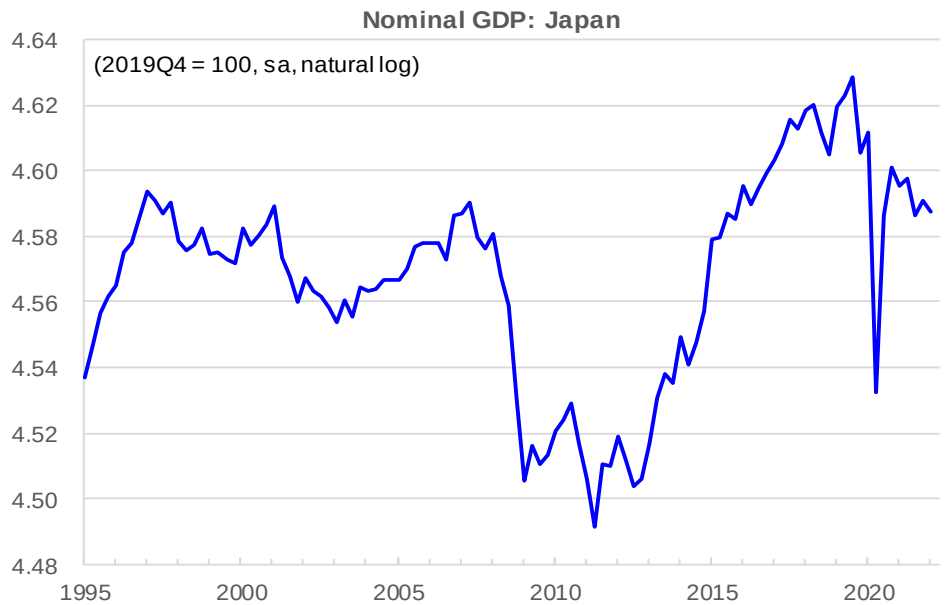
	1Q1993 - 4Q1999	1Q2002 - 3Q 2008	1Q2012 - 4Q 2019
Australia	5.7	7.9	3.9
Canada	4.9	5.8	3.3
Denmark	4.7	4.1	3.0
EA19	4.0	3.8	2.6
France	3.2	3.8	2.1
Germany	2.4	2.1	3.3
Italy	4.9	3.2	1.1
Japan	0.8	0.0	1.2
Netherlands	6.1	4.3	2.9
New Zealand	5.4	5.9	5.3
Norway	7.0	8.0	3.3
Spain	6.7	6.6	2.3
Sweden	6.3	5.2	4.1
Switzerland	2.3	4.1	1.9
UK	5.2	5.0	3.8
US	5.7	5.0	4.1

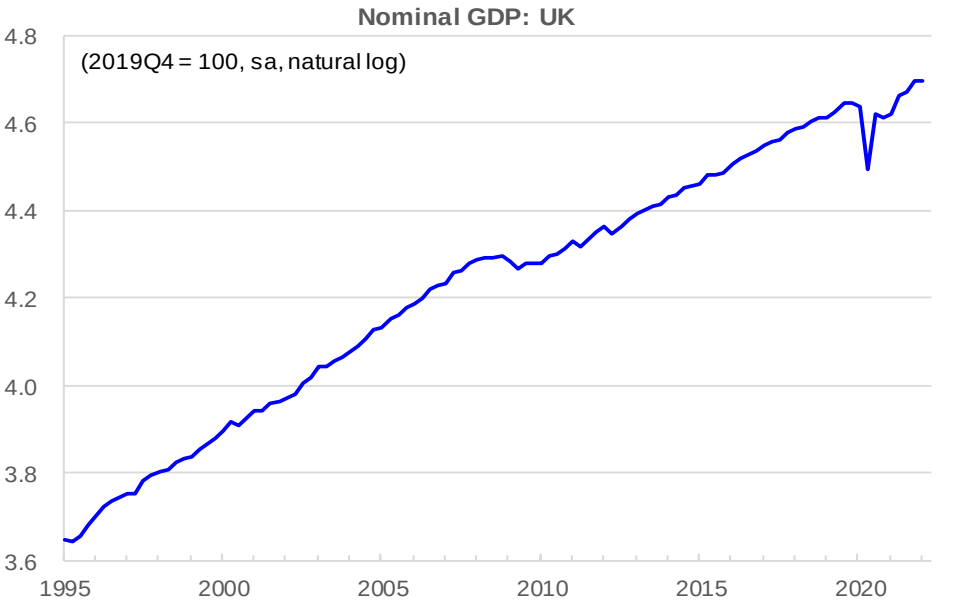
Sources: CEIC Database, SBI SECURITIES

Nominal GDP in major developed countries



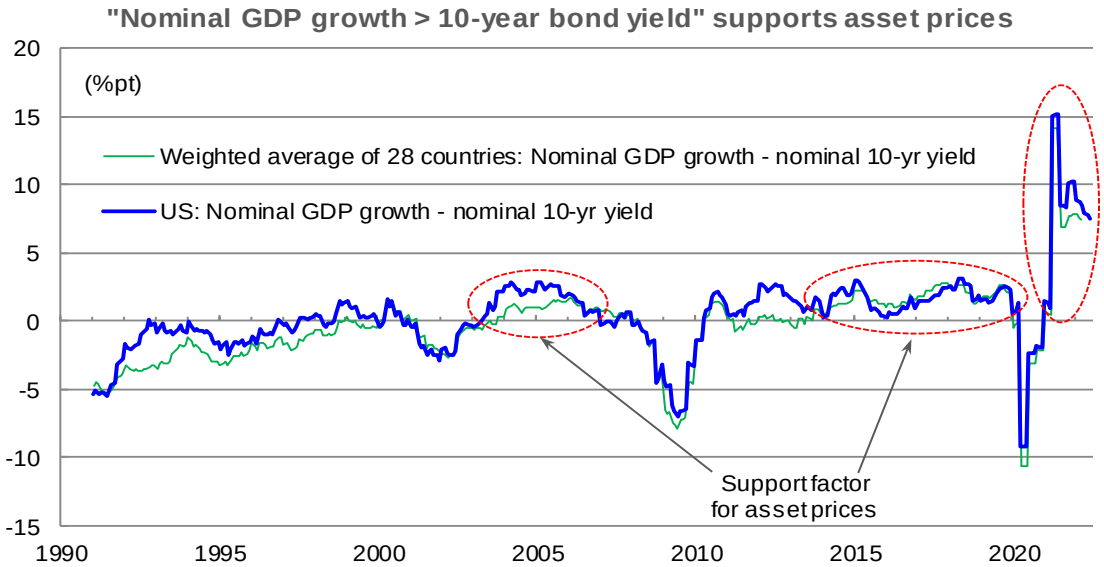




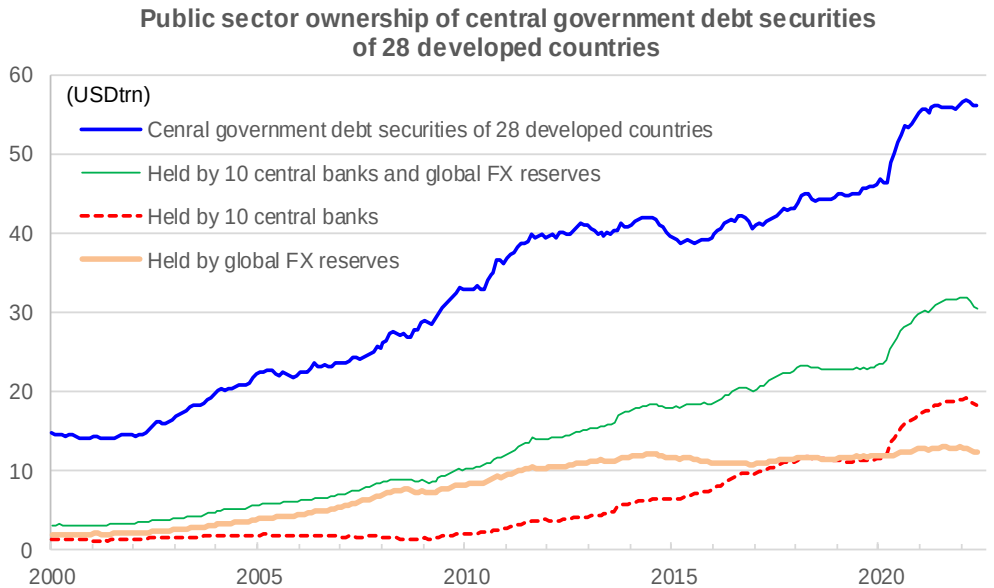


Notes: EA4 = France, Germany, the Netherlands, and Spain where the release of GDP statistics is earlier than others.
Sources: CEIC Database, SBI SECURITIES

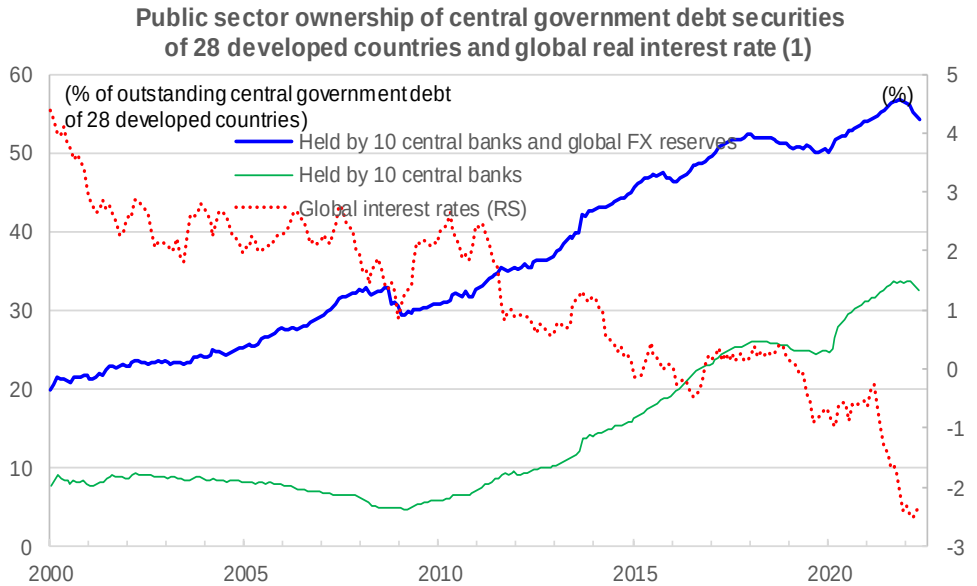
Regime of “nominal GDP growth > 10-year yield” could disappear



Note: Weighted average of 28 countries. Sources: CEIC Database, SBI SECURITIES

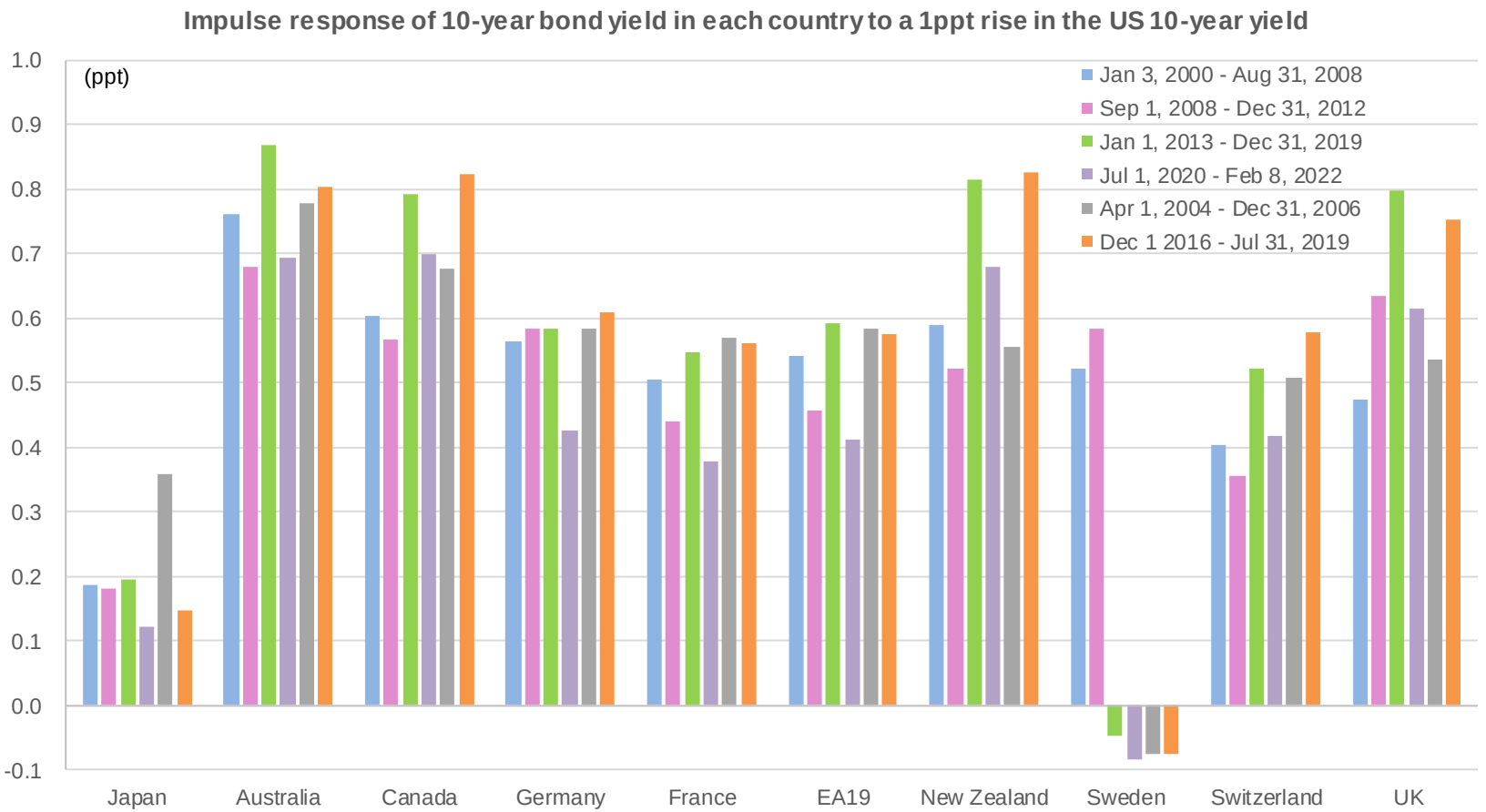


Note: Investment by the Norges Bank is not included. Only government securities are included.
Sources: CEIC Database, SBI SECURITIES.



Note: Investment by the Norges Bank is not included. Only government securities are included.
Sources: CEIC Database, SBI SECURITIES.

Asymmetric response of 10-year yield under the global real interest rate

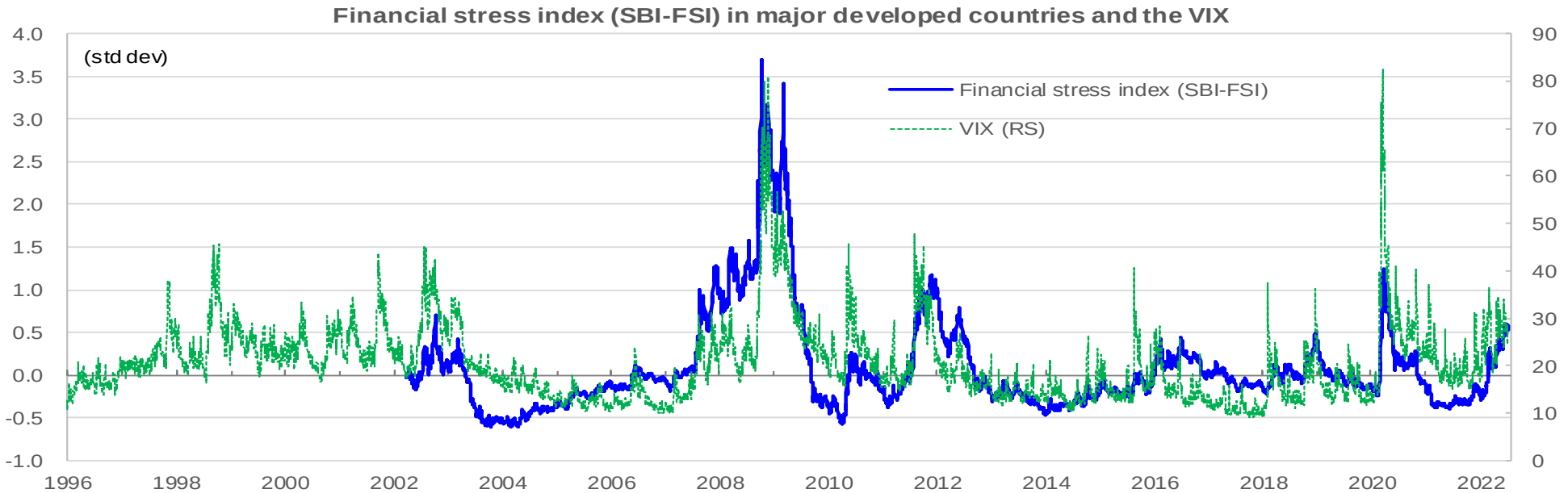


Notes: Two-variable vector autoregression (VAR) models. First difference specification is used. Lag length is set to five.
Responses after 25 business days. Sources: CEIC Database, SBI SECURITIES.

- A change in US 10-year yield results in large changes in the 10-year yields of other developed countries, but the changes in the 10-year yields of the other countries result in a smaller change in the US 10-year yield.
- The effect from the US yield to the 10-year yield in Japan is small, reflecting Japan-specific monetary policy.
- Comparison of the 10-year yields among three major countries (Germany, Japan and the US) shows a smaller response of the Japanese yield to the change in the US yield.

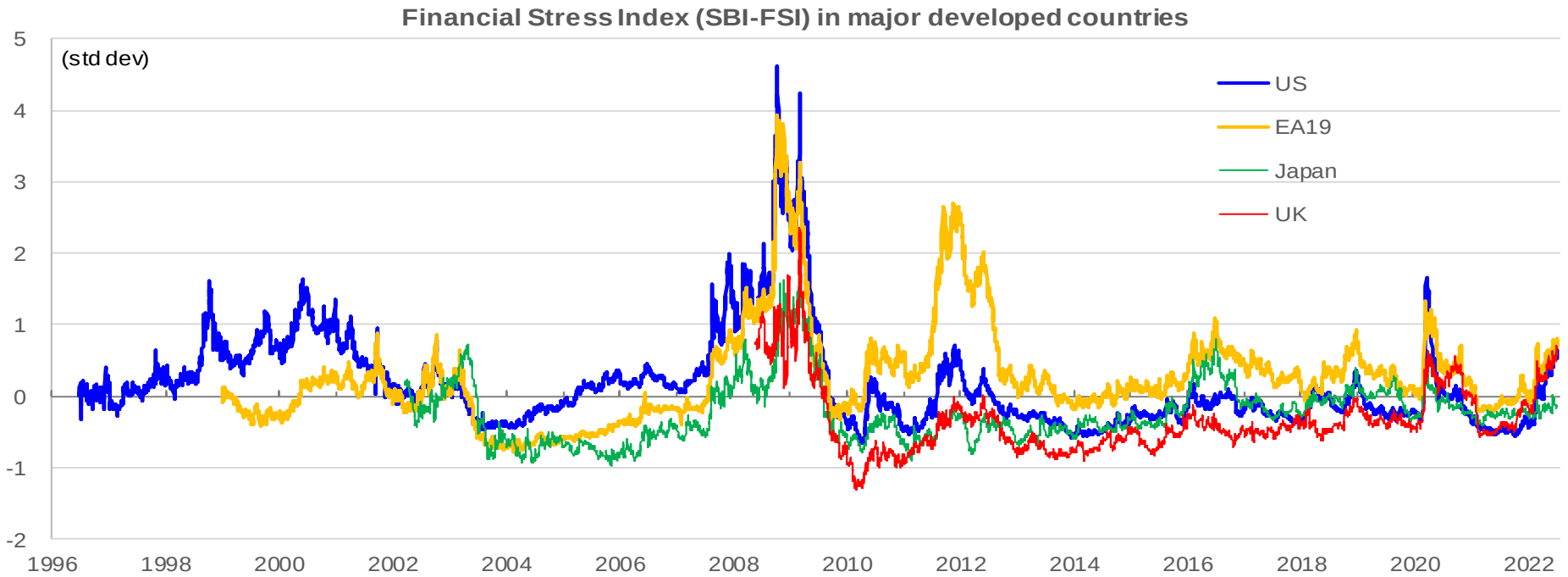
Financial stress index (SBI-FSI) in major developed countries (1)

- The SBI-FSI is designed to quantify the financial markets' response to various types of shocks. In particular:
  1) the emergence of financial systemic risk through a rise in counterparty risks
  2) the scale of the shock in the financial market and the linkage of its transmission to the real economy
  3) changes in monetary policy
- Characteristics of a systemic financial crisis: contagion, self-fulfillment, and flight to quality.
- Front-loading of monetary tightening in prioritizing containment of inflation raise the risk of the systemic financial crisis (SBI-FSI at above +1.0 s.d.). This could lead to an end to monetary tightening, followed by a return to monetary easing.
- We need to focus on the following entities and markets: expansion-oriented mid-sized financial institutions and nonfinancial businesses through M&As, POs, and debt issuance, high-yield debt, net energy-importing EM running current account deficit, SPACs, and crypto currencies.



Note: Financial stress indexis the weighted average for four regions (EA19, Japan, the UK, and the US), consisting from maximum seven elements.
Sources: Bloomberg, CEIC database, FRED Database, SBI SECURITIES

Financial stress index (SBI-FSI) in major developed countries (2)



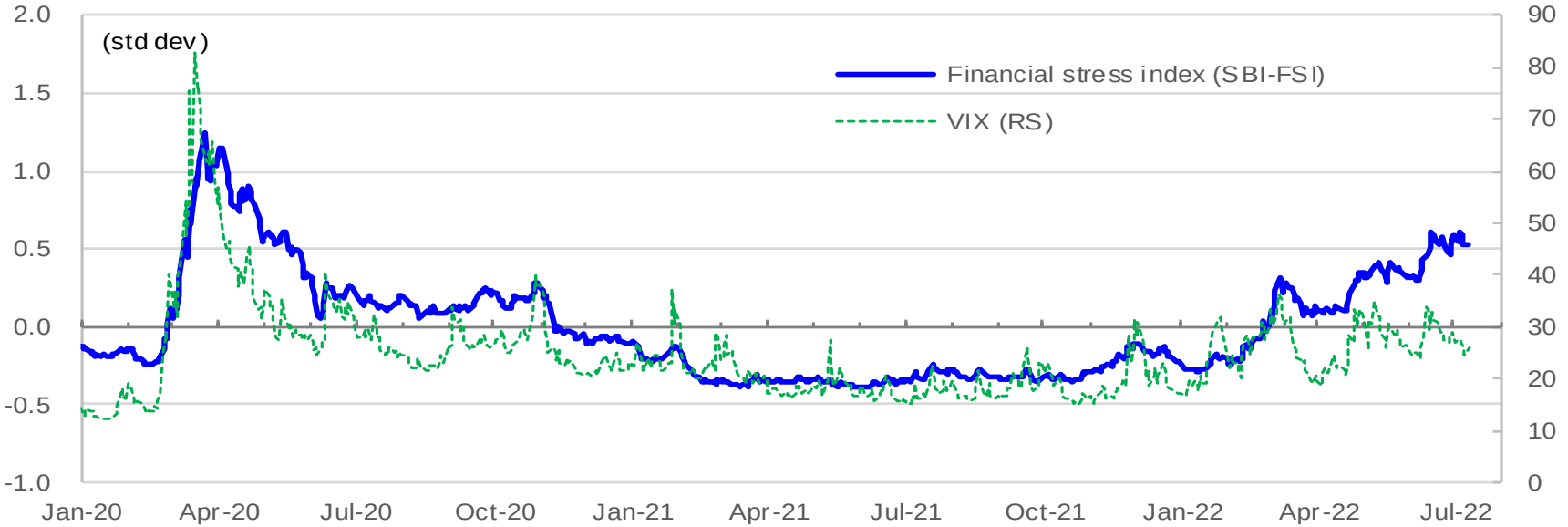
Sources: Bloomberg, CEIC database, FRED Database, SBI SECURITIES

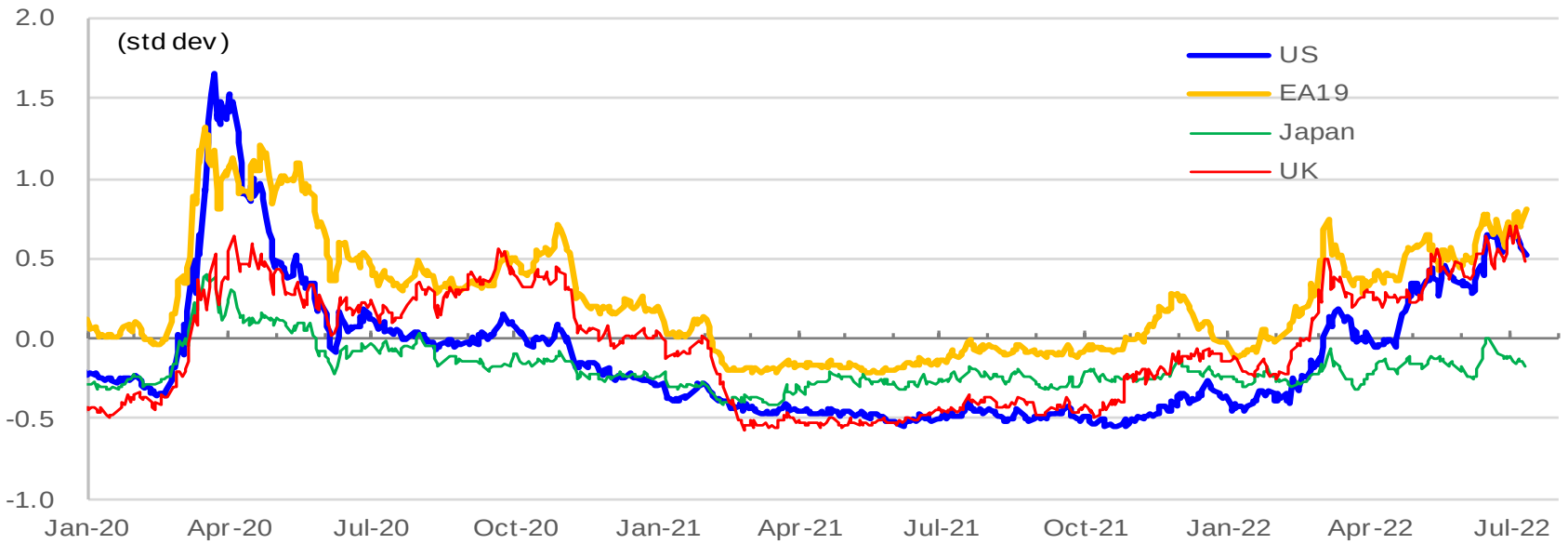
Components of financial stress index

	EA19	Japan	UK	US
3-month interbank rate minus 3-month T-bill yield	✓ (Germany)	✓	✓	✓
1-yr swap rate minus 1-yr government bond yield	✓ (Germany)	✓	✓	✓
5-yr swap rate minus 5-yr government bond yield	✓ (Germany)	✓	✓	✓
10-yr government bond yield spread versus Germany	✓ (Italy, Spain, Portugal)			
Bank stock prices: max prices over the past 250 days / today's price	✓ STOXX	✓ TOPIX	✓ FT350	✓ S&P500
Stock price index: max prices over the past 250 days / today's price	✓ STOXX	✓ TOPIX	✓ FT350	✓ S&P500
Treasury yield curve (10y minus 1y) x (-1)	✓ (Germany)	✓	✓	✓
Corporate bond yield spread				✓
Weight (%)	32.8	13.2	7.1	46.9

Notes: US corporate bond yield spread … ICE BofA 7-10yr; Moody's Baa minus 10-yr UST.
Sample period for standardization: January 1, 2002 - December 31, 2019.
We calculated each country's financial stress index when minimum five components are available for Japan and the UK, and minimum six components for EA19 and the US.
The weight of overall financial stress index is taken from the share of average nominal GDP in 2011-2020.
Sources: Bloomberg, CEIC Database, FRED Database, SBI SECURITIES.

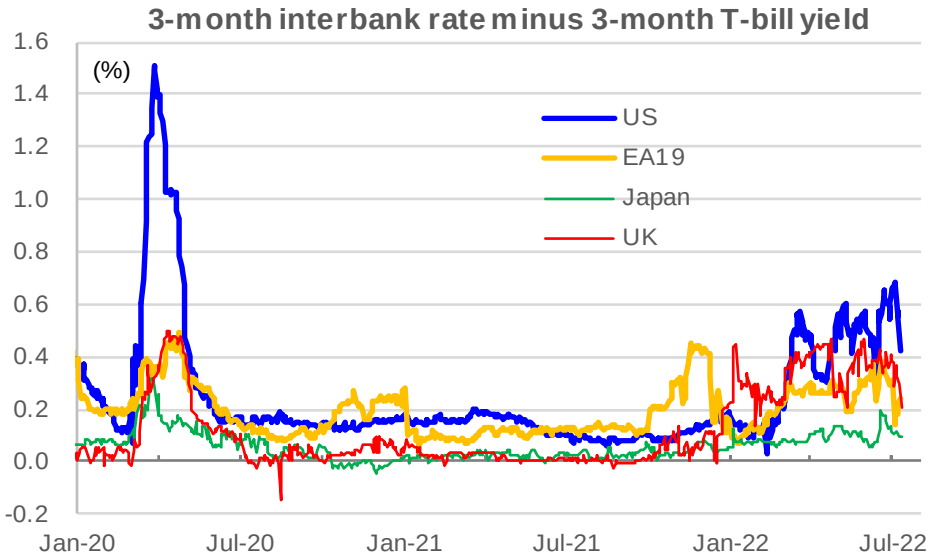
Financial stress index (SBI-FSI) in major developed countries (3) : Components

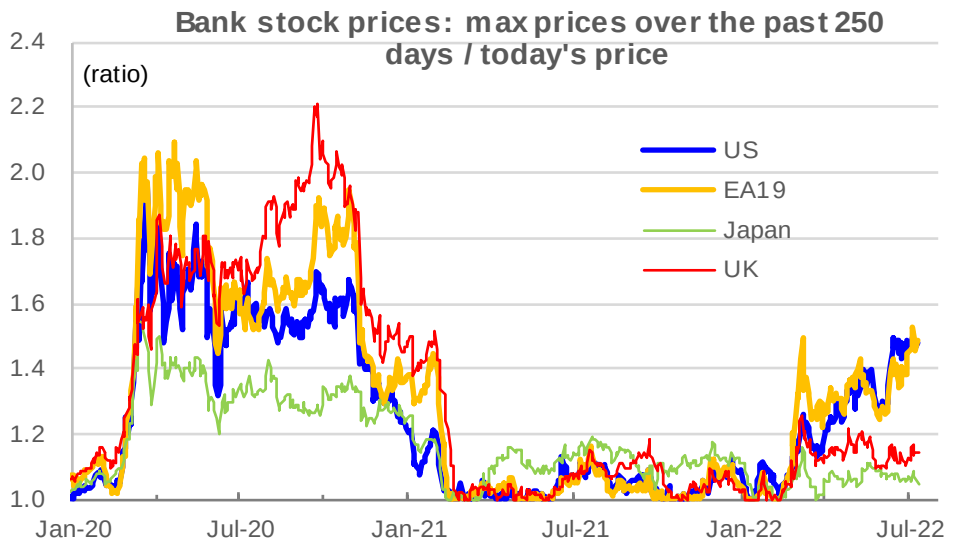


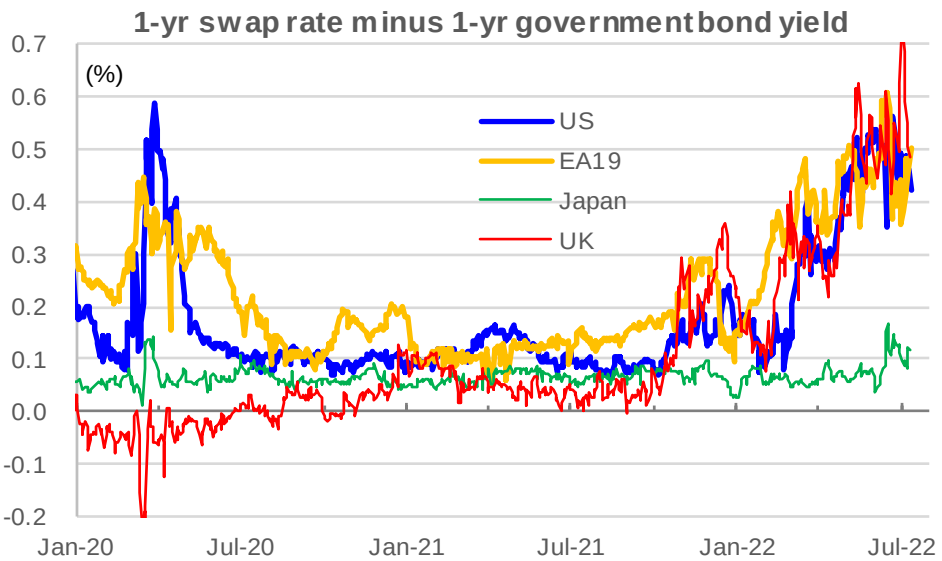


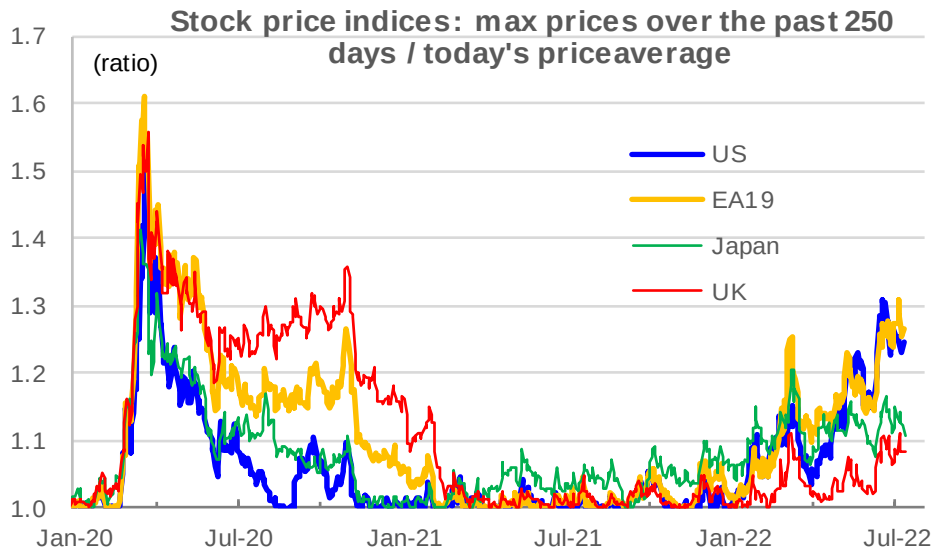
Note: Financial stress index is the weighted average for four regions (EA19, Japan, the UK, and the US), consisting from maximum seven elements.
Sources: Bloomberg, CEIC database, FRED Database, SBI SECURITIES

Financial stress index (SBI-FSI) in major developed countries (4) : Components



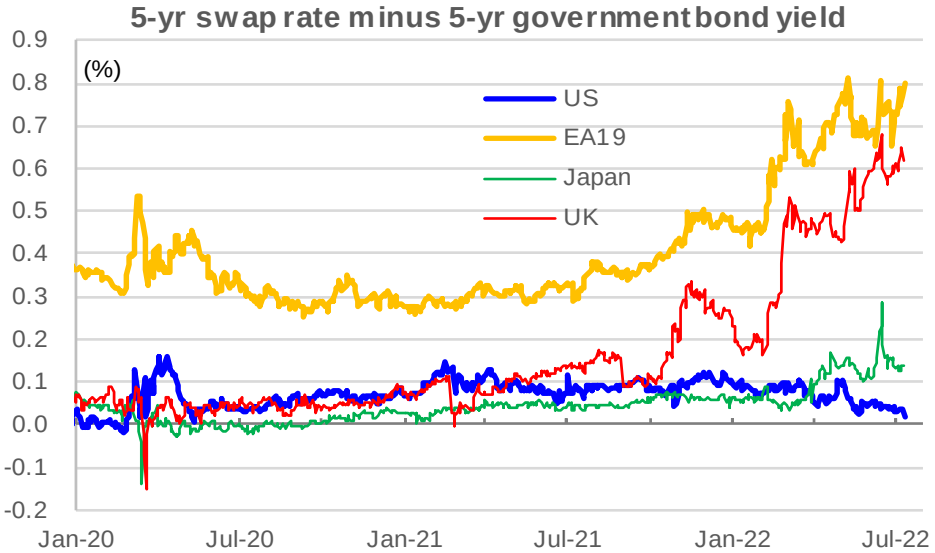


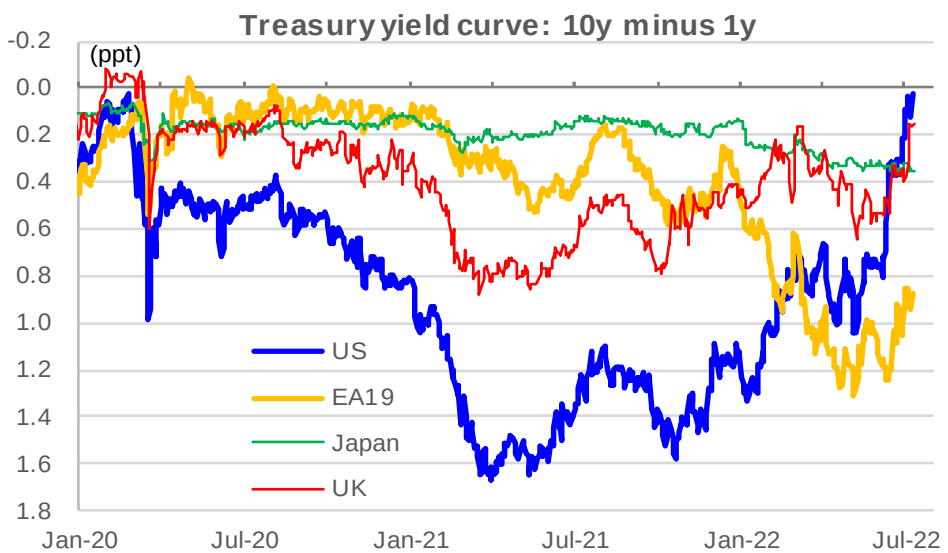


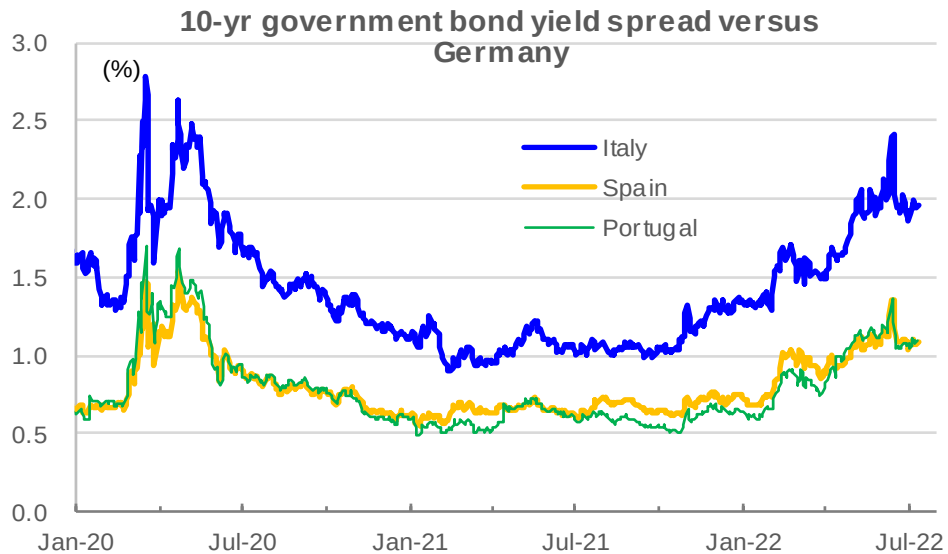


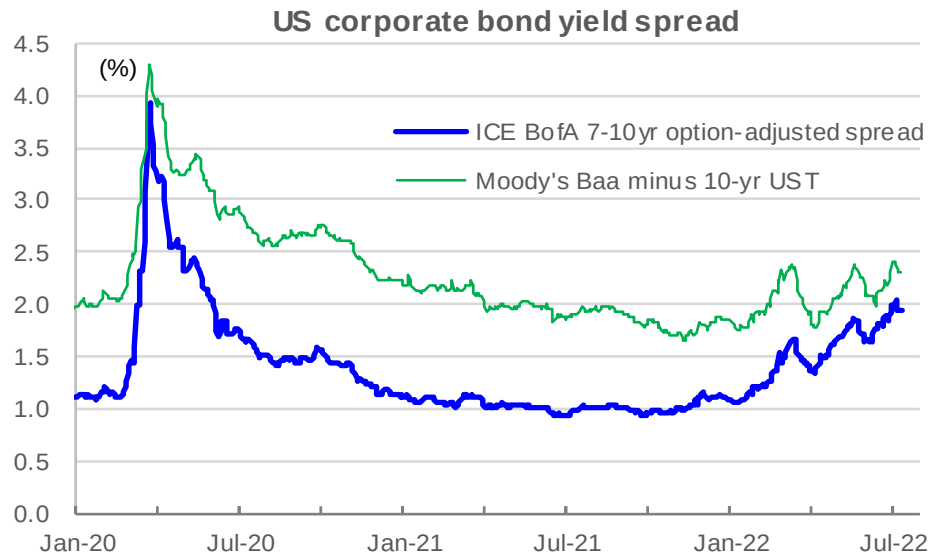
Note: Financial stress index is the weighted average for four regions (EA19, Japan, the UK, and the US), consisting from maximum seven elements.
Sources: Bloomberg, CEIC database, FRED Database, SBI SECURITIES

Financial stress index (SBI-FSI) in major developed countries (5) : Components









Note: Financial stress index is the weighted average for four regions (EA19, Japan, the UK, and the US), consisting from maximum seven elements.
Sources: Bloomberg, CEIC database, FRED Database, SBI SECURITIES

Trade with Russia, trade balance in energy, and inflation in major countries

Trade with Russia, trade balance in energy, and inflation in major countries

	Total trade with Russia	Purchases from Russian energy sector	Net exports in energy	Imports in energy	Overall CPI inflation	Contribution of CPI energy to overall CPI inflation
	2021	2018	2021	2021	May-2022	May-2022
	(% of GDP)	(% of GDP)	(% of GDP)	(% of GDP)	(%YoY)	(ppt)
Canada	0.10	0.01	4.12	1.28	7.61	2.58
China	0.79	0.29	-1.83	2.05	2.10	0.90
EU27 (EA19)*	1.84	n.a.	-1.95	2.83	8.83	4.28
France	0.84	0.21	-1.04	1.66	5.28	2.47
Germany	1.35	0.37	-2.55	3.06	8.03	3.90
Italy	1.66	0.51	-2.33	2.41	6.81	3.69
Japan	0.40	0.14	-2.95	3.13	2.52	1.22
UK	0.84	0.09	-0.81	1.58	9.08	3.50
US	0.15	0.01	0.11	0.94	8.52	2.98

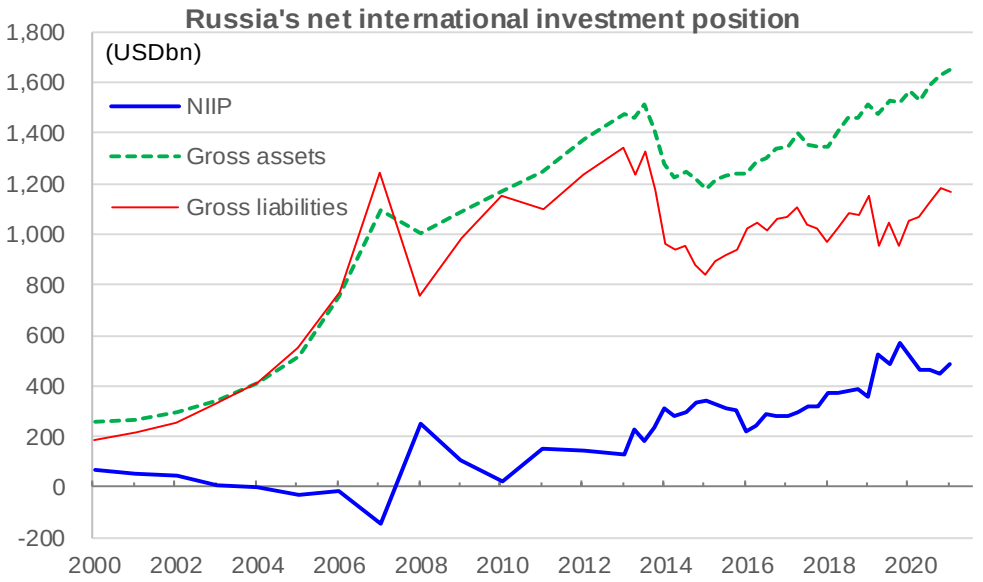
Notes: EA19 for net exports in energy, imports in energy, and CPI inflation.
Sources: CEIC Database, SBI SECURITIES

The scale of the negative effects on economic activity is larger in the following order: continental Europe > China > Japan > the US.

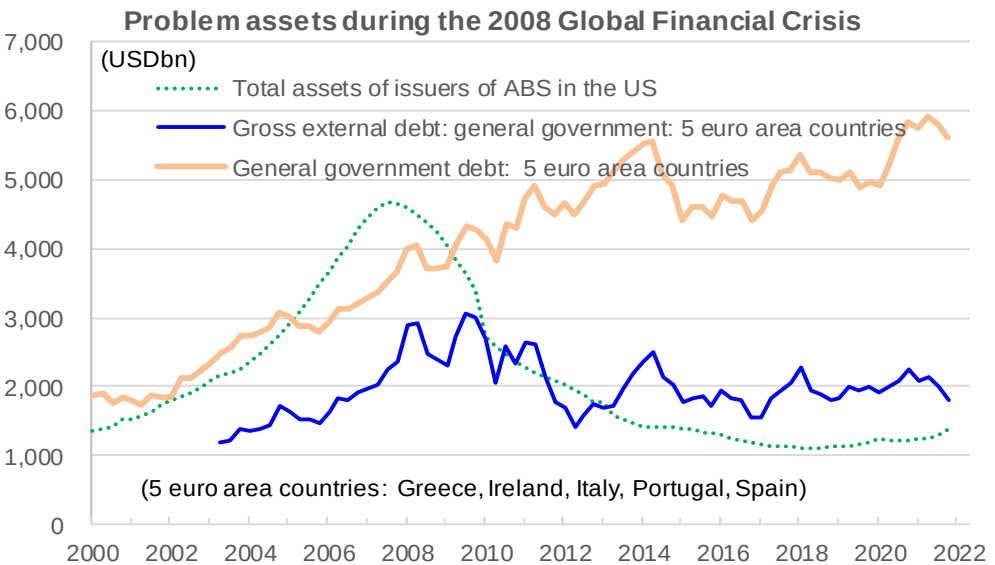
Main transmission channels of the negative effects:

- Continental Europe: energy trade with Russia, deterioration of the trade balance, energy prices, and psychology of households and businesses.
- China: energy trade with Russia and deterioration of the trade balance.
- Japan: deterioration of the trade balance.
- US: energy prices.

Russia's external assets and liabilities



Sources: CEIC Database, Bank of Russia, SBI SECURITIES



Sources: CEIC Database, Eurostat, Federal Reserve, SBI SECURITIES

Russia's international investment position at the end of 2021

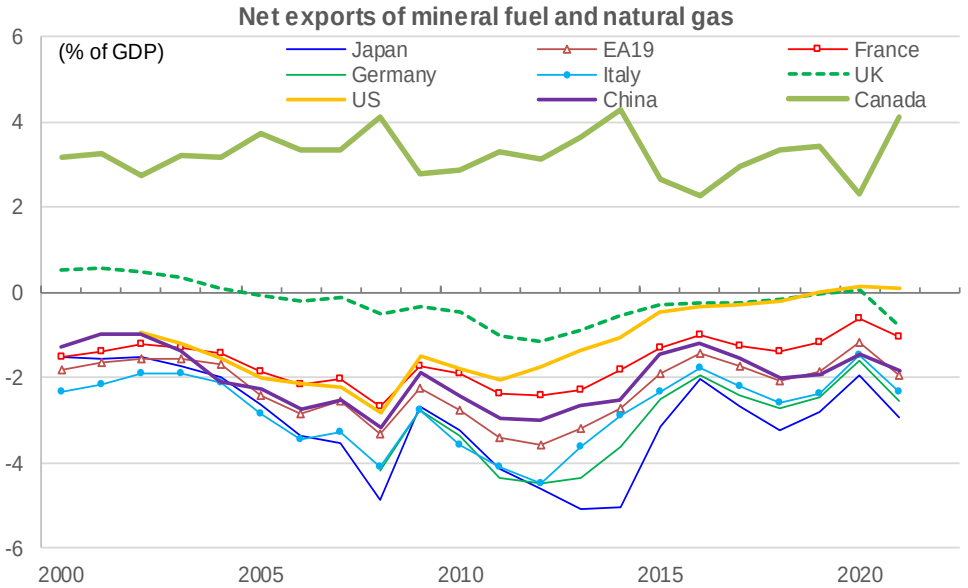
(USDbn)

Assets *	1,648.2	**Liabilities ***	1,164.7
Direct investment	487.1	Direct investment	609.6
Equities	391.8	Equities	474.9
Debt instruments	95.3	Debt instruments	134.7
Portfolio investment	117.4	Portfolio investment	273.9
Equities	34.5	Equities	197.8
Debt securities	82.9	Debt securities	76.1
		General government	64.2
Other investment	406.7	Other investment	275.5
Currency & deposits	187.6	Currency & deposits	71.3
Loans	157.7	Borrowing	148.2
Trade credits & advances	41.0	Trade credits & advances	16.1
Other account receivables	10.2	Other account payables	9.6
Reserve assets	630.6		
Monetary gold	133.1	**Net international investment position ***	483.4
SDRs	24.2		
Other reserve assets	468.1		
Currency & deposits	184.7		
Securities	279.1		
Other claims	4.2		

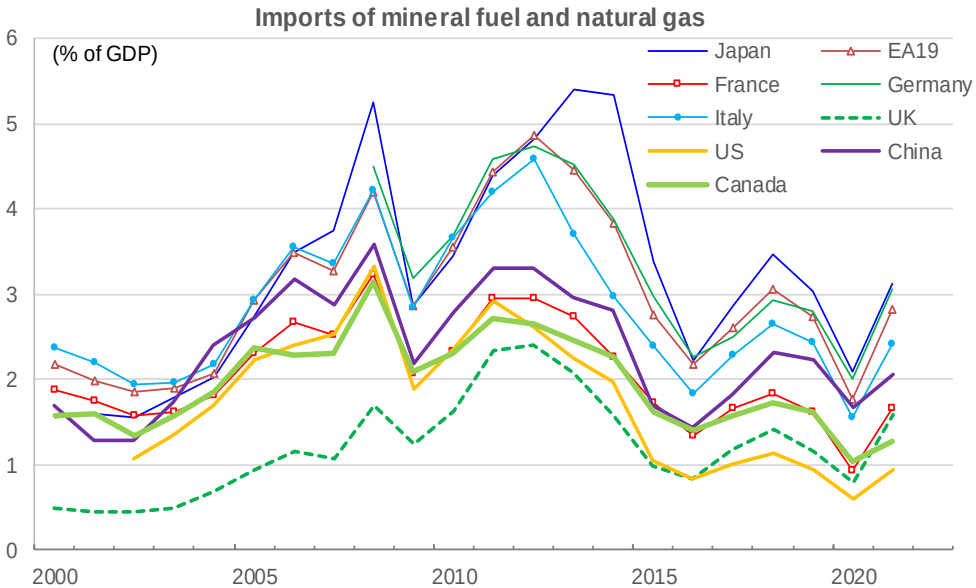
Sources: CEIC Database, Bank of Russia, SBI SECURITIES

- Russia's external debt is USD1.2t.
- The total amount of problem loans during the 2008 GFC and the 2011 euro crisis (total assets of US ABS issuers and peak general government external debt for five euro area countries) was USD7.7t.
- ABS issuers' assets and five euro area general government debt was USD9.6t.

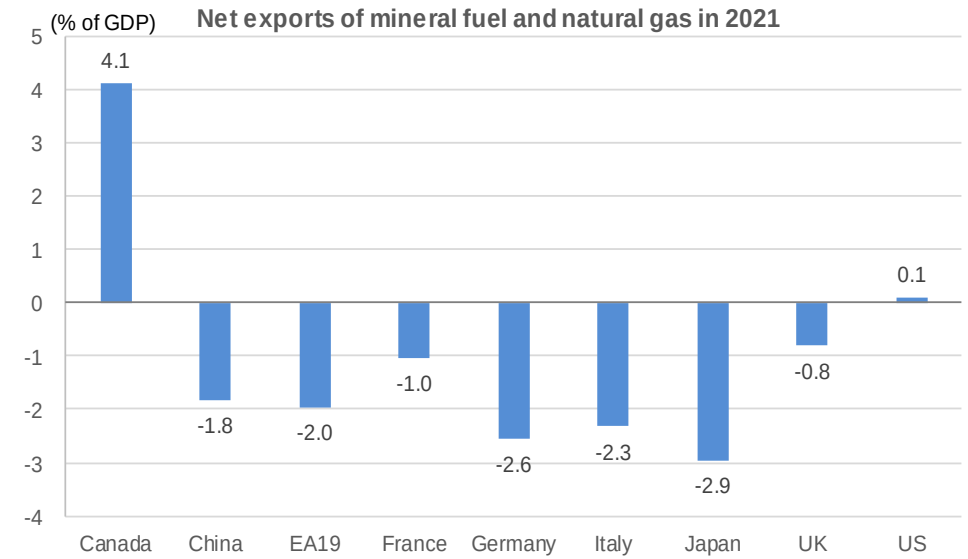
Trade balance on energy in major countries



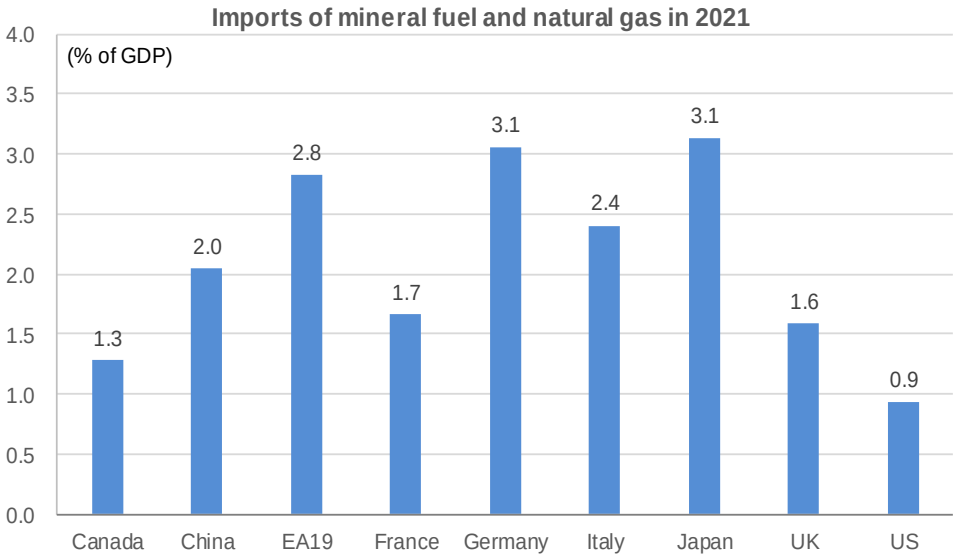
Sources: CEIC Database, SBI SECURITIES



Sources: CEIC Database, SBI SECURITIES



Sources: CEIC Database, SBI SECURITIES



Sources: CEIC Database, SBI SECURITIES

Japan's trade with Russia in 2021: detailed items

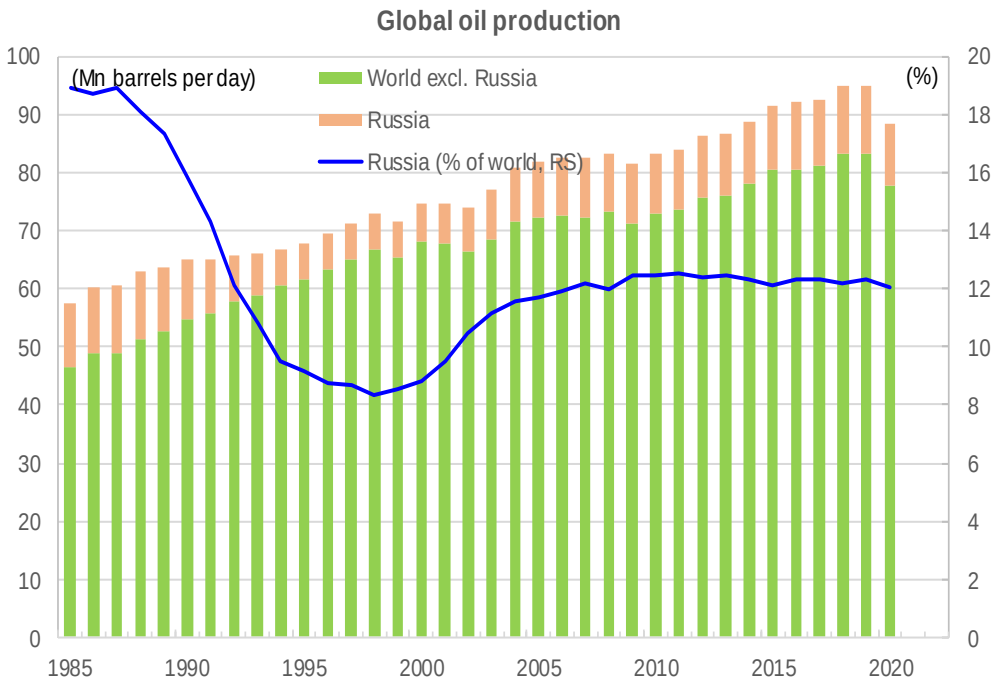
Items with high share of trading with Russia

Share of exports to Russia in each item (%)		Share of imports from Russia in each item (%)	
42.28	Minced codfish	68.34	Pig iron
20.08	Bulldozers	56.42	Crabs
15.91	Used passenger cars	46.08	Sea urchins
10.62	Glass mirror	34.53	Palladium
5.59	Electric fans	25.06	Anthetic coal
4.84	Furniture (excl. for medical use)	16.58	Alminium & alloys
4.51	Tires and tubes foe automobiles	16.34	Wood, shaped or simply work
4.39	Locksmith, wares	12.63	Spiegeleisen and ferro-alloy
4.14	Structural parts in iron	12.08	Coal
3.53	Audio apparatus	10.24	Millet
3.48	Mechanical handling equipment	9.27	Salmon
3.45	Lubricating oils and greases	9.25	Patassium chloride
3.43	Lifts, elevators, and hoist	9.24	Fur skins, undressed
3.38	Buses and trucks	9.12	Wood in the rough, other
3.34	Passenger cars	8.73	Liquefied natural gas
3.08	Vehicle engines	7.61	Abies and picea
3.04	Amplifiers, loudspeakers	7.44	Pattasic fertilizers
2.94	Excavators	6.14	Coal of coking
2.91	Cranes	5.48	Coal for coking, n.e.s.
2.78	Automobile parts	5.02	Butyl rubber
2.49	Machine for paper and pulp	5.02	Lead
2.45	Materials of rubber	4.71	Cuttle fish
2.11	Airconditioners	4.59	Paper pulp
2.07	Comb, hair-slides	4.14	Safflower seed
2.04	Pump for liquid	3.72	Herring roe
2.01	Container	3.72	Petroleum

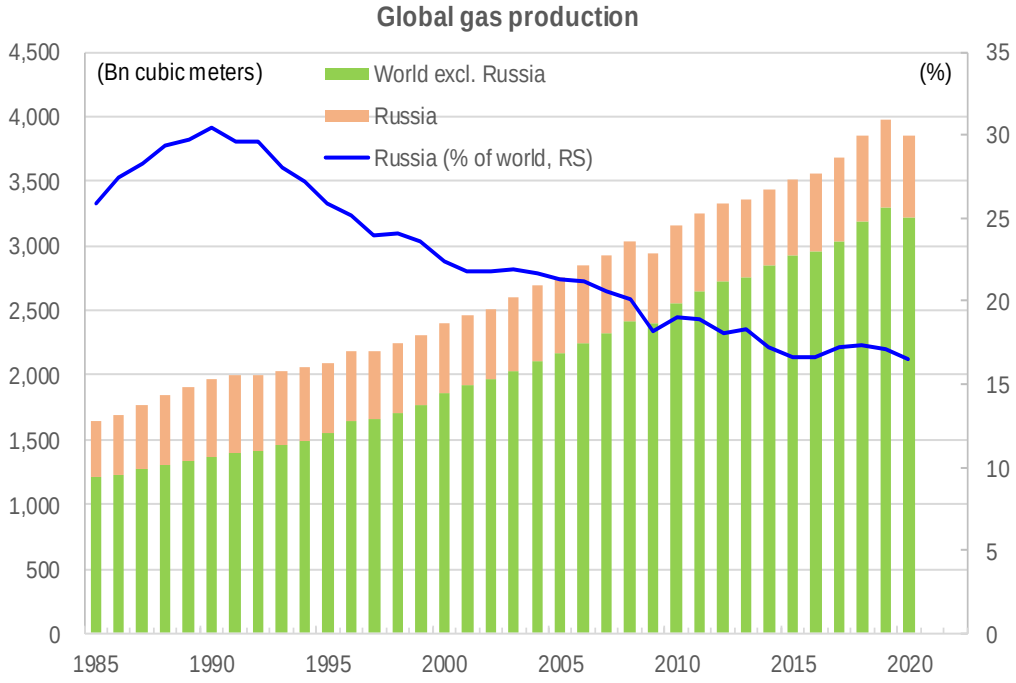
Sources: CEIC Database, SBI SECURITIES

- Among imports with a higher share from Russia, palladium and LNG need to be procured from other countries.

Russia's oil and gas production share in the global economy



Sources: BP Statistical Review of World Energy, July 2021, SBI SECURITIES



Sources: BP Statistical Review of World Energy, July 2021, SBI SECURITIES

- Russia's share in global oil and gas production is very high at 12% and 16%–17%, respectively.
- It is difficult to procure such large volumes from other countries.
- The delay in procurement from Russia has a large negative ripple effect on the global economy.

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Oil trade matrix by major importer and exporter in 2020

Oil: Inter-area movements 2020

							To					
Crude (million tonnes)	Canada	US	S. & Cent. America	Europe	Middle East	Africa	China	India	Japan	Singapore	Other Asia Pacific	**Total**
From												
Canada	-	179.7	0.5	4.7	†	†	3.2	1.0	-	†	0.3	**189.3**
Mexico	-	32.8	0.1	8.4	0.1	-	0.4	8.0	0.1	-	7.0	**56.8**
US	21.3	-	8.5	57.9	1.9	0.2	19.8	10.7	2.0	2.7	26.9	**155.3**
S. & Cent. America	0.4	30.3	-	12.3	1.2	0.6	72.0	16.0	2.2	5.3	5.2	**145.7**
Europe	0.9	2.1	0.7	-	0.5	0.4	18.8	1.6	-	0.1	2.9	**28.2**
Russia	-	3.7	0.4	138.2	0.1	0.1	83.4	2.6	5.1	0.2	10.6	**260.0**
Other CIS	†	0.9	0.1	66.0	7.1	0.9	6.3	3.6	0.9	0.3	6.9	**93.2**
Iraq	-	8.9	0.3	44.9	1.0	1.4	60.1	47.3	0.5	1.0	13.6	**178.9**
Kuwait	-	1.0	-	2.5	†	3.6	27.5	9.9	11.3	3.2	37.5	**96.5**
Saudi Arabia	3.7	24.9	2.9	41.9	10.6	8.4	84.9	37.6	49.6	4.8	79.5	**349.1**
UAE	-	0.3	†	0.4	†	1.1	31.2	22.2	38.3	10.9	34.6	**142.7**
Other Middle East	-	-	†	1.0	5.7	0.1	53.1	12.9	11.5	7.9	15.3	**107.7**
North Africa	-	0.9	1.0	31.8	0.9	†	3.4	4.5	0.5	1.1	4.7	**51.0**
West Africa	1.6	7.1	3.3	65.4	4.3	8.1	71.8	21.4	0.2	3.1	16.0	**203.7**
East & S. Africa	†	0.4	†	0.3	†	†	2.1	0.6	0.1	†	0.3	**3.8**
Australia	†	-	†	†	0.2	†	1.4	0.1	0.3	1.8	5.6	**9.4**
China	†	-	†	†	†	†	-	0.1	0.1	0.2	0.7	**1.1**
India	-	-	†	†	†	†	-	-	-	†	†	**0.1**
Japan	-	-	†	-	-	†	-	-	-	-	†	**†**
Singapore	-	-	†	-	†	†	-	†	-	-	1.5	**1.7**
Other Asia Pacific	†	0.8	†	†	0.4	0.5	17.8	4.0	1.0	3.4	-	**34.6**
Total imports	**27.9**	**293.7**	**17.8**	**475.9**	**34.0**	**25.5**	**557.2**	**203.9**	**123.5**	**46.1**	**269.0**	**2108.6**

Note: † Less than 0.05. Sources: BP Statistical Review of World Energy, July 2021, SBI SECURITIES

- Europe's dependence on oil imports from Russia is high.
- China's import origins of oil are relatively diversified across the Middle East, Russia, Latam, and West Africa.

Natural gas trade matrix by major exporter and importer in 2020

Natural Gas: Trade movements 2020 as liquefied natural gas*

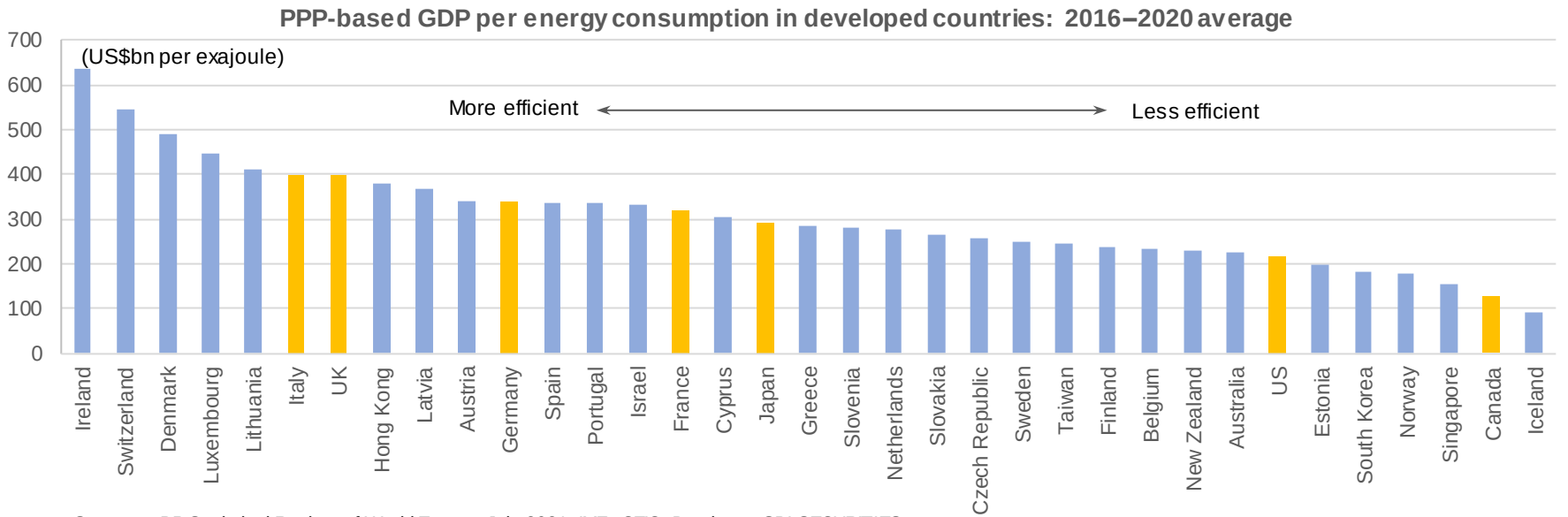
From

Billion cubic metres **To**	US	Norway	Other Europe*	Russian Federation	Oman	Qatar	United Arab Emirates	Yemen	Algeria	Nigeria	Australia	Brunei	Indonesia	Malaysia	Papua New Guinea	**Total imports**
US	-	0.1	-	-	-	-	-	-	-	0.2	-	-	-	-	-	**1.3**
North America	0.9	0.1	0.1	-	-	-	-	-	-	0.4	0.1	-	0.3	-	-	**4.6**
S. & Cent. America	7.1	0.1	†	0.1	-	0.9	-	-	0.1	†	0.1	-	-	-	-	**13.9**
France	2.6	0.8	-	5.0	-	1.9	-	-	4.3	4.2	-	-	-	-	-	**19.6**
Italy	2.1	-	†	-	-	6.8	-	-	2.8	0.2	-	-	-	-	-	**12.1**
Spain	5.4	0.5	0.1	3.4	-	3.1	-	-	0.5	4.0	-	-	-	-	-	**20.9**
Turkey	2.8	0.1	-	0.2	-	3.1	-	-	5.7	1.8	-	-	-	-	-	**14.8**
United Kingdom	4.7	0.4	-	2.9	-	9.0	-	-	†	0.3	-	-	-	-	-	**18.6**
Other EU	6.7	2.3	0.2	4.7	-	3.5	-	-	0.7	4.0	-	-	-	-	-	**23.7**
Europe	25.6	4.1	0.3	17.2	-	30.2	-	-	13.9	14.6	-	-	-	-	-	**114.8**
Middle East & Africa	1.3	-	0.2	0.6	0.5	3.2	-	-	0.1	1.5	-	-	-	-	-	**9.2**
China	4.4	-	0.6	6.9	1.4	11.2	0.4	-	0.2	3.3	40.6	1.0	7.4	8.3	4.1	**94.0**
India	3.3	-	0.2	0.7	1.8	14.1	4.8	-	0.3	4.0	1.4	0.1	-	-	-	**35.8**
Japan	6.4	-	-	8.4	3.3	11.9	1.4	-	-	1.9	39.7	5.4	3.0	14.8	4.7	**102.0**
Pakistan	1.0	-	-	0.2	0.2	7.1	0.5	-	0.4	0.6	-	-	0.1	0.1	-	**10.6**
Singapore	0.8	-	-	0.1	0.2	0.5	-	-	-	-	3.2	0.1	0.4	-	-	**5.7**
South Korea	8.0	-	-	2.8	5.4	13.0	0.3	-	-	0.5	10.9	0.4	3.7	6.7	0.4	**55.3**
Taiwan	1.5	-	-	3.3	0.1	6.9	0.3	-	-	0.5	6.7	0.3	1.6	1.0	2.2	**24.7**
Thailand	0.7	-	-	-	0.2	3.0	-	-	-	0.3	1.1	0.2	0.3	1.3	0.1	**7.5**
Other Asia Pacific	0.4	-	-	0.1	-	4.1	-	-	0.1	0.8	-	-	-	0.6	-	**6.1**
Asia Pacific	26.4	-	0.7	22.5	12.7	71.8	7.6	-	0.9	11.9	106.0	8.4	16.4	32.8	11.5	**345.4**
Total exports	**61.4**	**4.3**	**1.3**	**40.4**	**13.2**	**106.1**	**7.6**	**-**	**15.0**	**28.4**	**106.2**	**8.4**	**16.8**	**32.8**	**11.5**	**487.9**

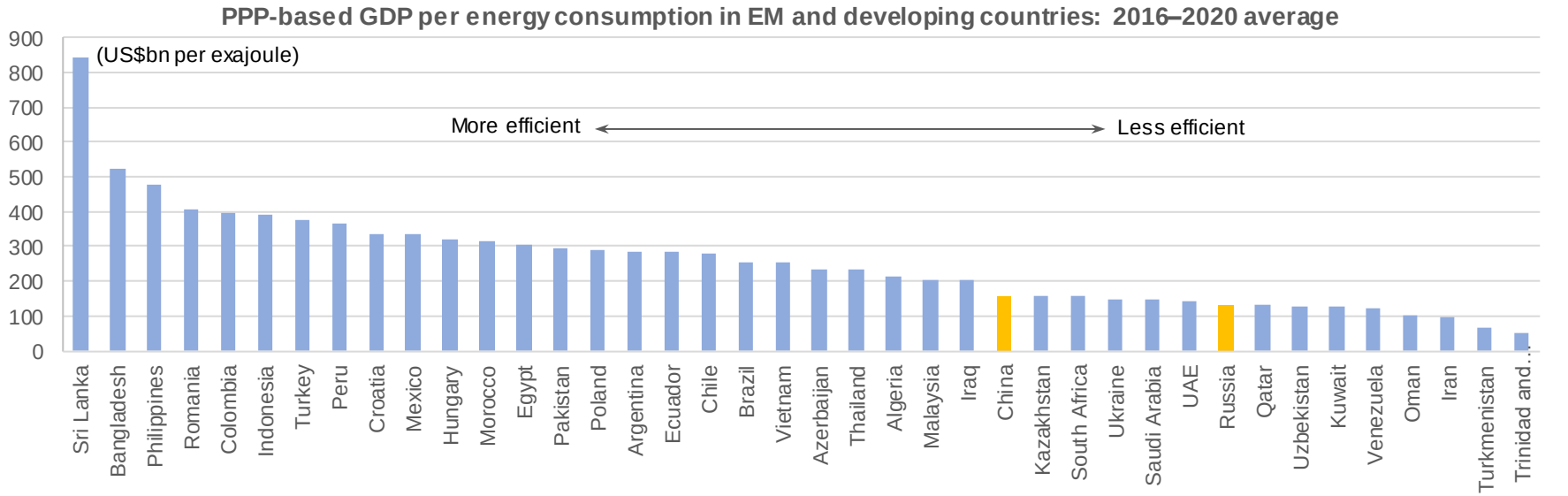
Note: * Includes re-exports. † Less than 0.05. Sources: BP Statistical Review of World Energy, July 2021, SBI SECURITIES

- Europe's dependence on LNG imports from Russia is high at 15.0%.
- Japan's dependence on LNG imports from Russia is 8.2%.

Comparison of efficiency of energy consumption: 2016 – 2020

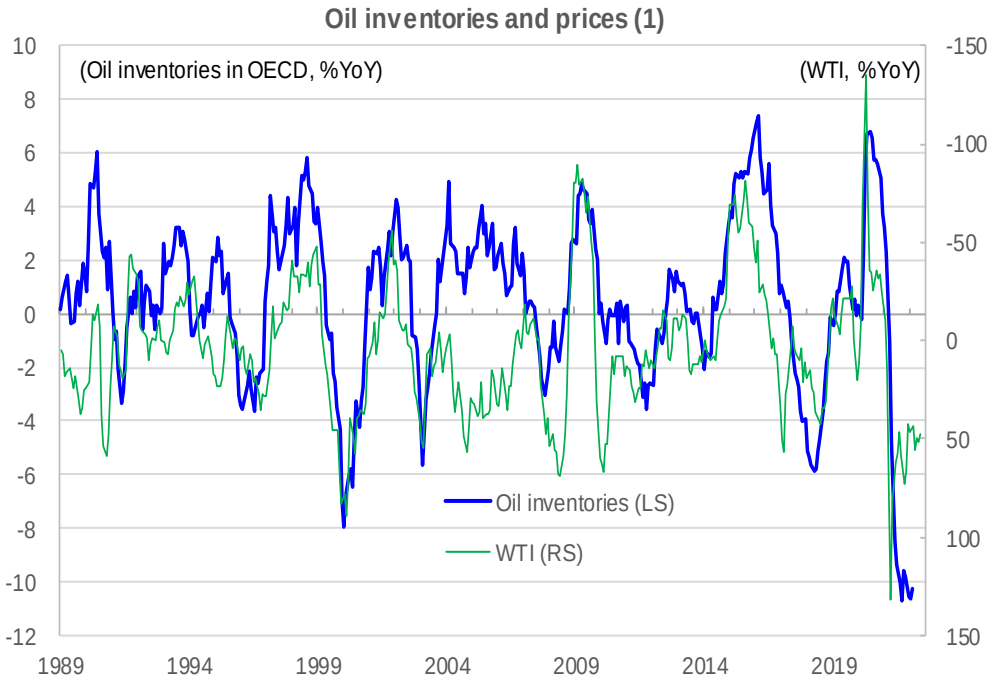


Sources: BP Statistical Review of World Energy, July 2021, IMF, CEIC Database, SBI SECURITIES

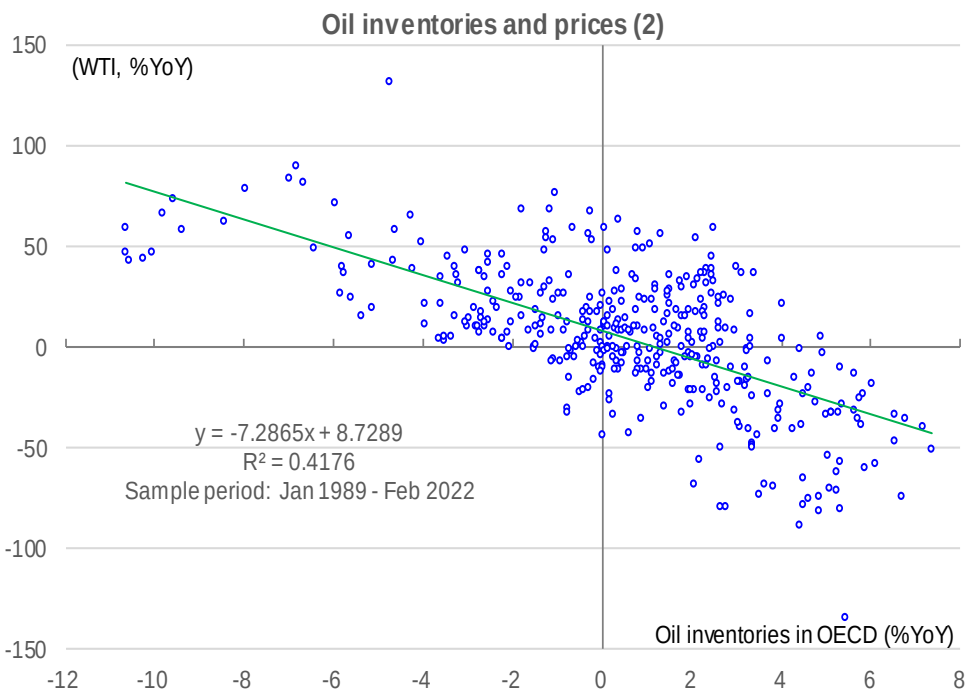


Sources: BP Statistical Review of World Energy, July 2021, IMF, CEIC Database, SBI SECURITIES

Oil inventories and prices (1)



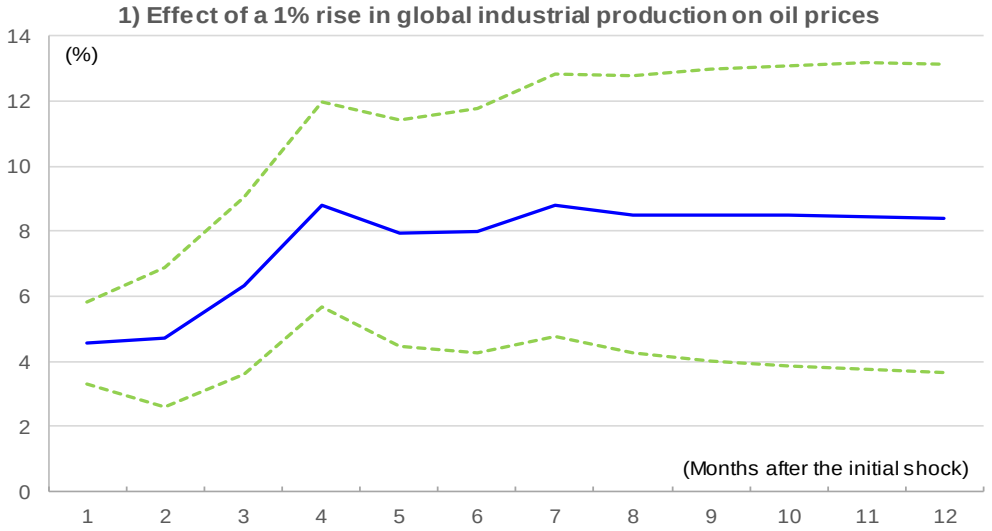
Note: Changes in natural log. Sources: US EIA, CEIC Database, SBI SECURITIES

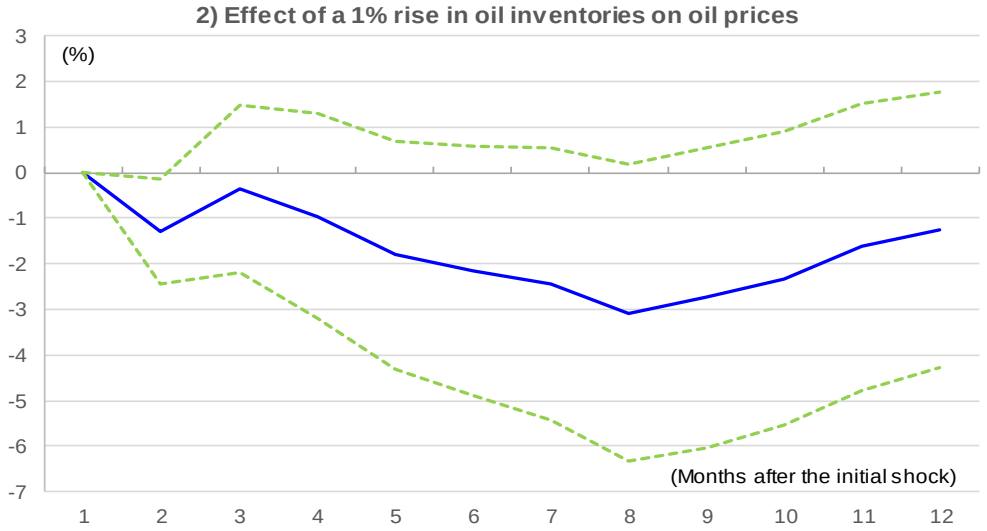


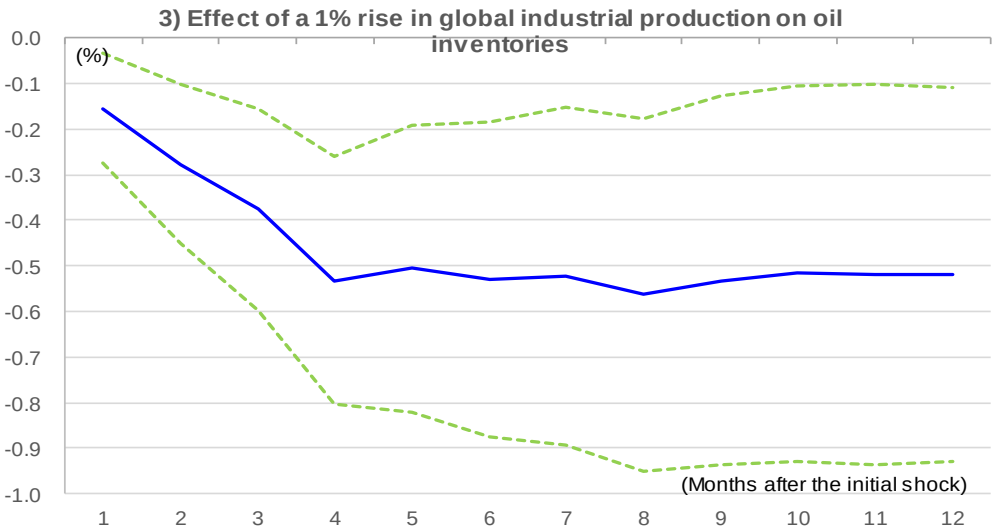
Note: Changes in natural log. Sources: US EIA, CEIC Database, SBI SECURITIES

- While there is no stable relationship between the levels of oil inventories and oil prices, there exists a certain relationship between the rate of change in oil inventories and oil prices such that a rise (a decline) in inventories lowers (increases) oil prices.
- We should monitor not only factors to push up oil prices (a decline in inventories) but also factors to lower oil prices (global economic slowdown, a rise in oil inventories as a result of more oil production by other oil-producing countries, and a decline in speculative demand through monetary tightening).

Oil inventories and prices (2)



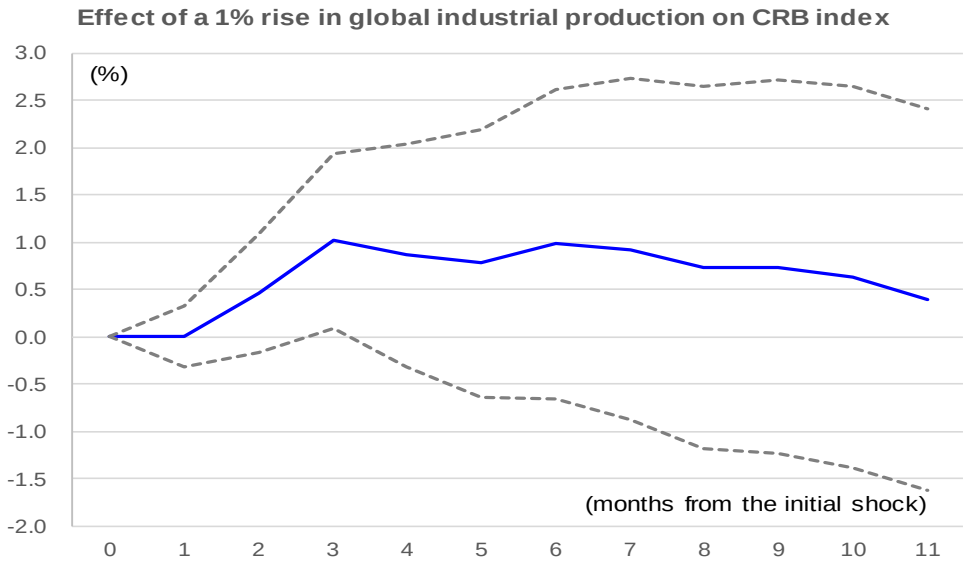


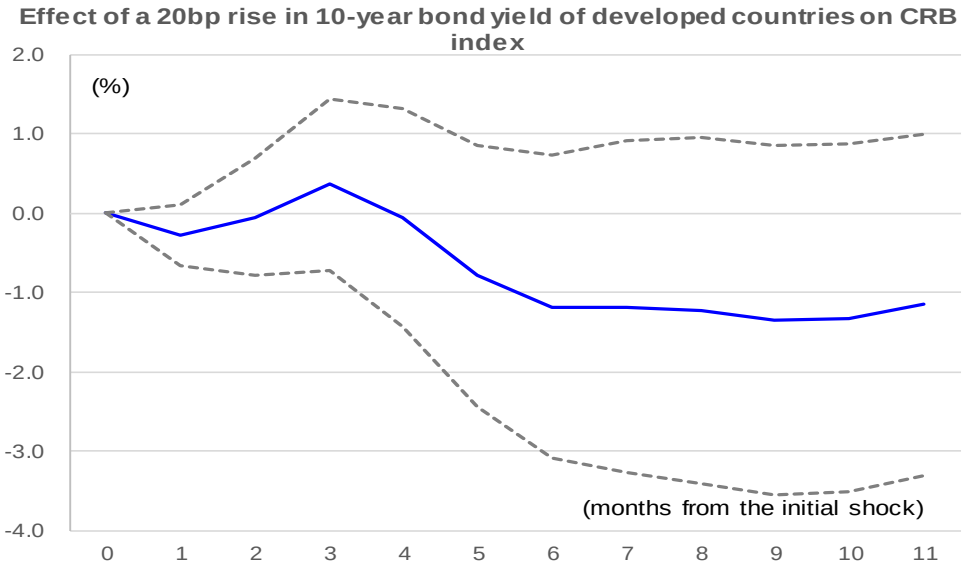


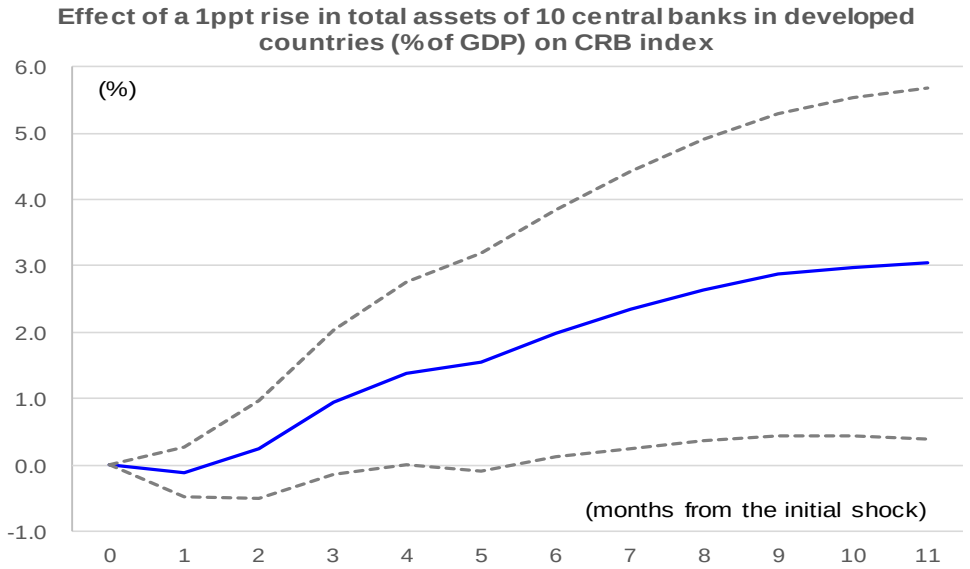
Notes: Obtained from three-variable vector autoregresssion, including global industrial production, oil prices, and oil inventories in OECD. Lag length is set to seven. The solid blue line is an average response. The dotted green lines represent a confidence interval of ±2 standard errors. First differences of natural log for each variable are used. Sample period: September 1991–October 2021. Sources: US EIA, CPB Netherlands Bureau for Economic Policy Analysis, CEIC Database, SBI SECURITIES

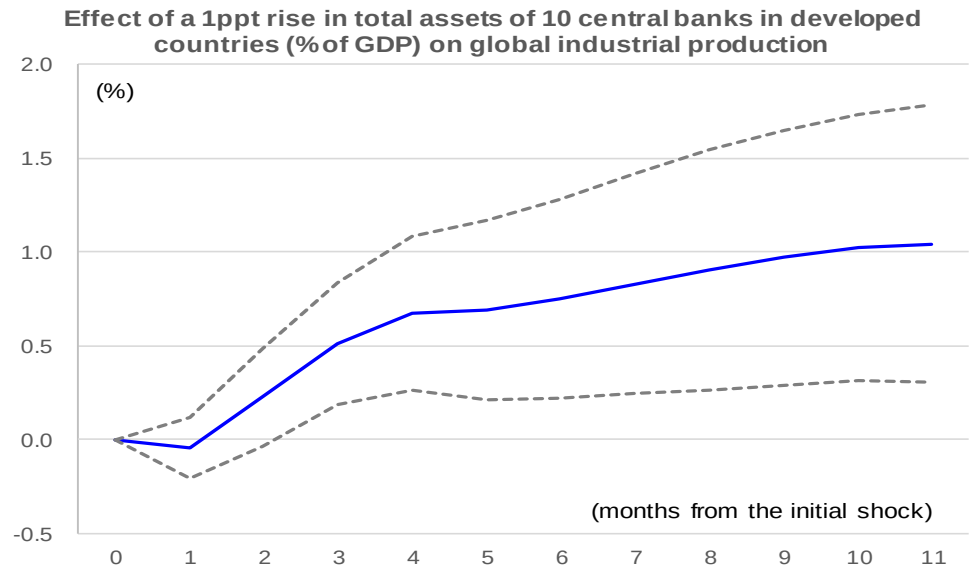
- A 1% rise in global industrial production raises oil prices by 8.8% in four months.
- A 1% rise in oil inventories lowers oil prices by 3.1% in eight months.
- A 1% rise in global industrial production lowers oil inventories by 0.51%.
- One standard deviation of the MoM changes in oil inventories and global industrial production is 0.71% and 0.82%, respectively.
- Since the onset of the pandemic, oil inventories have fluctuated by as much as ± 10%.
- Disappearance of Russian oil lowers global oil inventories by 12%, which could raise oil prices by +36%.

CRB index, industrial production, bond yields, and central banks' balance sheet









Note: Results from a four-variable vector autoregression, including global industrial production, CRB index, 10-year bond yield of developed countries, and total assets of 10 major central banks.
Sample period is set to August 2002 to June 2021. Lag length is set to six. The first difference of natural log specification is used.
10-year bond yield is a weighted average of developed countries.
Sources: CEIC Database, CPB, SBI SECURITIES.

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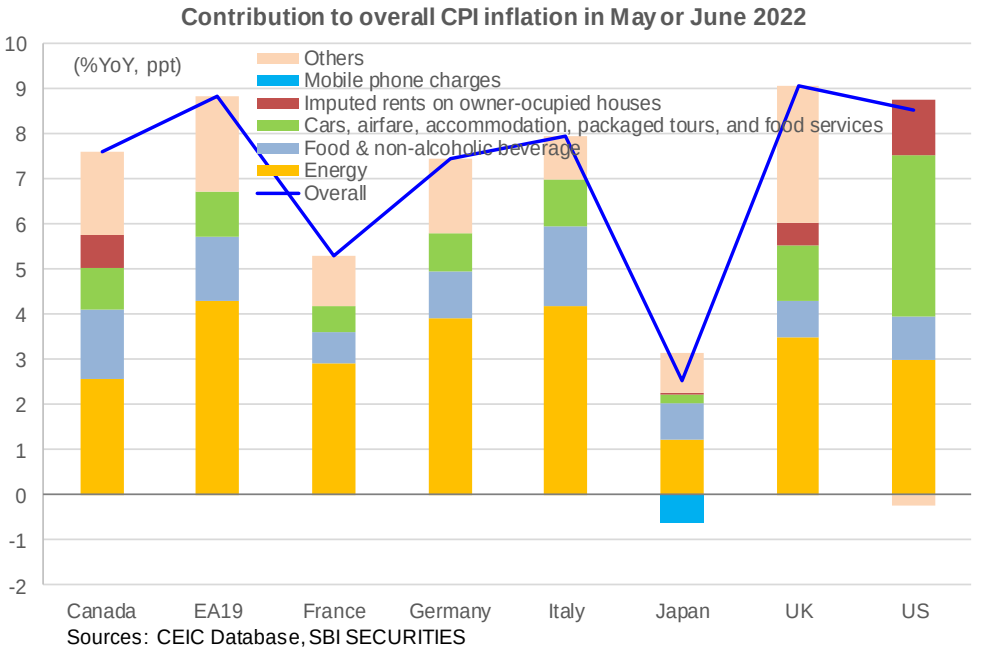
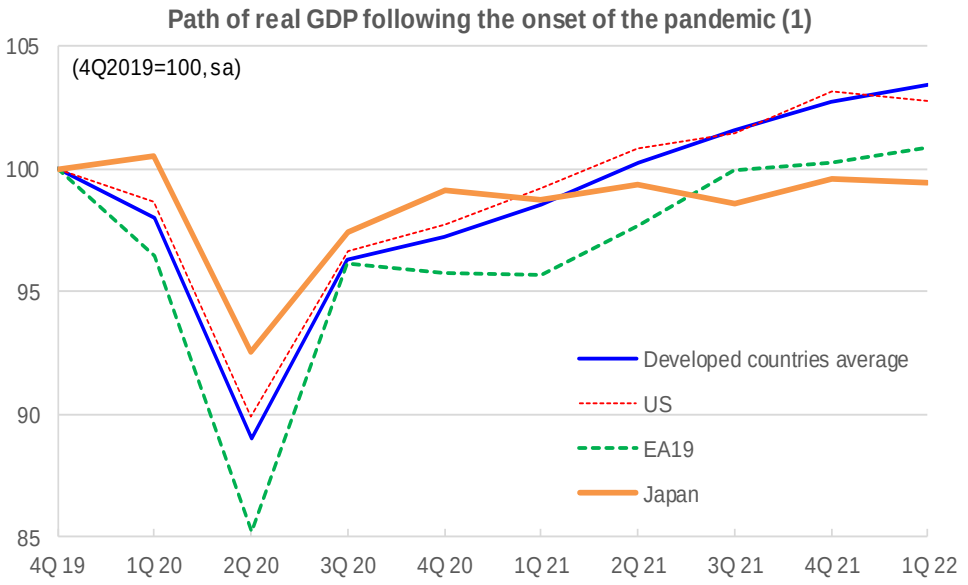
Contribution by major item on overall CPI inflation in G7 (1)



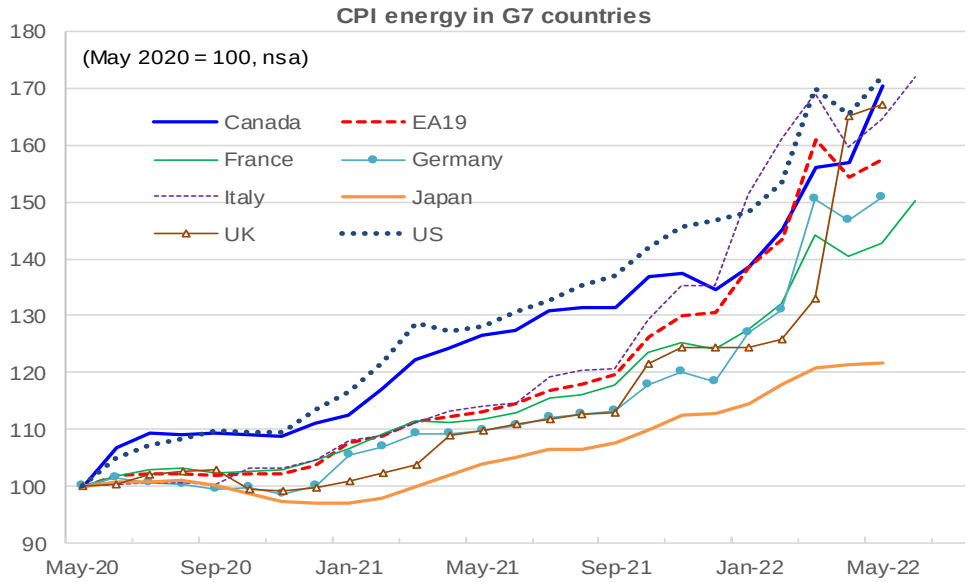
Sources: CEIC Database, SBI SECURITIES



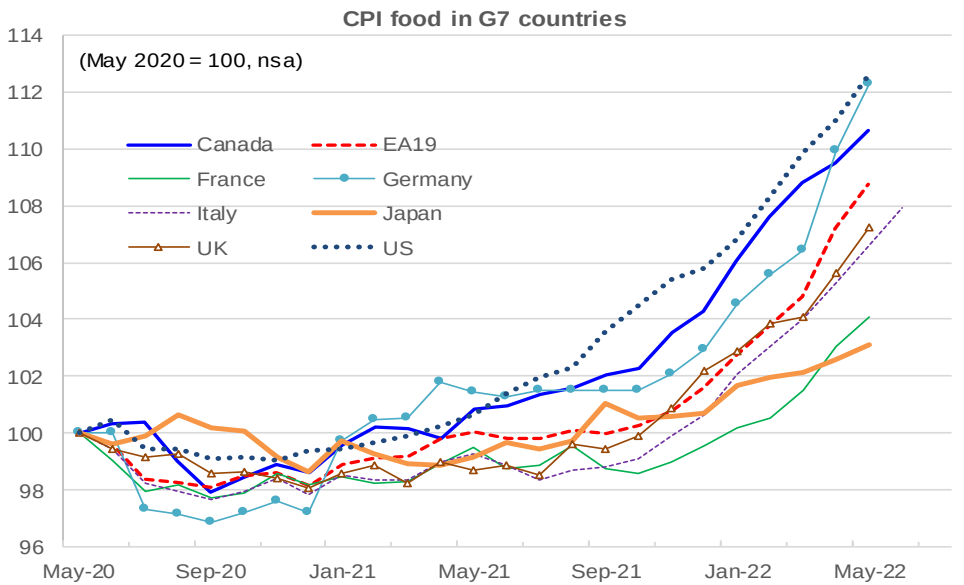
Note: Seasonally-adjusted real GD is indexed to 100 in 4Q 2019.
Sources: CEIC Database, SBI SECURITIES. P

- Contribution from energy prices to the rise in overall CPI inflation is higher in continental Europe than in the US.
- The US faces larger contributions from the rapid pace of the re-opening of the economy, the resulting inventory shortages, and rapid improvement in the output gap.
- Increases in energy and oil prices are a global negative supply shock.
- An economic re-opening acts as both a negative supply shock and a positive demand shock. The US has suffered additional disequilibrium in the labor market because of the re-shuffling of employment.
- The pace of the re-opening of the economy has been slower in Europe and Japan.

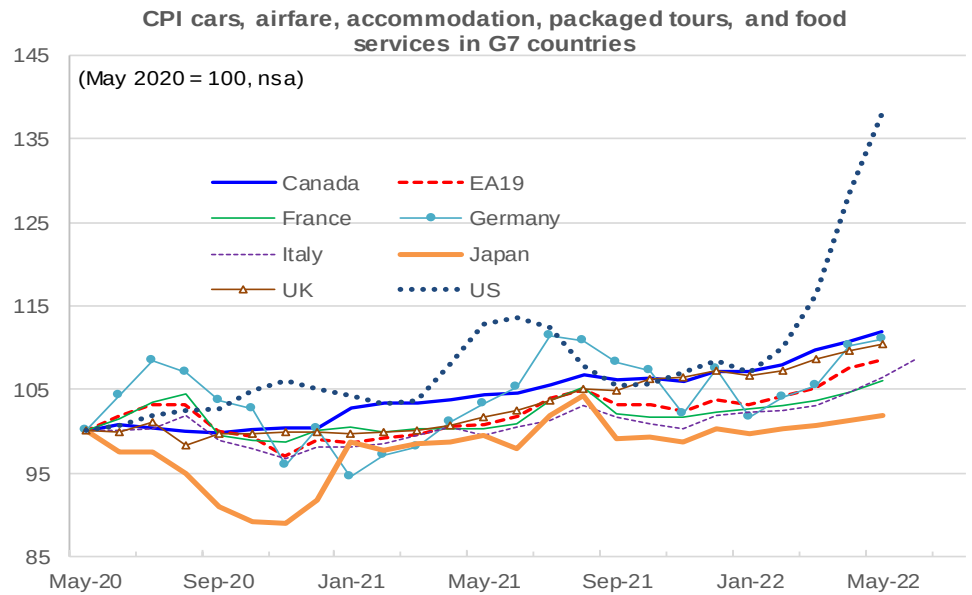
Contribution by major item on overall CPI inflation in G7 (2)



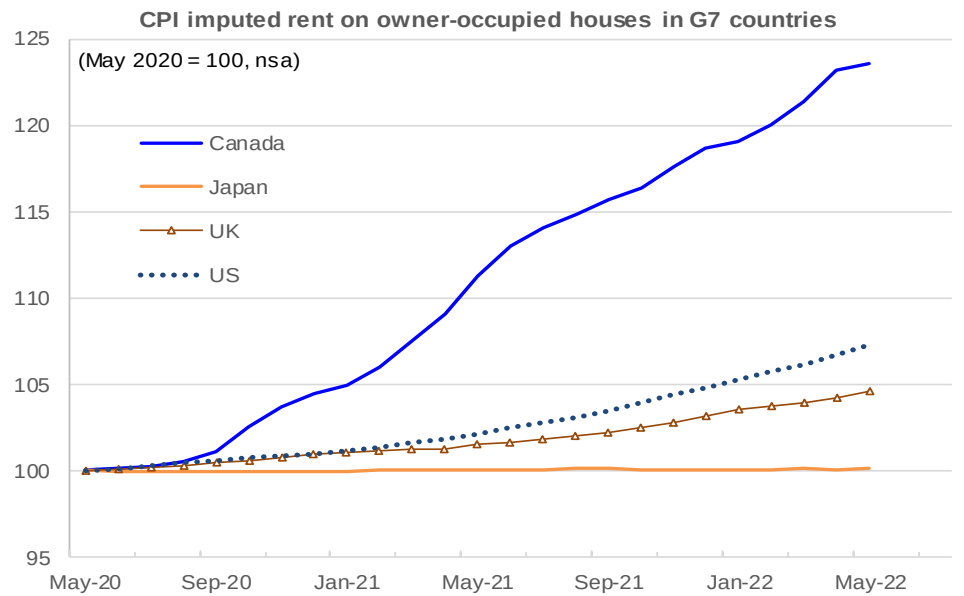
Sources: CEIC Database, SBI SECURITIES



Sources: CEIC Database, SBI SECURITIES



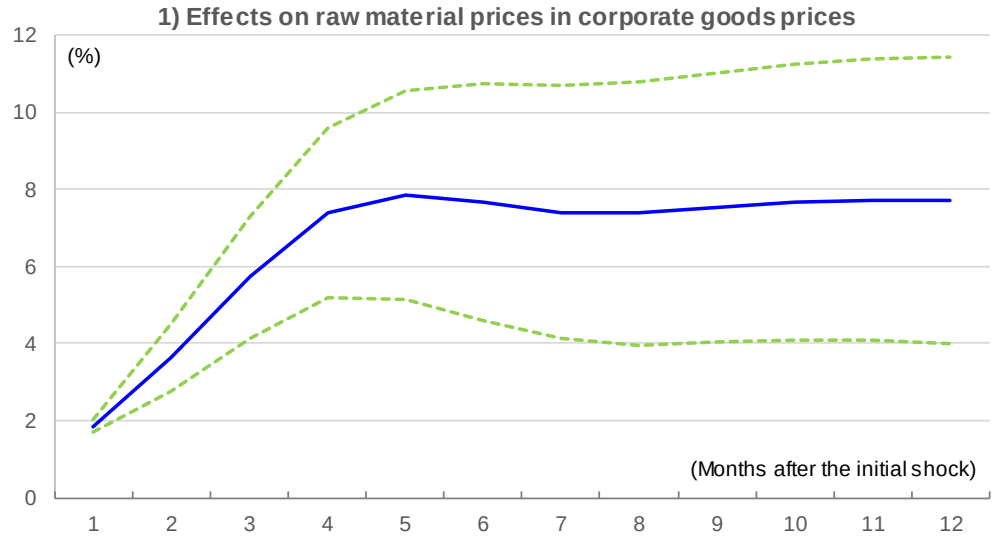
Sources: CEIC Database, SBI SECURITIES

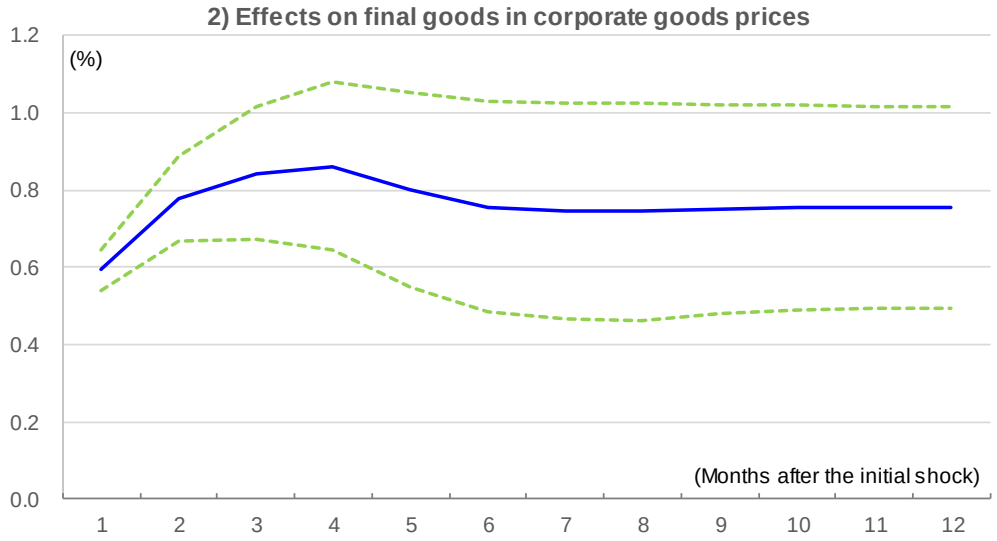


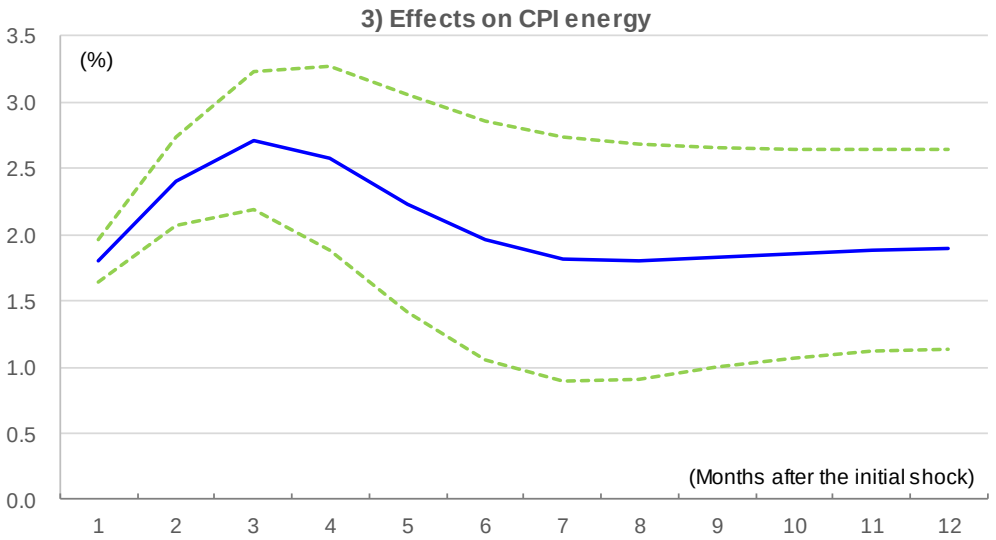
Sources: CEIC Database, SBI SECURITIES

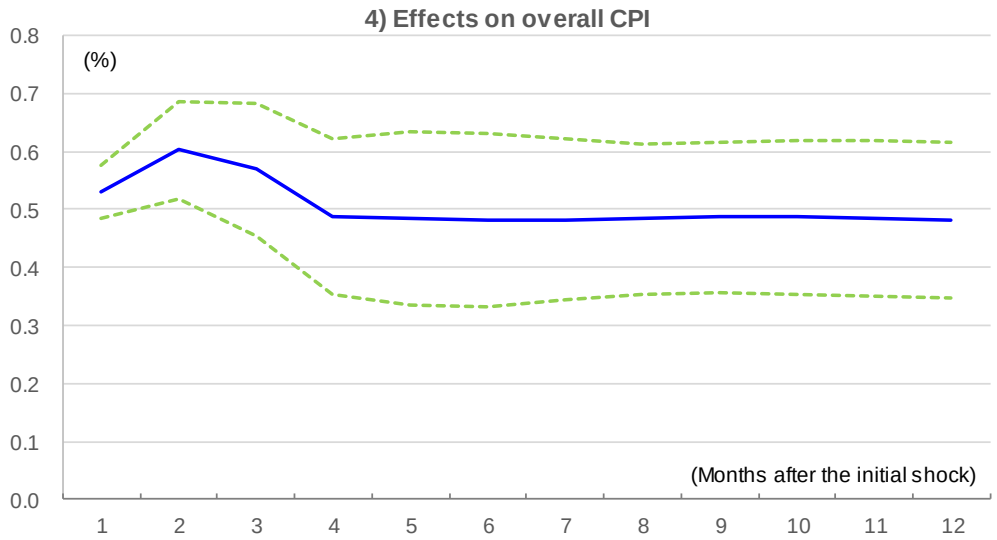
Effects of higher energy import prices on CGPI and CPI in Japan

Effects of a 10%rise in import price index of petroleum, coal, and natural gas on corporate goods prices and consumer prices in Japan



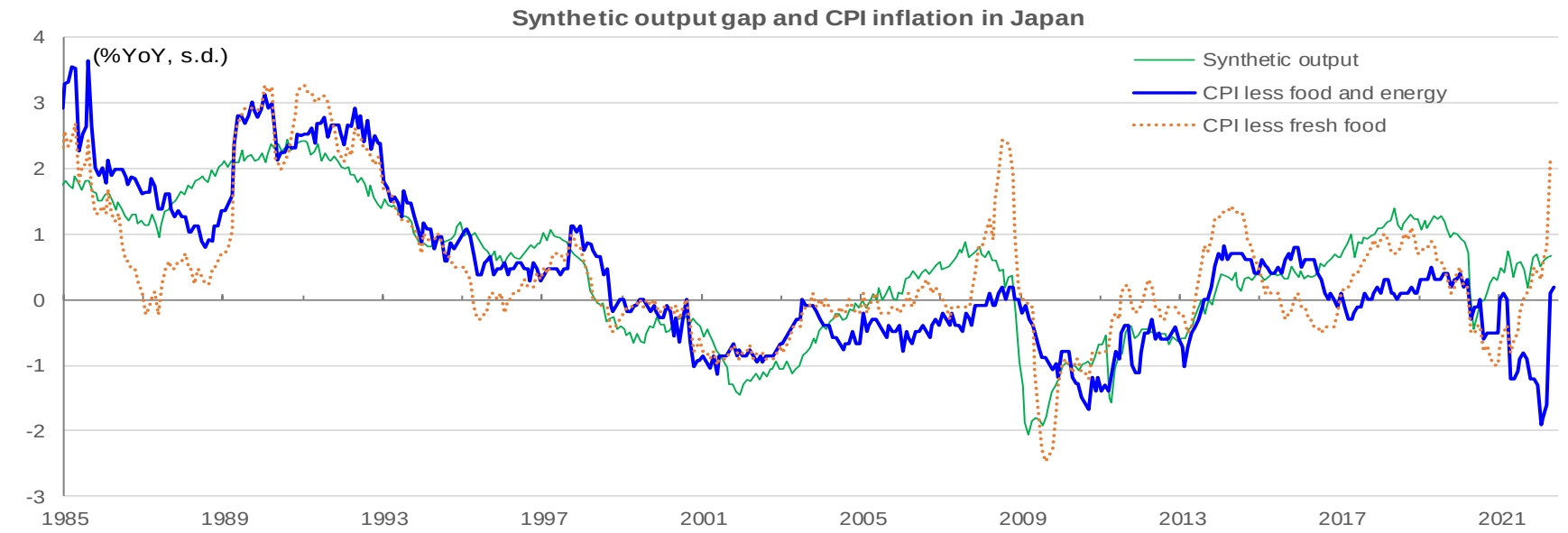


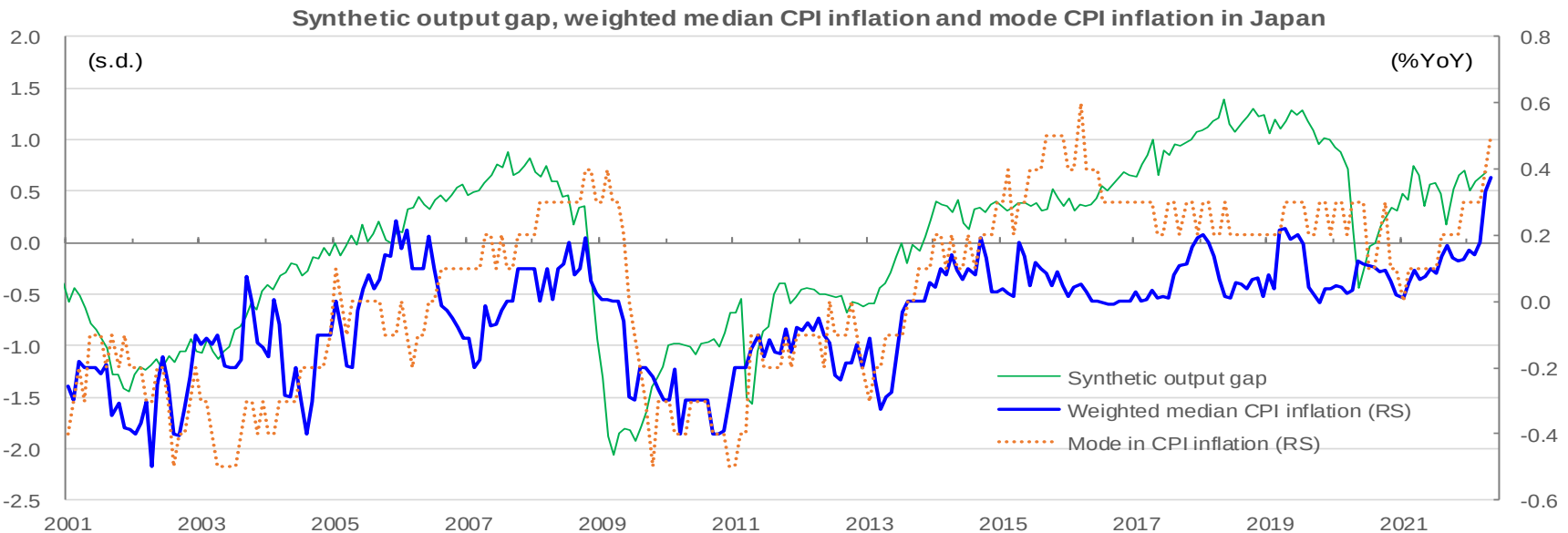




Notes: Results from two-variable vector autoregression including the import price index of petroleum, coal, and natural gas and one of the four price indices shown above.
The solid center line is the average response. The dotted lines indicate a confidence interval with ±2 standard errors.
Sample period: January 2000 - January 2021. Lag length is set to four. The first difference of natural log is used to all variables.
Sources: BoJ, CEIC Database, SBI SECURITIES.

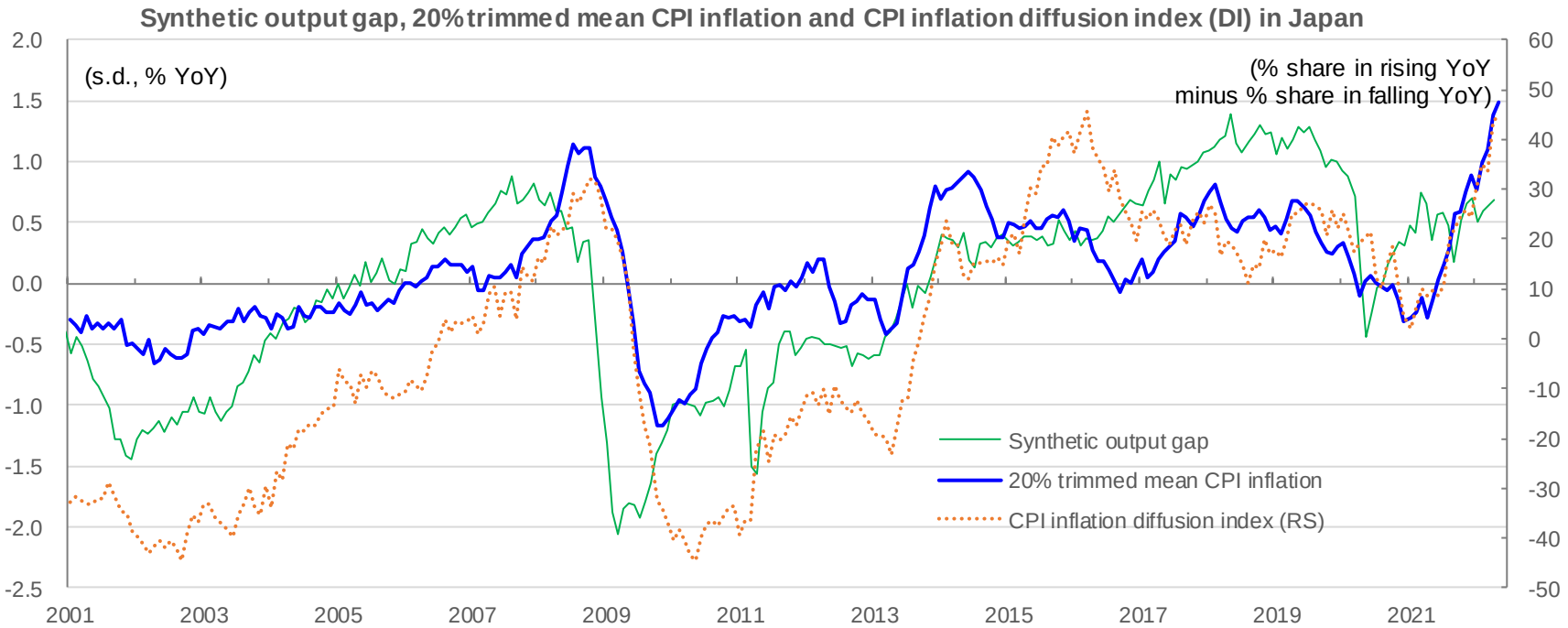
Underlying inflation measures in Japan (1)





Note: A synthetic output gap is calculated from the weighted standardized unemployment rate (weight: 0.667) and the capacity utilization (weight: 0.333) using data during 1995-2019.
Sources: CEIC Database, BoJ, MIC, METI, SBI SECURITIES.

Underlying inflation measures in Japan (2)



Note: A synthetic output gap is calculated from the weighted standardized unemployment rate (weight: 0.667) and the capacity utilization (weight: 0.333) using data during 1995-2019.
Sources: CEIC Database, BoJ, MIC, METI, SBI SECURITIES.

1. The underlying inflation measures in Japan, such as the weighted median, the mode, 20% trimmed mean, and the inflation DI, have stronger linkage with the business cycle than CPI inflation (less fresh food, or less food and energy).

2. When the effects from the re-opening of the economy and the supply-chain disruptions show up strongly, among the underlying inflation measures, the 20% trimmed mean inflation and the inflation DI are likely to face stronger upward forces. We should monitor whether the weighted median inflation and the mode in inflation also rise along with the other two indicators.

Underlying inflation measures in Japan (3)

Impulse responses of prices to various shocks

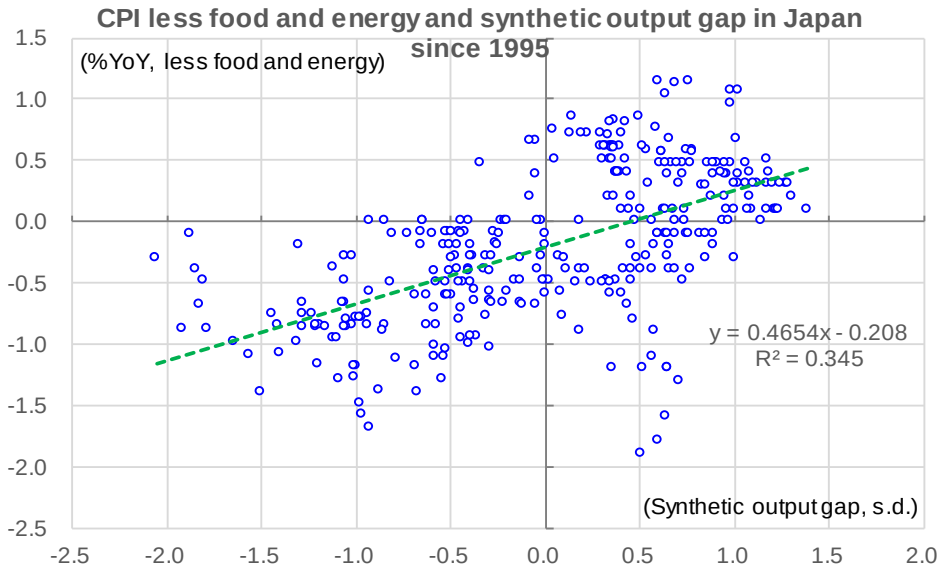
Shock in	1% rise in CGPI final goods	1% rise in CGPI final goods	0.5 s.d. improvement in synthetic output gap	1% rise in CSPI	10% JPY depreciation	10% rise in imported oil prices (in USD)
Response of	CPI excl. food and energy	CPI goods	CPI goods	CPI services	CGPI final goods	CGPI final goods
(%)						
3	0.11	0.77	0.19	-0.13	1.35	0.27
6	0.12	0.67	0.76	0.28	0.99	0.15
9	0.27	0.90	0.97	0.05	0.84	0.19
12	0.20	0.76	0.65	0.09	0.94	0.21
15	0.24	0.75	0.67	0.10	0.94	0.18
18	0.20	0.73	0.63	0.23	0.86	0.15
21	0.21	0.70	0.63	0.12	0.87	0.17
24	0.18	0.68	0.58	0.12	0.93	0.16

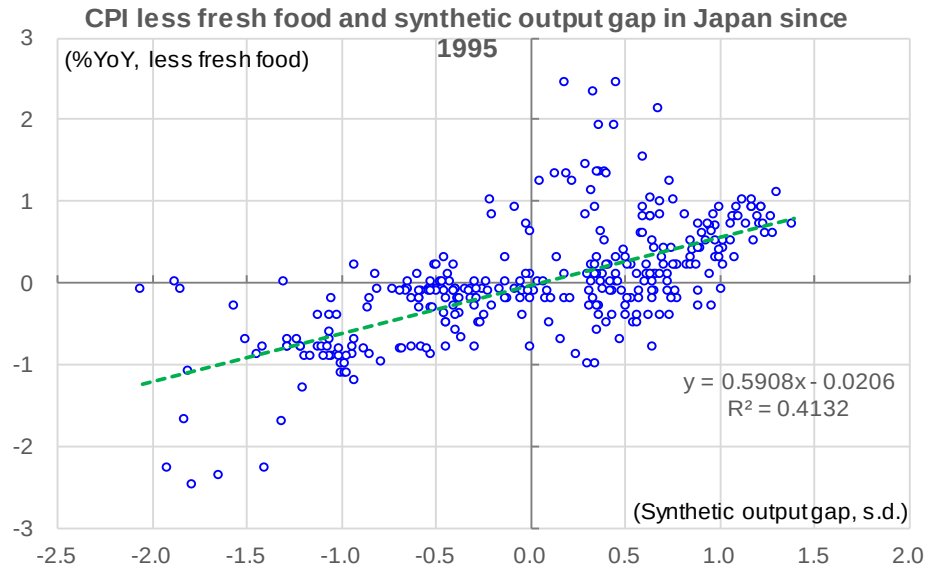
Notes: Obtained from six-variate vector autoregression including USD/JPY exchange rate, imported oil prices (in USD), corporate good prices (or corporate service prices), potential growth, synthetic output gap, and core-core CPI (or CPI goods, CPI services, or corporate service prices). Core-core CPI excludes food and energy.
Sample period: December 1997 - September 2019. Lag length is set to eight. All variables are measured in the first difference or first difference of natural log.
A synthetic output gap is calculated from the weighted standardized unemployment rate (weight: 0.667) and the capacity utilization (weight: 0.333) using data during 1995-2019.
Sources: CEIC Database, BoJ, MIC, METI, SBI SECURITIES.

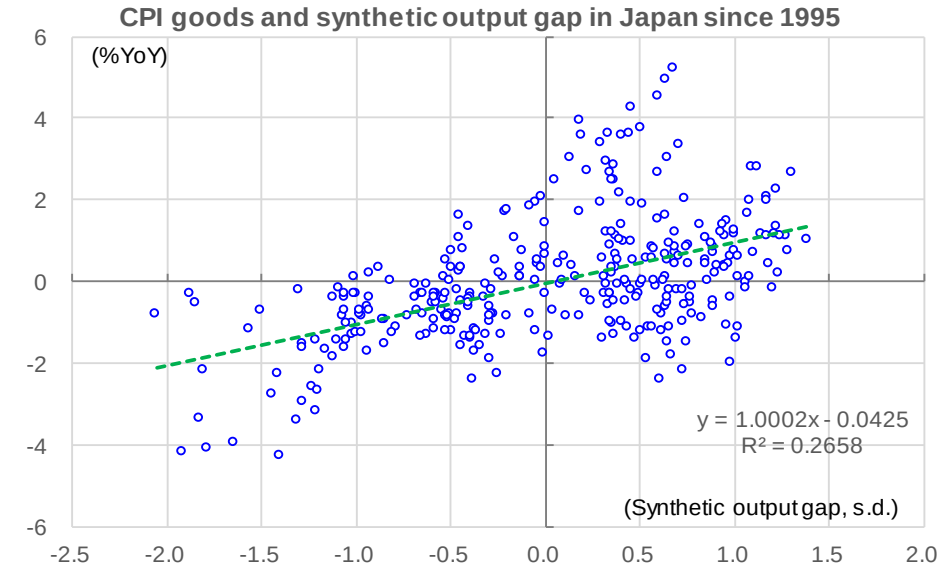
1. The goods prices in CPI have been influenced by the corporate goods prices (CGPI), the output gap, the exchange rate, and the oil prices, but the service prices in CPI have not been affected by these indicators.

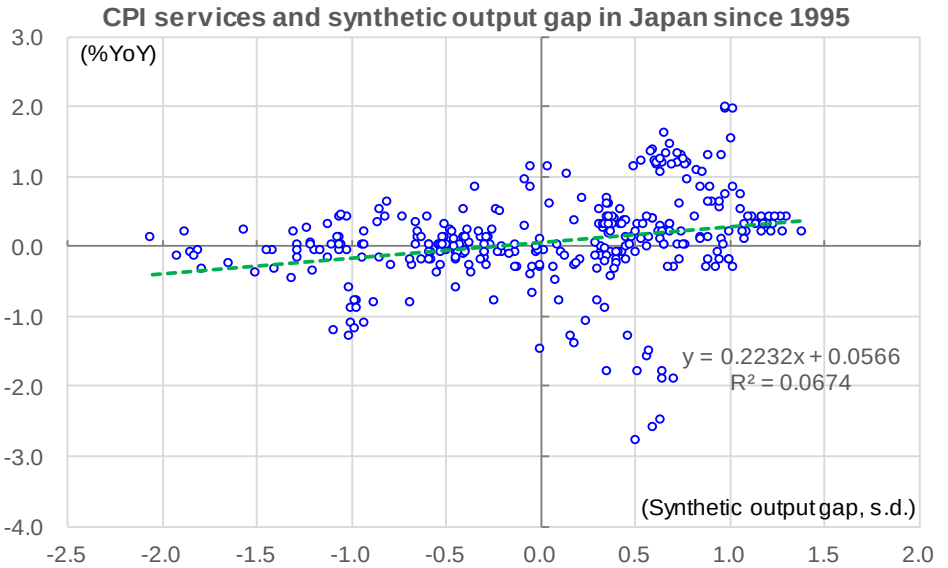
2. A 1% rise in final goods CGPI raises CPI less food and energy by 0.2%. A 10% JPY depreciation raises the final goods CGPI by 0.94% while a 10% rise in oil prices raises the final goods CGPI by 0.21% after 12 months. JPY depreciation and a rise in oil prices over the past 12 months are estimated to contribute to raise the final goods CGPI by 2.3%.

Linkage of inflation and business cycles in Japan (1)



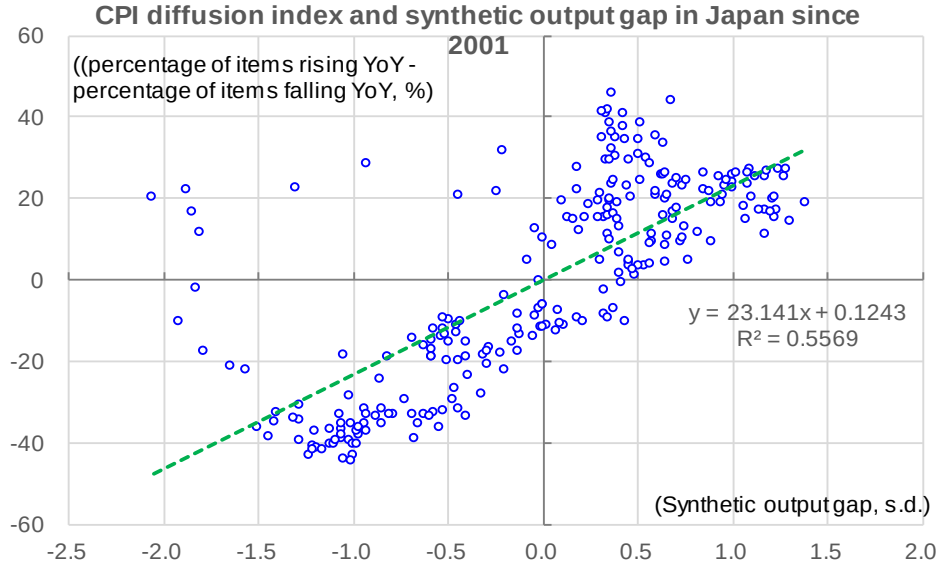


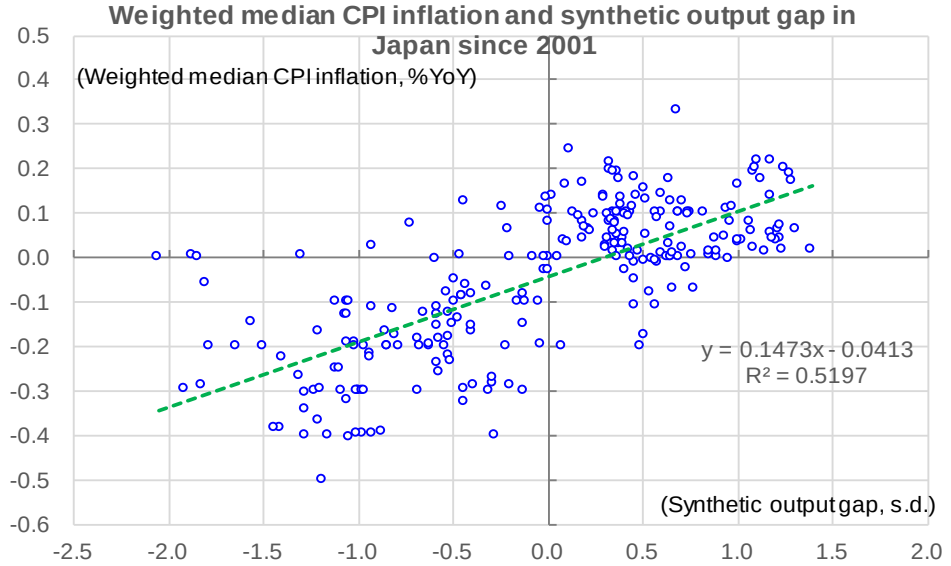


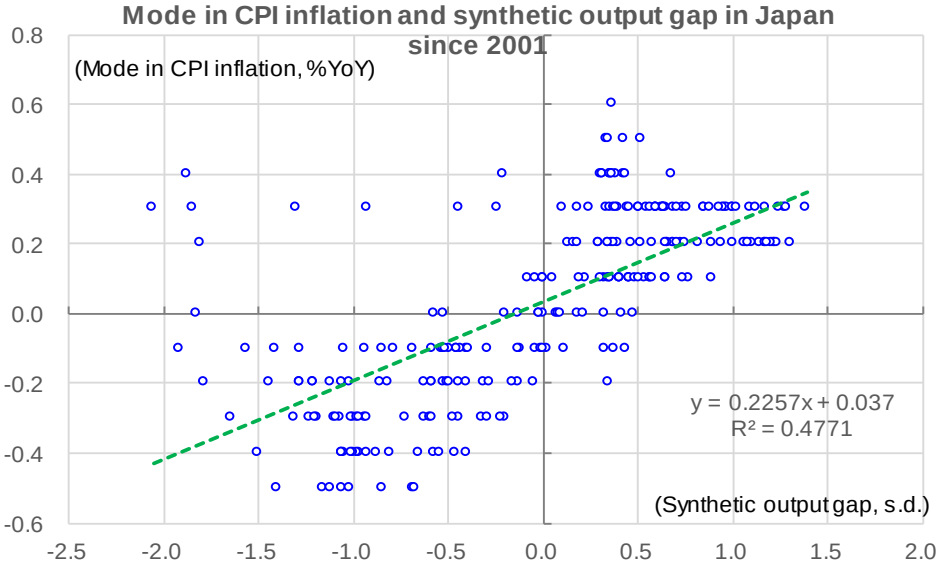


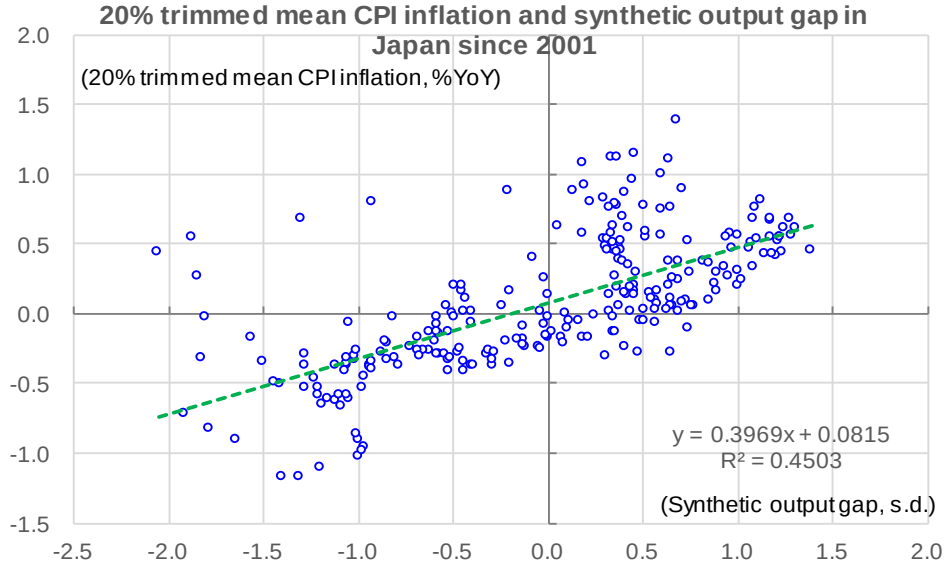
Notes: All price indices exclude the effects of the consumption tax.
A synthetic output gap is whe weighted average of the unemployment rate (weight: 0.667) and manufacturing capacity utilization (weight 0.333) during 1995-2019 that have been converted to follow the standard normal distribution with mean zero and unit variance.
Sources: CEIC Database, BoJ, MIC, METI, SBI SECURITIES.

Linkage of inflation and business cycles in Japan (2)









Notes: Various underlying inflation indicators are calculated by the Bank of Japan. All price indices exclude the effects of the consumption tax.
A synthetic output gap is whe weighted average of the unemployment rate (weight: 0.667) and manufacturing capacity utilization (weight 0.333) during 1995-2019 that have been converted to follow the standard normal distribution with mean zero and unit variance.
Sources: CEIC Database, BoJ, MIC, METI, SBI SECURITIES.

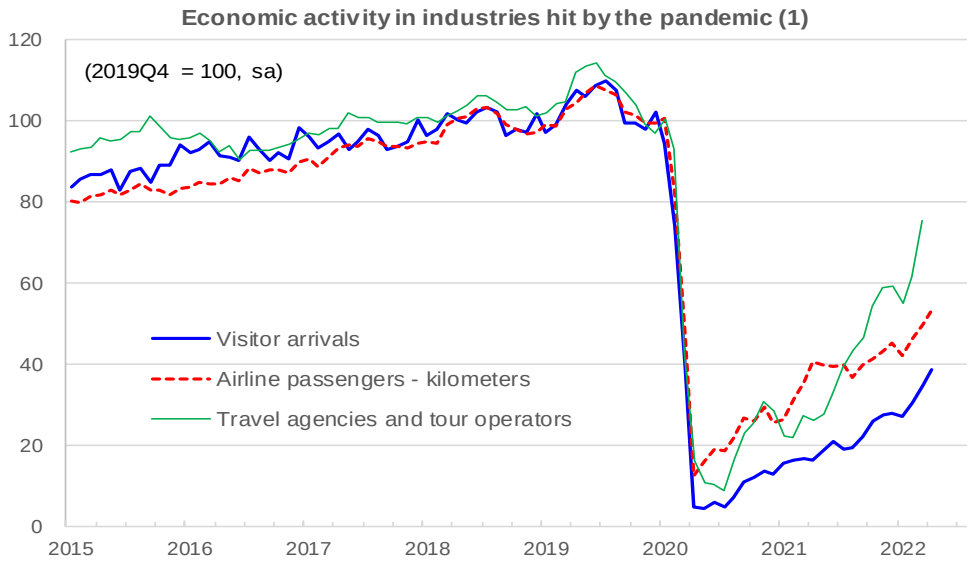
Re-opening of the economy and service activity in Japan

- Comparison of recovery path of nine groups of service industries in 22 major countries, including EM
- Downward deviation of activity from pre-pandemic 4Q 2019 is larger in the following order:

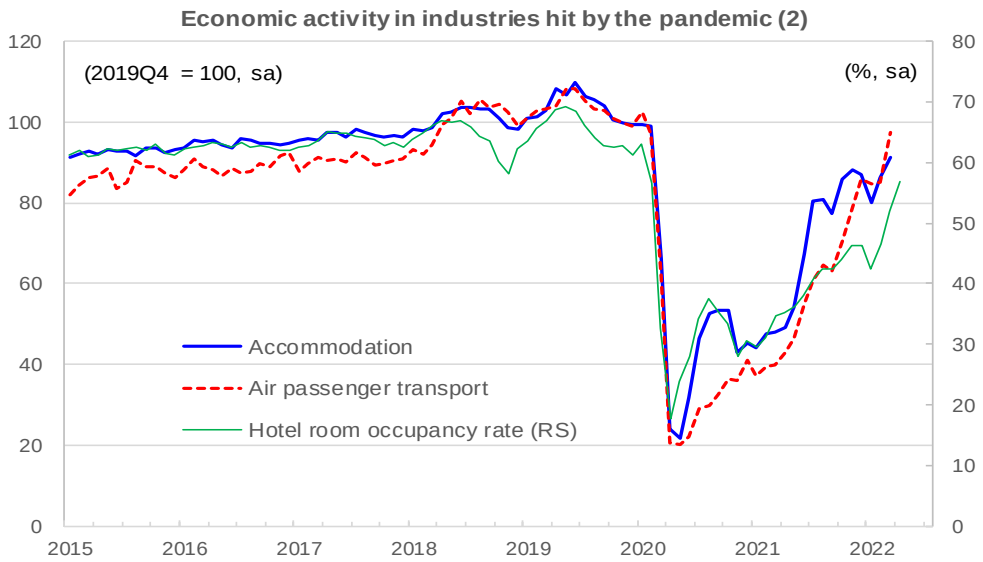
Air transport, international passengers (nonresident visitors) > railroad passenger transport > travel agencies and tour operators > arts, entertainment, and recreation > air transport, domestic passengers > accommodation> food services

- Downward deviation in Japan in those nine groups is much larger than other countries, except railroad passenger transportation, reflecting insufficient healthcare supply capacity, repeated social distancing policies, a series of self-restraint of the private sector.
- Potentially larger room for recovery in activity in Japan following the re-opening in air passenger transportation, accommodation, food services, and travel agencies and tour operators.
- Supply capacity of some service industries has declined as a result of prolonged weakness in demand where employment is not secured. The downward deviation in activity is unlikely to be narrowed to zero in all service industries.
- The pandemic accompanied the reallocation shock (a shift of demand across industries), a large part of which is permanent. The dispersion in activity among tertiary industry activity in Japan and the dispersion among personal consumption in the US, both measured in standard deviation and percentile ratios, jumped after the onset of the pandemic and has not returned to pre-pandemic levels.
- This manifest itself as the expansion of employment mismatch, which lowers the economy's potential growth.
- Service industries remain subject to the effects of the pandemic.

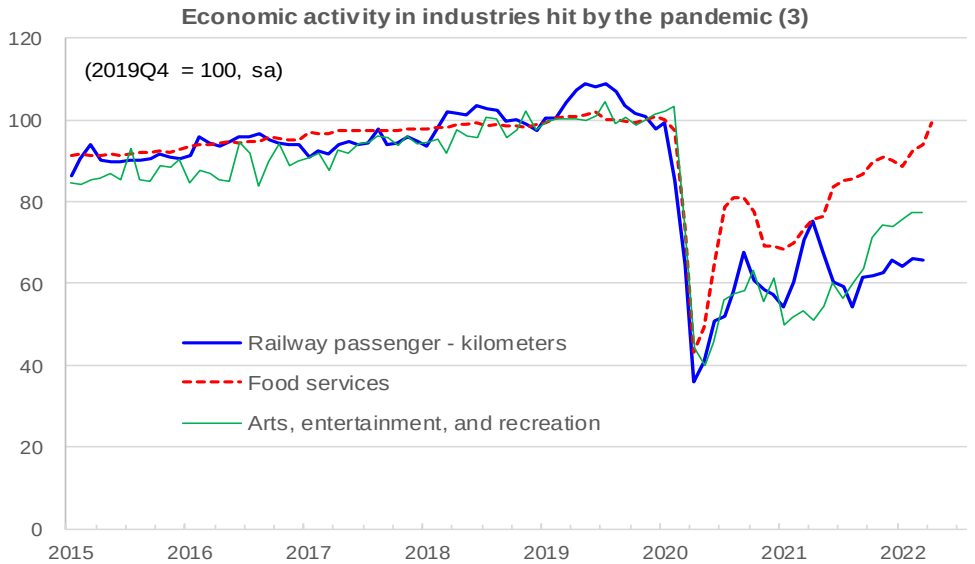
Economic activity in industries hit by the pandemic: country average



Note: Simple average for countries when the number of countries with available data is five or higher. Sources: CEIC Database, national sources, SBI SECURITIES



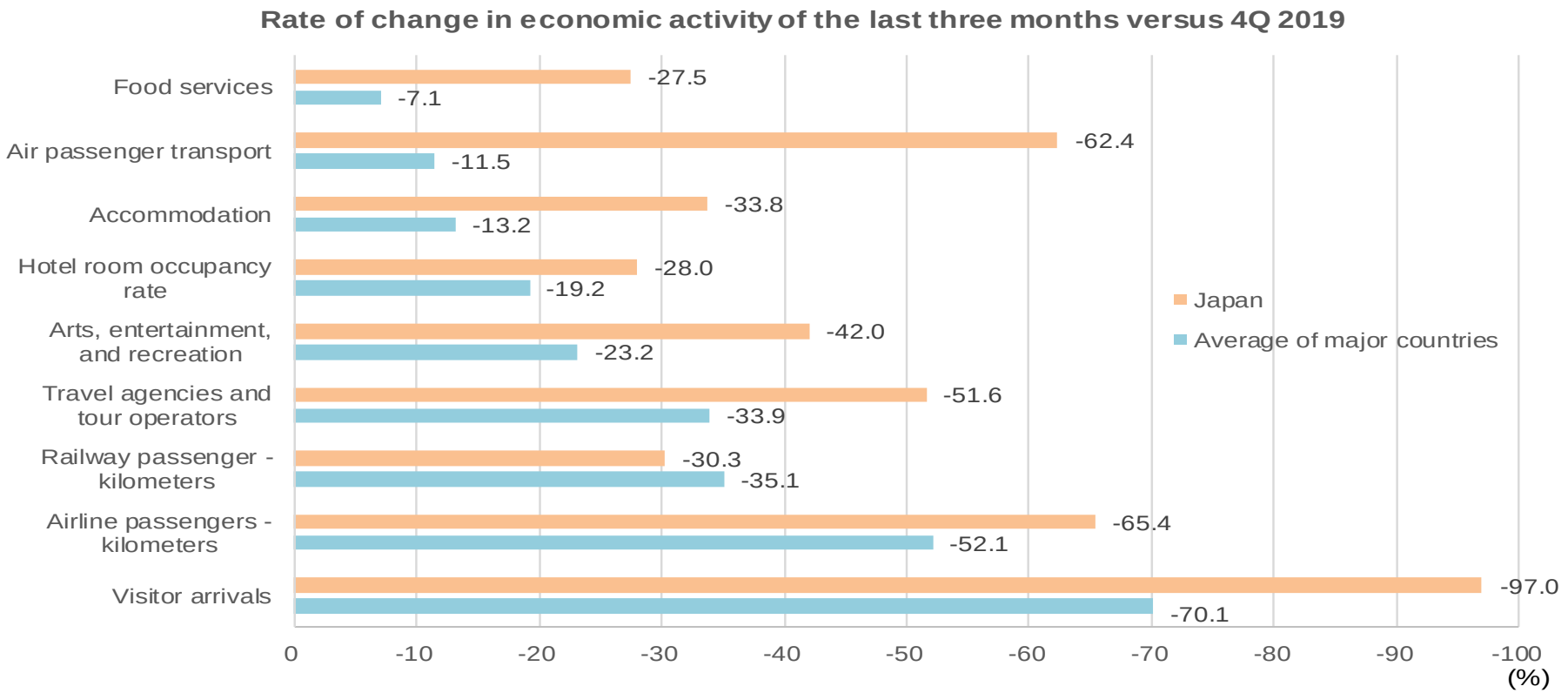
Note: Simple average for countries when the number of countries with available data is five or higher. Sources: CEIC Database, national sources, SBI SECURITIES



Note: Simple average for countries when the number of countries with available data is five or higher. Sources: CEIC Database, national sources, SBI SECURITIES

- Comparison of recovery path of nine groups of service industries in 22 major countries
- Downward deviation of activity from pre-pandemic 4Q 2019 is larger in the following order:
- Air transport, international passengers (nonresident visitors) > railroad passenger transport > travel agencies and tour operators > arts, entertainment, and recreation > air transport, domestic passengers > accommodation> food services

Rate of change in service activity from 4Q 2019: Japan versus other countries

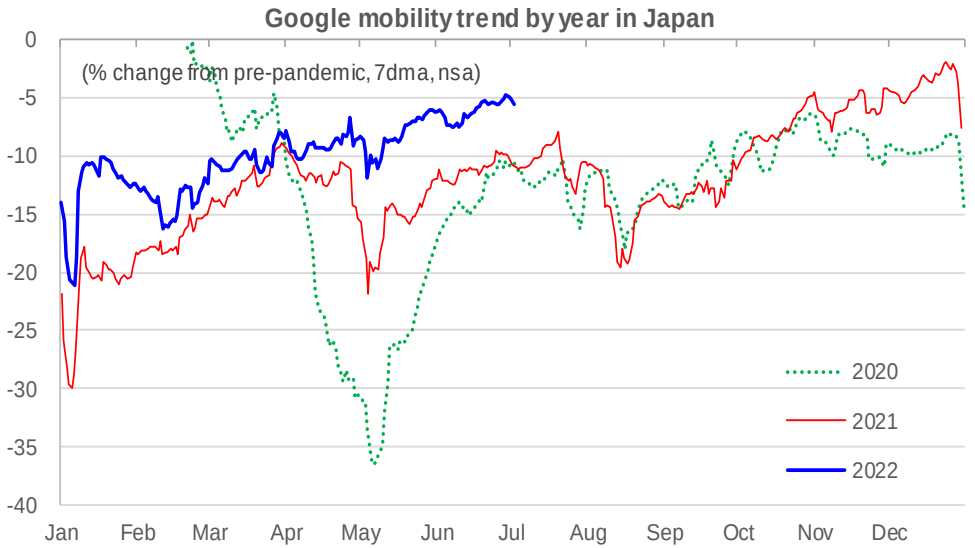


Notes: The rate of change in economic activity is measured as the percentage deviation of the last three months versus 2019Q4.
Simple average of five to 17 countries.
Sources: CEIC Database, national sources, SBI SECURITIES

- Downward deviation in Japan in those nine groups is much larger than other countries, except railroad passenger transportation, reflecting insufficient healthcare supply capacity, repeated social distancing policies, a series of self-restraint of the private sector.

- Potentially larger room for recovery in activity in Japan following the re-opening in air passenger transportation, accommodation, food services, and travel agencies and tour operators.

Mobility trend in Japan (1)



Note: Simple average of four indicators: retail & recreation, glocery & pharmacy, transit stations, and workplaces. Sources: Google, CEIC Database, SBI SECURITIES

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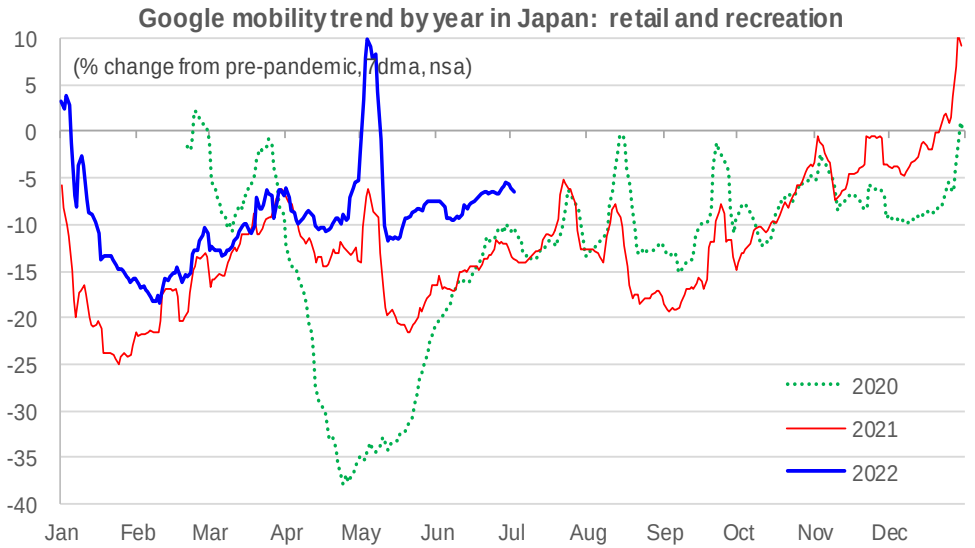
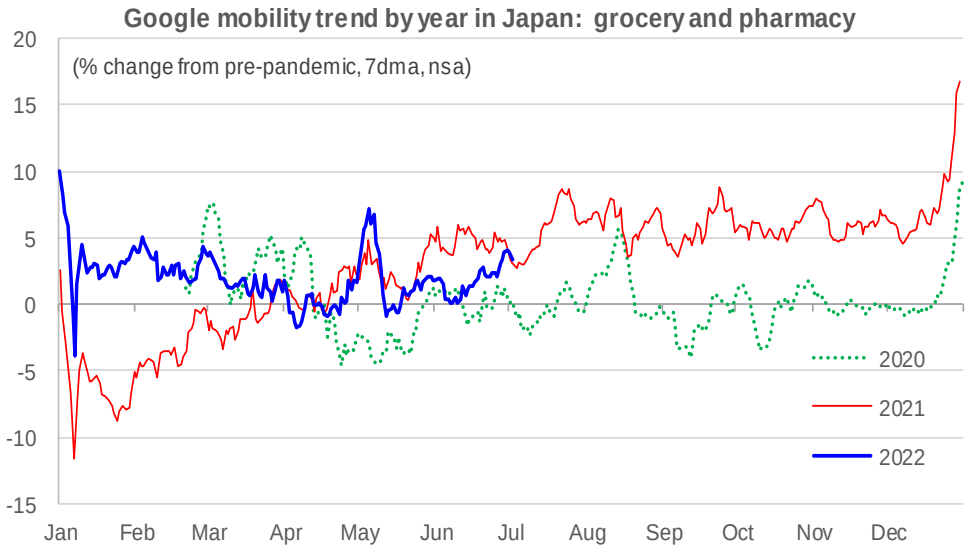
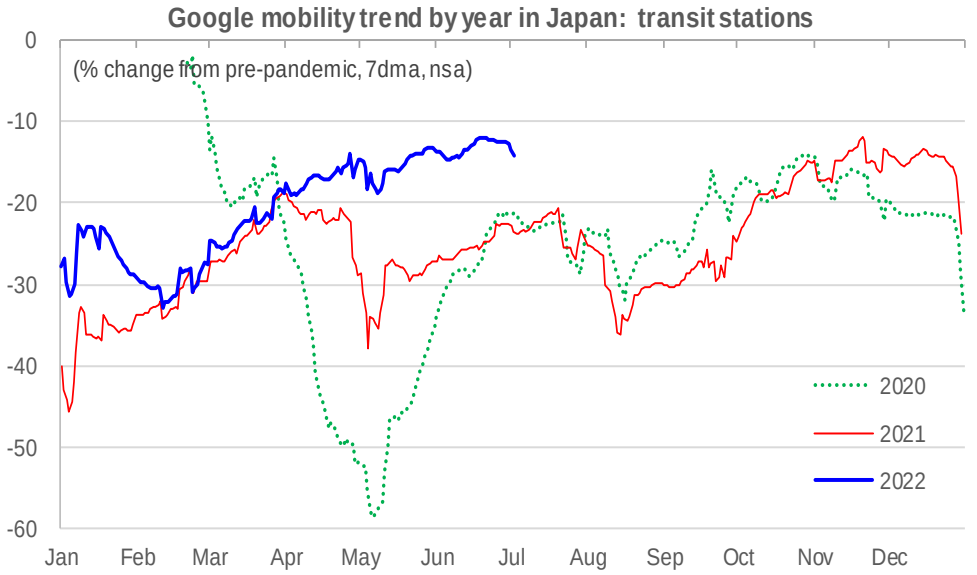


Sources: Google, CEIC Database, SBI SECURITIES

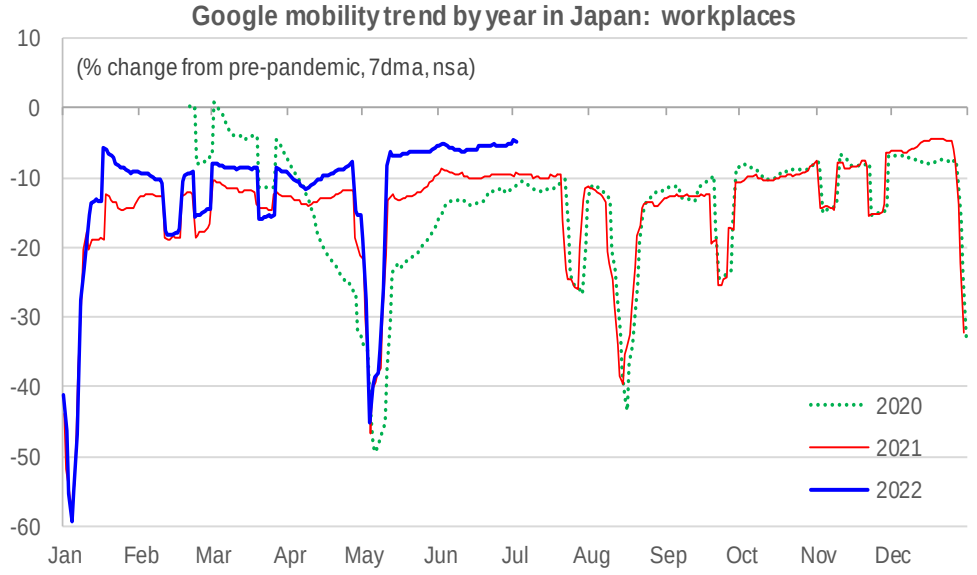


Sources: Google, CEIC Database, SBI SECURITIES

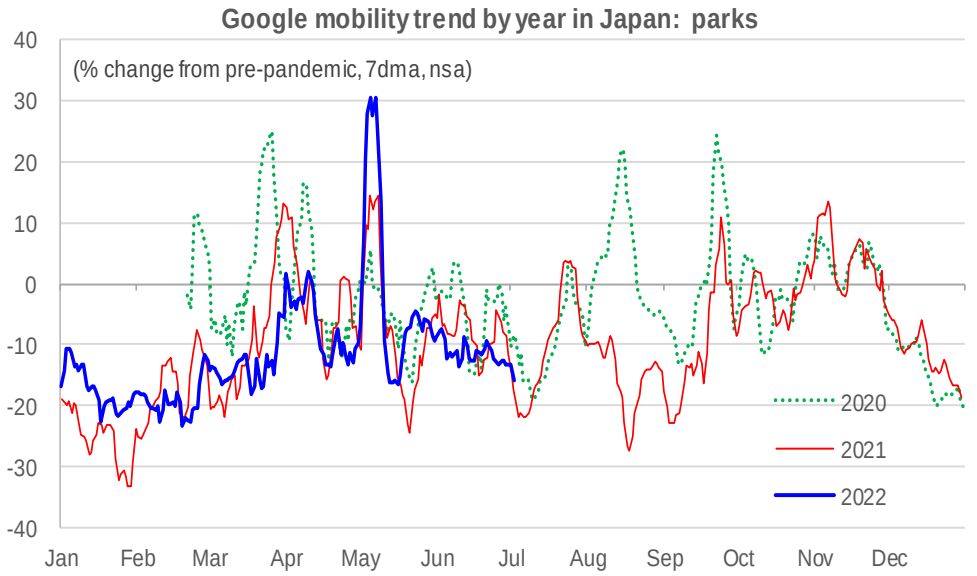
Mobility trend in Japan (2)



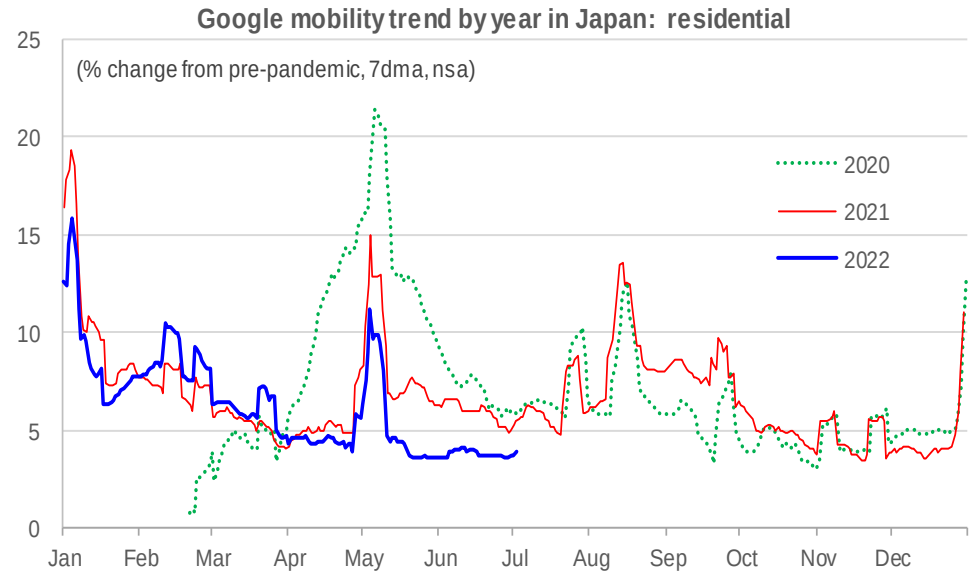
Sources: Google, CEIC Database, SBI SECURITIES



Sources: Google, CEIC Database, SBI SECURITIES

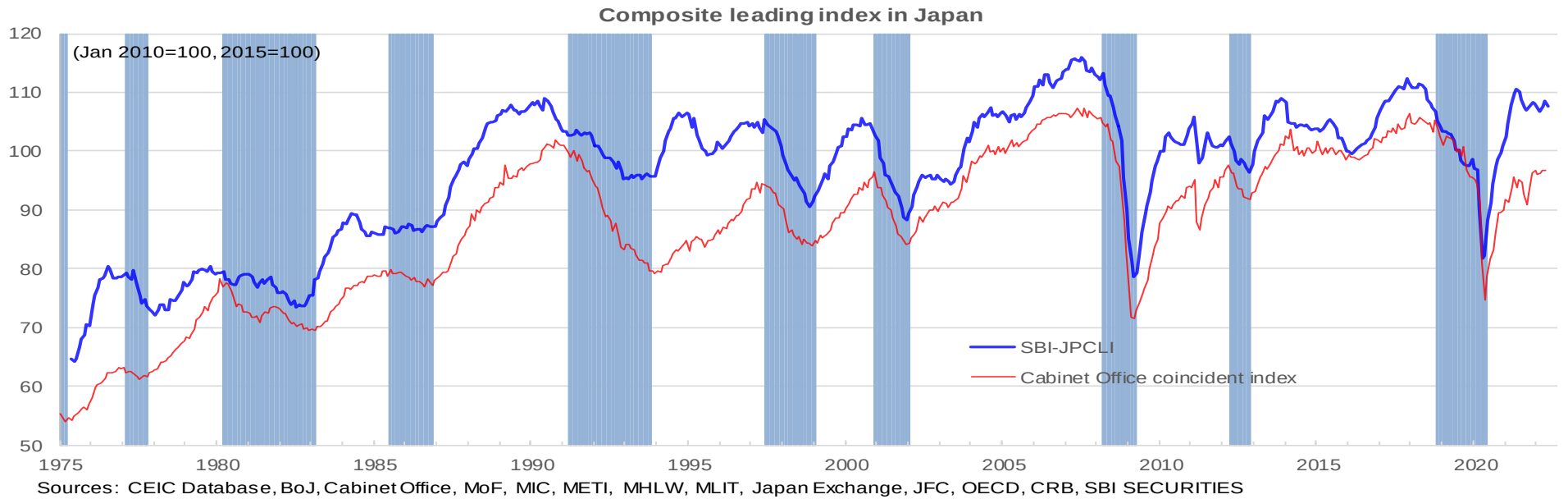


Sources: Google, CEIC Database, SBI SECURITIES



Sources: Google, CEIC Database, SBI SECURITIES

SBI's business cycle leading index (SBI-JPCLI)



Sources: CEIC Database, BoJ, Cabinet Office, MoF, MIC, METI, MHLW, MLIT, Japan Exchange, JFC, OECD, CRB, SBI SECURITIES

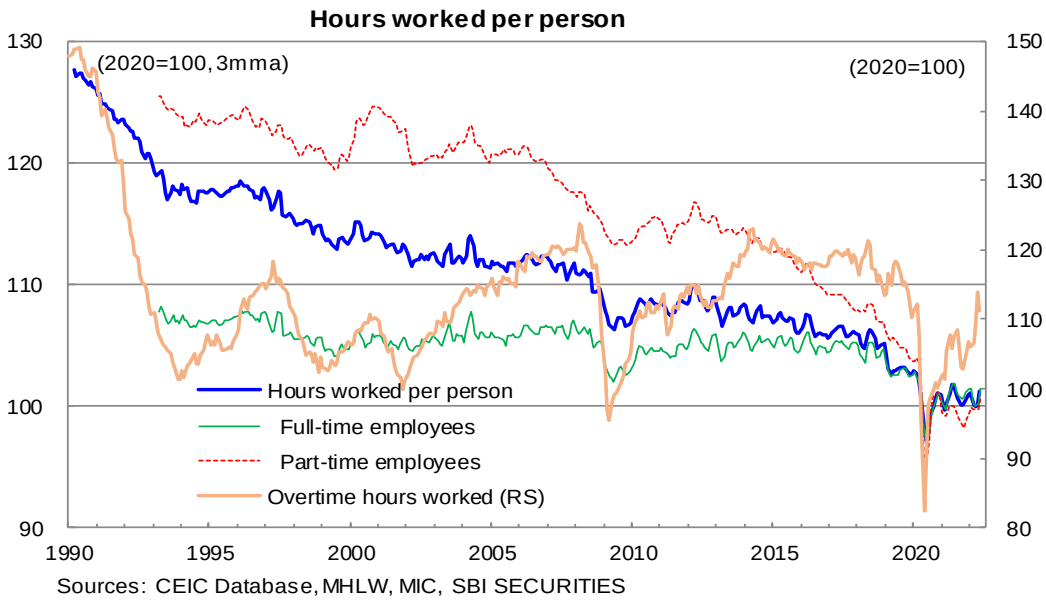
Composite leading index (SBI-JPCLI) and its components

		Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22
Composite leading index (SBI-JPCLI)	Jan 2010=100	107.5	106.9	107.6	108.3	108.1	107.3	106.8	107.7	108.6	107.6	n.a.
	%MoM	-1.3	-0.5	0.7	0.6	-0.2	-0.8	-0.4	0.8	0.8	-0.9	n.a.
Components of composite leading index												
Inventory-shipment ratio	2015=100, sa, inverted	88.3	84.5	85.5	86.9	87.1	85.9	84.2	83.8	86.2	82.3	n.a.
New housing starts, floor space	1,000sqm, sa	5,977	5,828	6,069	5,914	5,805	5,701	5,916	6,072	5,929	5,637	n.a.
New job offers	1,000 persons, sa	781.5	787.7	788.5	817.8	851.6	861.0	819.3	855.0	876.1	880.8	n.a.
Nonscheduled hours worked	%YoY	7.1	3.2	1.9	5.1	5.0	4.0	5.1	3.8	5.8	n.a.	n.a.
Real industrial machine tool orders	JPYbn in 2015 price, sa	133.1	138.6	149.6	145.1	132.7	142.7	143.1	149.4	152.0	152.4	n.a.
Small business sales outlook DI	%pt	5.2	-7.5	-7.4	-3.2	6.9	4.3	-0.2	2.1	10.8	9.5	3.6
Economy Watchers: future conditions DI	DI	43.5	56.6	56.6	53.2	50.3	42.5	44.4	50.1	50.3	52.5	n.a.
Consumer confidence index	DI	37.2	37.7	38.4	38.3	38.3	36.5	35.2	32.8	33.0	34.1	32.1
OECD G7 composite leading index (excl. Japan)	2015=100, sa, amplitude adjusted	100.8	100.7	100.6	100.5	100.4	100.2	100.1	99.9	99.8	99.7	n.a.
Real merchandise exports	JPYbn in 2015 price, sa	6,440	6,222	6,267	6,484	6,575	6,589	6,507	6,421	6,168	6,249	n.a.
CRB spot index	1967=100	561.3	554.3	564.6	569.5	571.0	583.2	598.1	627.5	637.9	633.5	618.5
M2	%YoY	4.7	4.2	4.2	4.0	3.7	3.6	3.6	3.4	3.4	3.2	n.a.
Nikkei 225 stock index	May 16, 1949 = 176.21	27,693	29,894	28,586	29,371	28,514	27,904	27,067	26,584	27,043	26,654	26,958

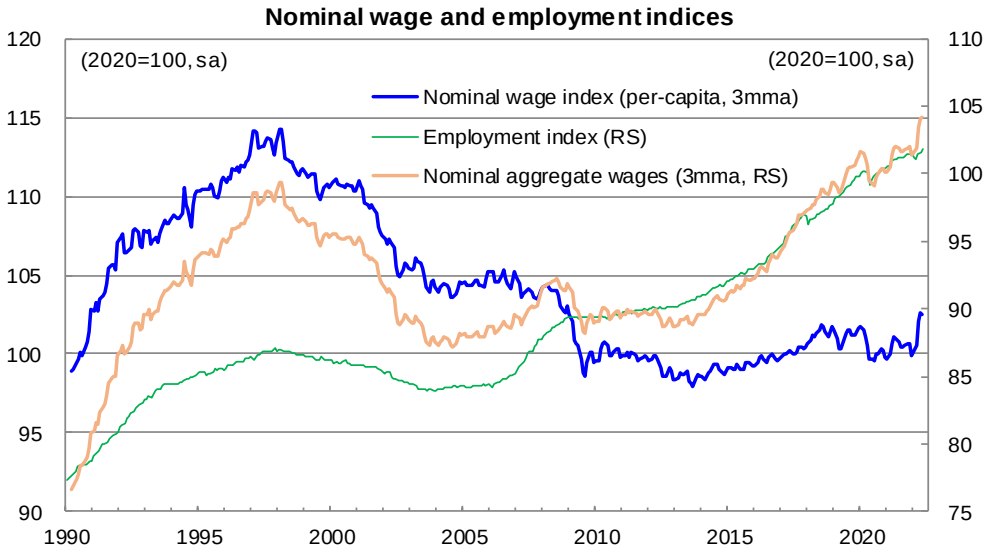
Note: Data for vacant areas have not been published.

Sources: CEIC Database, BoJ, Cabinet Office, MIC, METI, MHLW, MLIT, Japan Exchange, JFC, JMTBA, OECD, CRB, SBI SECURITIES

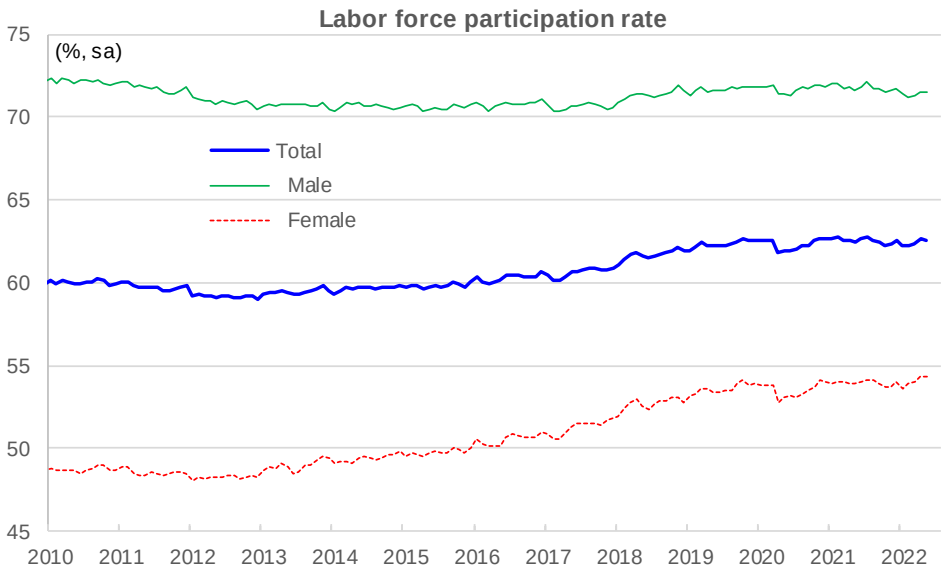
Real purchasing power of Japanese households could remain roughly flat



Sources: CEIC Database, MHLW, MIC, SBI SECURITIES



Note: Nominal aggregate wages = employees x nominal wage index
Sources: CEIC Database, MHLW, MIC, SBI SECURITIES



Note: Labor force participation rate = labor force / population age 15 and above
Sources: CEIC Database, MIC, SBI SECURITIES

- Real purchasing power of Japanese households could remain roughly flat, considering the following factors: the recovery in overtime hours and a rise in scheduled wages since the start of 2022, a possible rise in the 2022 summer bonus, a start of the delayed re-opening of the economy since late March, subsidies to retail gasoline prices, and a possibility of a slower rise (or a flat trend) of global energy and food prices due to the weakening real and speculative demand for commodities.

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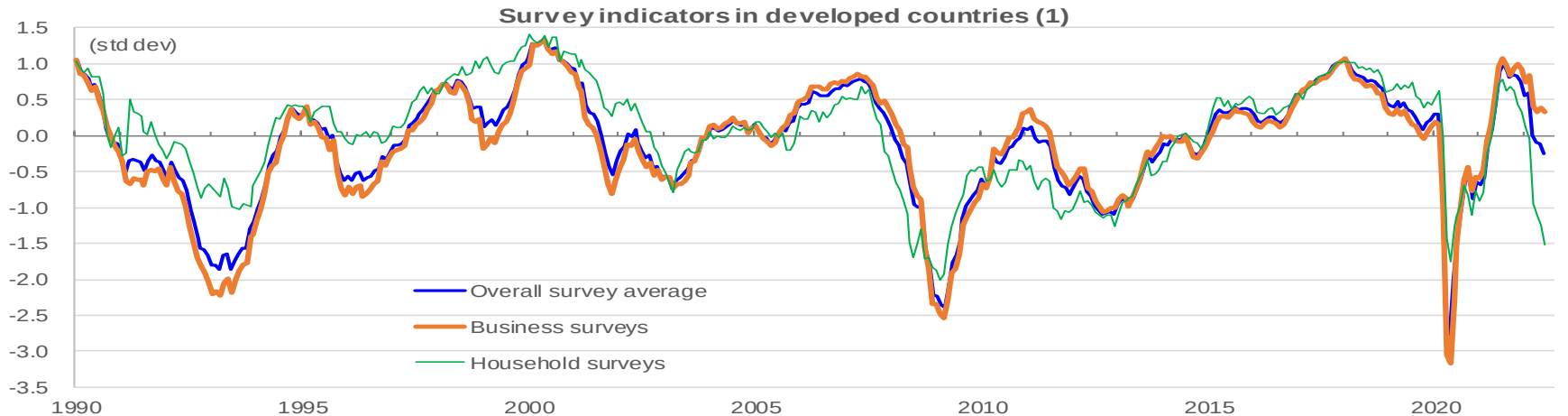
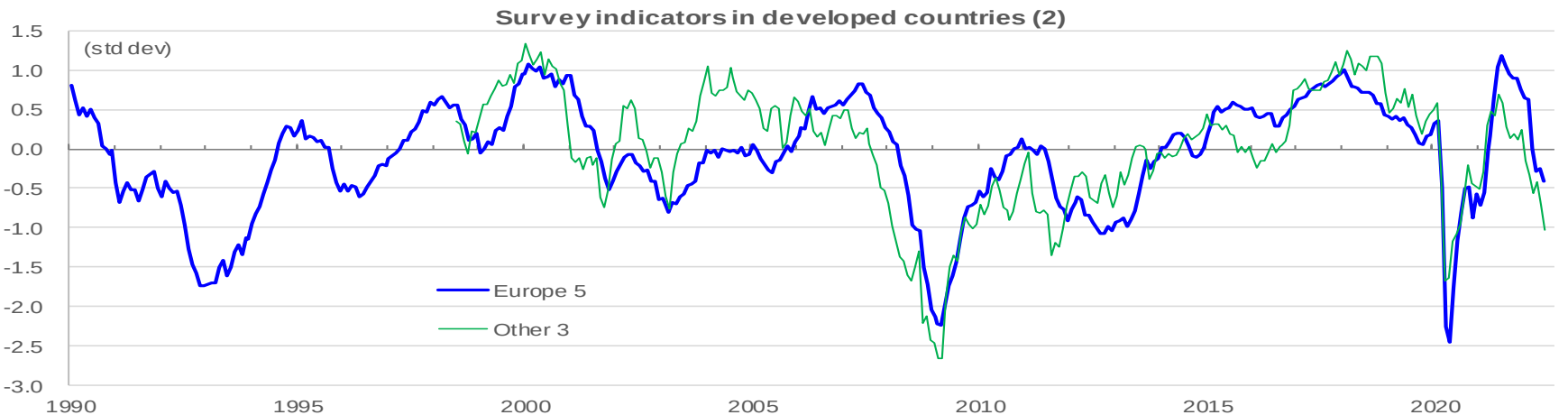
Survey indicators in developed countries (1)



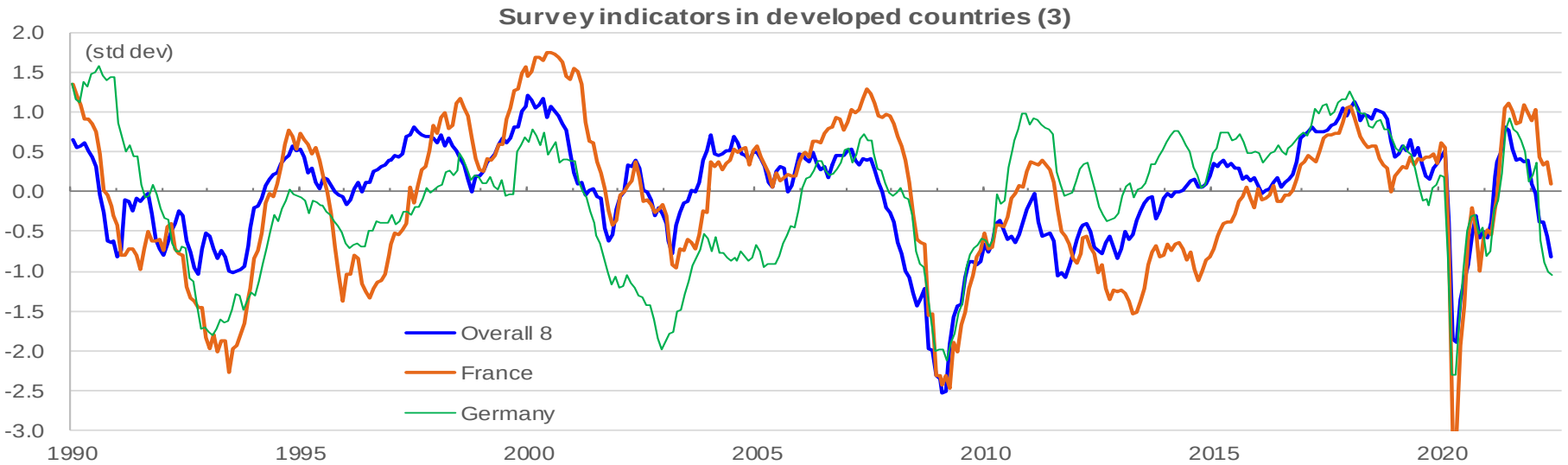
Notes: Sample period for normalization is January 2000 – December 2019. Obtained from 73 business surveys and 31 household surveys for EU27, EA19, Spain, and G7 countries. Sources: CEIC Database, SBI SECURITIES.



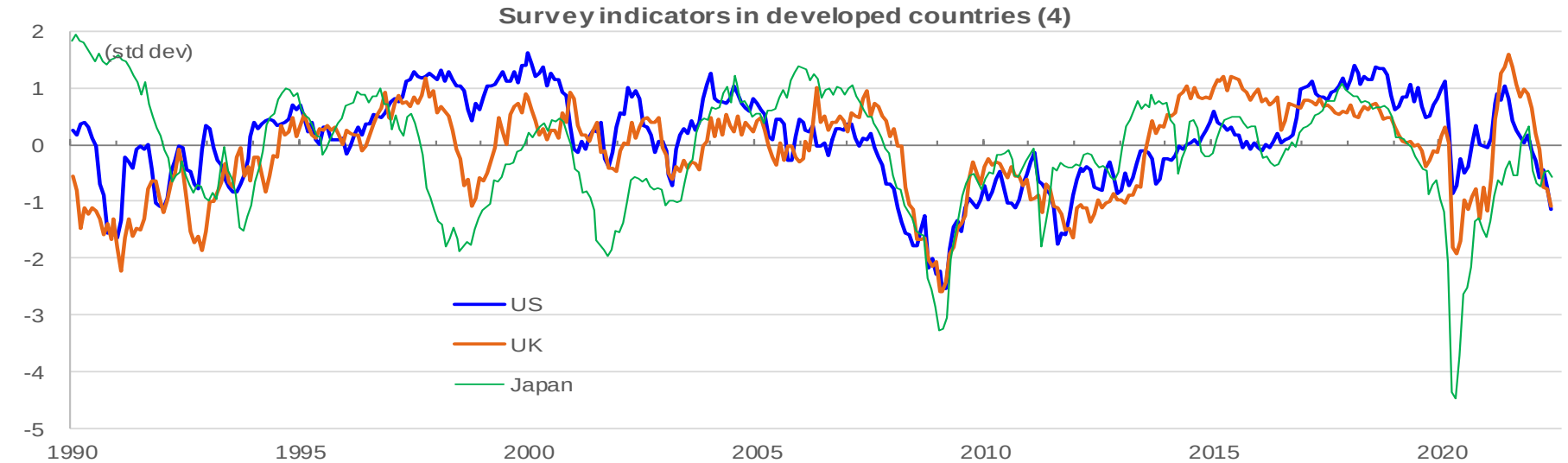
Notes: Sample period for normalization is January 2000 – December 2019. Obtained from 73 business surveys and 31 household surveys for EU27, EA19, Spain, and G7 countries. Europe 5: France, Germany, Italy, Spain, and the UK. Other 3: Canada, Japan, and the US. Sources: CEIC Database, SBI SECURITIES.

- Larger negative shock on households than on businesses under the ongoing crisis in Ukraine.
- Some business surveys may not reflect supply shocks properly in questionnaires related to supply delivery time, inventories, and prices, thus possibly underestimating the scale of deterioration in business psychology.

Survey indicators in developed countries (2)

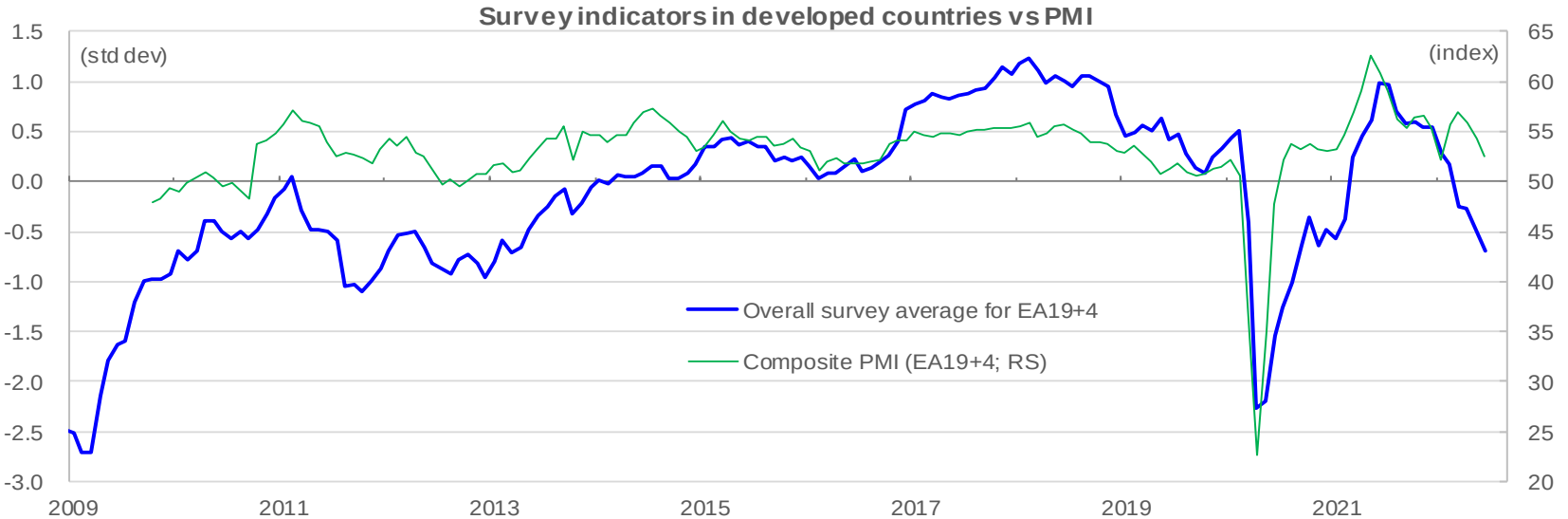


Notes: Sample period for normalization is January 2000 – December 2019. Obtained from 73 business surveys and 31 household surveys for EU27, EA19, Spain, and G7 countries. Overall 8 consists of G7 and Spain. Sources: CEIC Database, SBI SECURITIES.

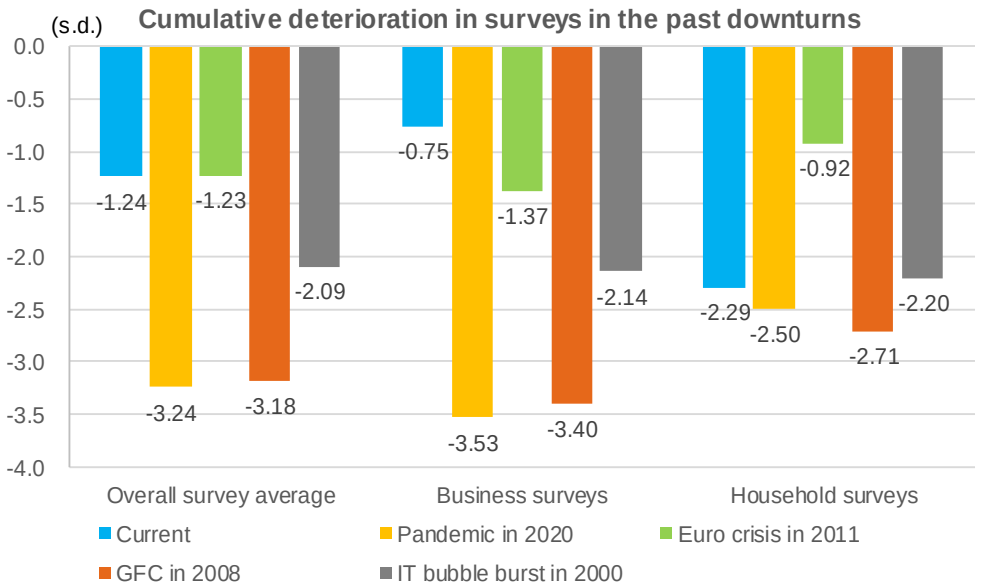


Notes: Sample period for normalization is January 2000 – December 2019. Obtained from 73 business surveys and 31 household surveys for EU27, EA19, Spain, and G7 countries.: CEIC Database, SBI SECURITIES.

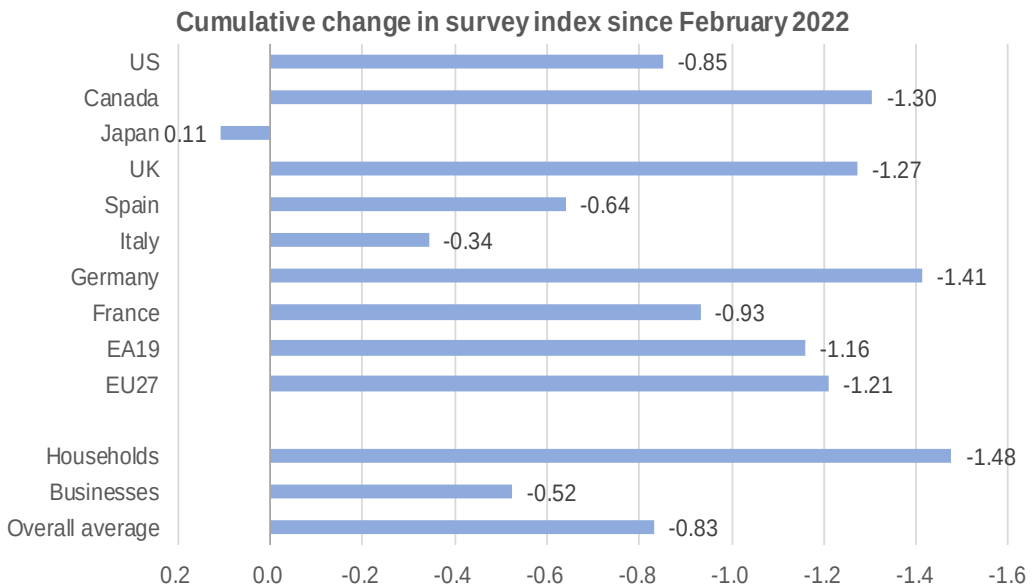
Survey indicators in developed countries (3)



Notes: Sample period for normalization of surveys is January 2000 – December 2019. EA19+4 = EA19, Canada, Japan, the UK and the US.
Sources: CEIC Database, SBI SECURITIES.



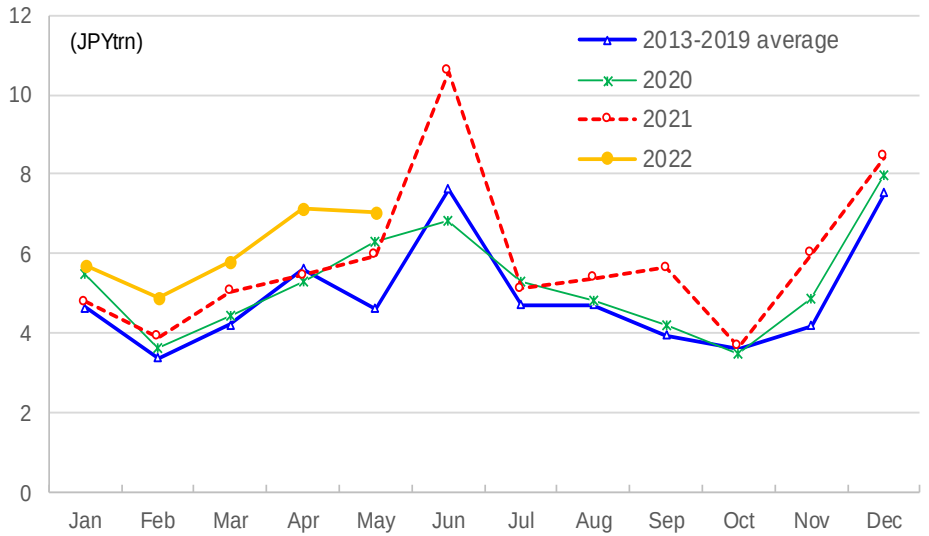
Notes: All surveys are normalized to follow a standard normal distribution with mean zero and unit variance. Sources: CEIC Database, SBI SECURITIES.



Notes: All surveys are normalized to follow a standard normal distribution with mean zero and unit variance. Sources: CEIC Database, SBI SECURITIES.

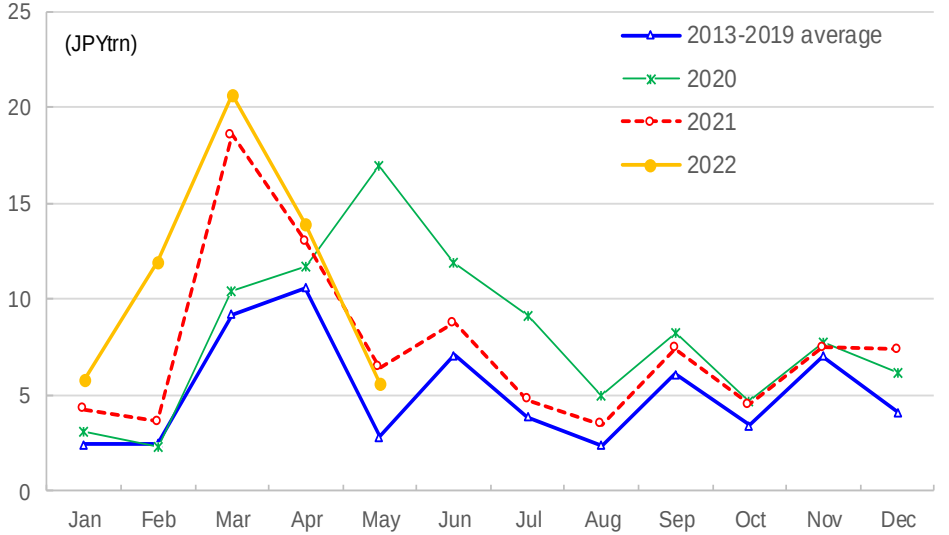
Central government general account balance (1)

1) General account revenues



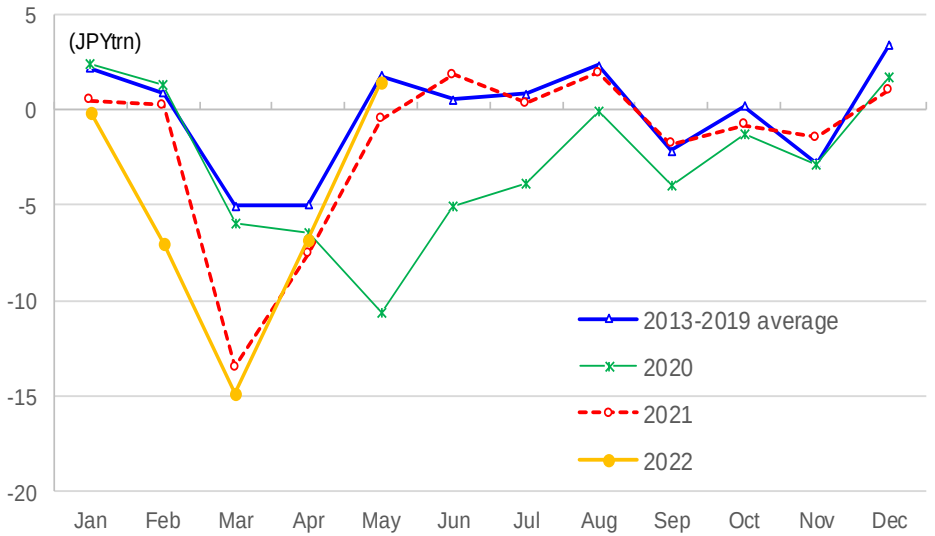
Sources: CEIC Database, Bank of Japan, SBI SECURITIES

2) General account expenditures



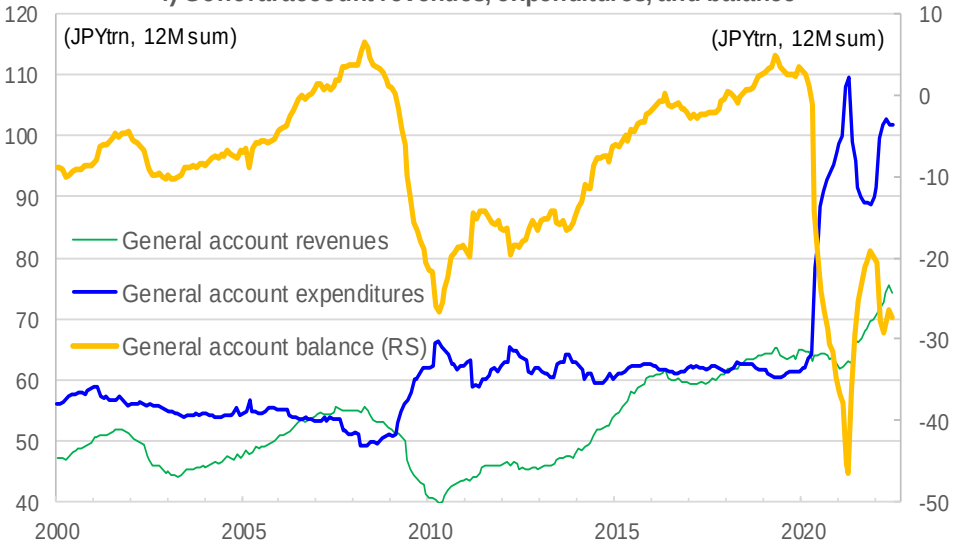
Sources: CEIC Database, Bank of Japan, SBI SECURITIES

3) General account fiscal balance



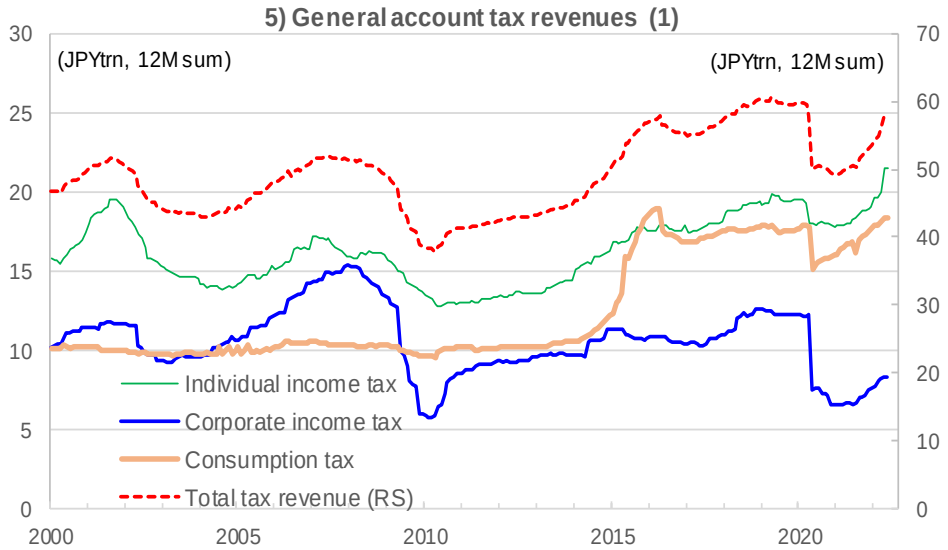
Sources: CEIC Database, Bank of Japan, SBI SECURITIES

4) General account revenues, expenditures, and balance

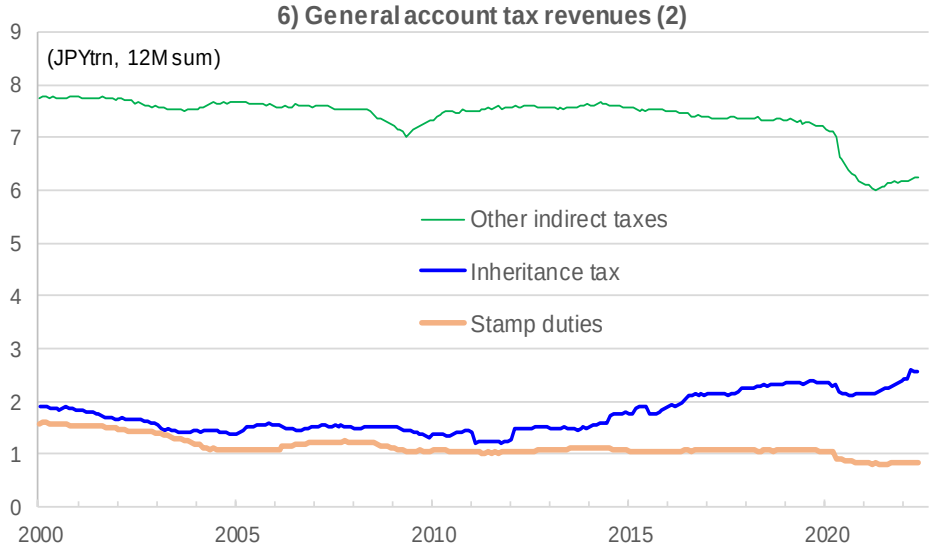


Sources: CEIC Database, Bank of Japan, SBI SECURITIES

Central government general account balance (2)



Sources: CEIC Database, BoJ, SBI SECURITIES



Sources: CEIC Database, BoJ, SBI SECURITIES

- The general account revenues of the central government for Jan–May 2022 have already been exceeding the average level for 2013–2019, due mainly to the recovery in various tax revenues (individual income tax, corporate income tax, consumption tax, and inheritance tax).
- The general account balance of the central government in May 2022 has narrowed to the pre-pandemic 2013–2019 average.
- We should monitor whether the general account expenditure of the central government comes down to pre-pandemic levels of the range at annual ¥60t – ¥65t.

Summary of the factors influencing the 10-year JGB yield

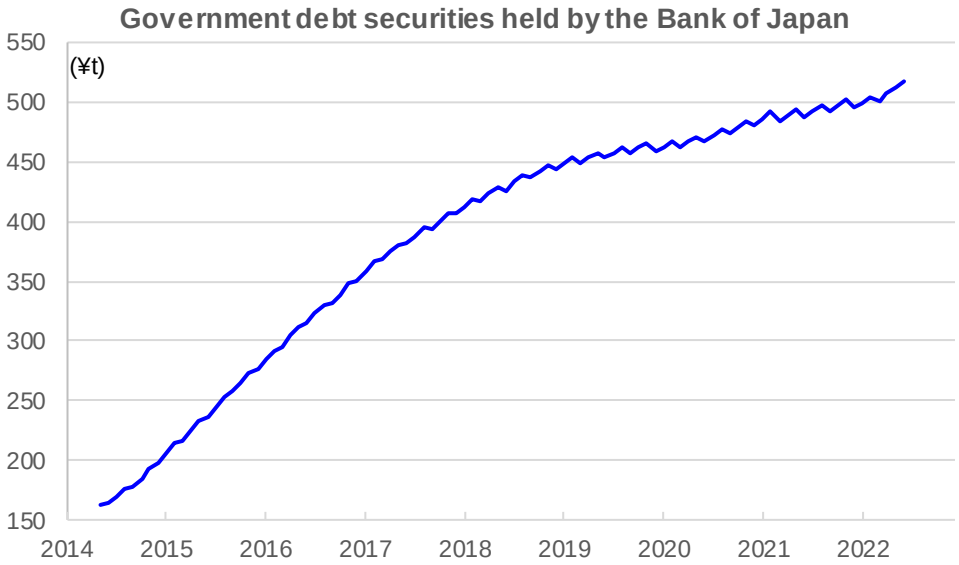
Factors influencing 10-year JGB yield

Explanatory variables		3-month rate (%)	US 10Y yield (%)	BoJ's holding of JGBs (% of GDP)	Core CPI inflation (%)	Total
Parameters						
Case 1	Japan only	0.529	0.217	-0.008	-0.177	
	OLS estimates	0.463	0.216	-0.009		
		0.561	0.185	-0.004	-0.031	
		0.553	0.185	-0.003		
	Average (1)	0.526	0.201	-0.006	n.a.	
Case 2	Japan only	n.a.	0.108	-0.019	n.a.	
	VAR estimates					
Case 3	Developed countries	0.303	---	n.a.	0.218	
	Panel estimates	0.550	---	-0.017	0.231	
		0.596	---	-0.014	0.159	
		0.684	---	-0.015	0.159	
	Average (2)	0.533	---	-0.015	0.192	
Case 4	Developed countries	n.a.	n.a.	-0.065	n.a.	
	VAR estimates					
Average of parameters (A; Case 1–4)		0.530	0.155	-0.026	0.192	
Assumed changes in explanatory variables (B)						
	(bps)	100	100		200	
	(JPYtn)			-400		
	(% of GDP)			-73		
Effects on 10-year JGB yield (A x B, bps)		**53**	**15**	**192**	**38**	**298**

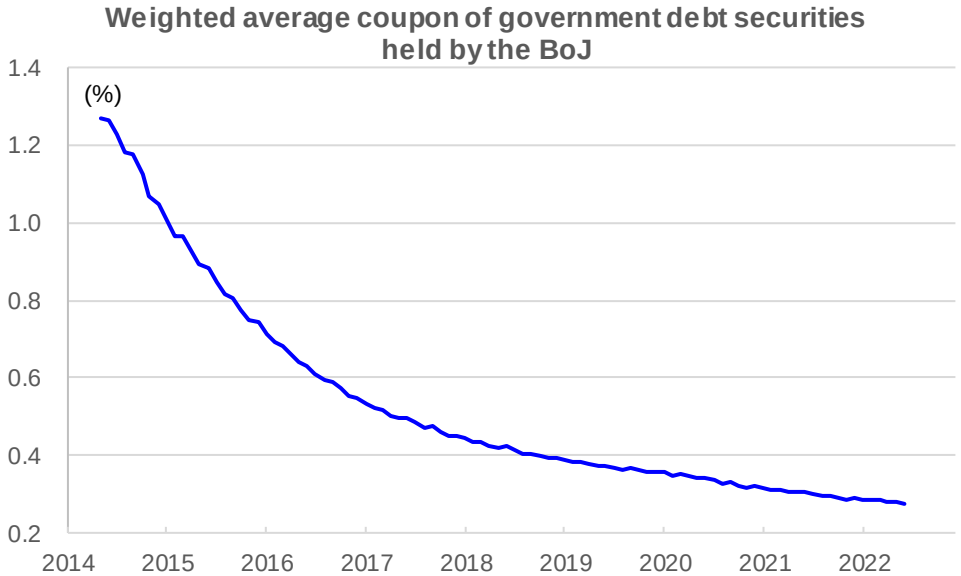
Note: Parameters that are not statistically significant are excluded.
Sources: CEIC Database, BoJ, MIC, Federal Reserve, SBI SECURITIES.

- A 298bps rise in the 10-year JGB yield is not the baseline scenario: 1) declining potential growth to below zero raises further the probability of facing the zero interest rate bound, 2) the steady state of the US 10-year yield is unlikely to be in the 4% or 5% range, 3) Japan's QT is highly unlikely to complete quickly, 4) Large shocks to push up the bond yield are likely to result in a recession, turning to factors to bring down the yield, 5) the BoJ does not seem to have strong incentive to sell these securities before their maturity.

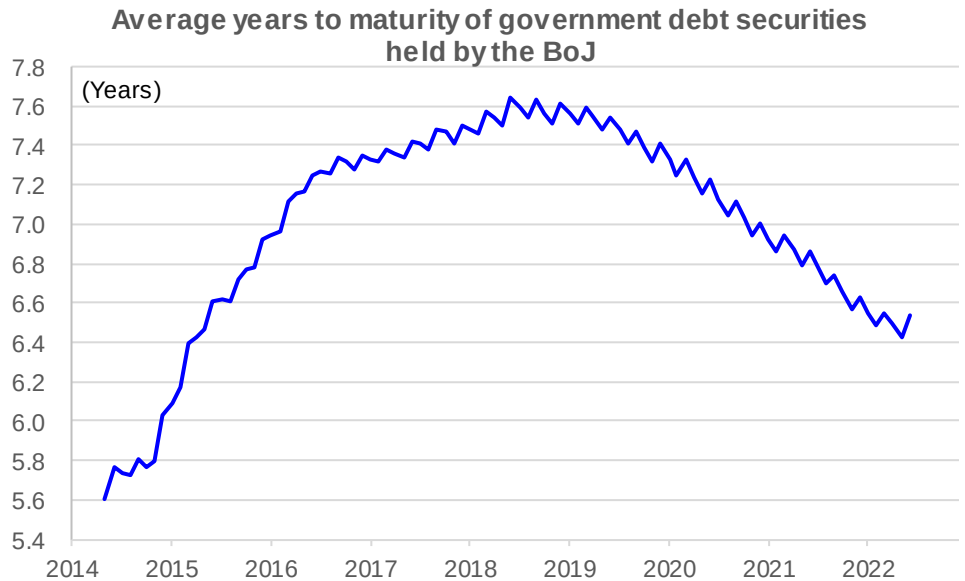
Weighted average coupon and average years to maturity for government debt securities held by the BoJ



Note: Excluding Treasury Discount Bills. Sources: BoJ, SBI SECURITIES



Note: Excluding Treasury Discount Bills. Sources: BoJ, SBI SECURITIES



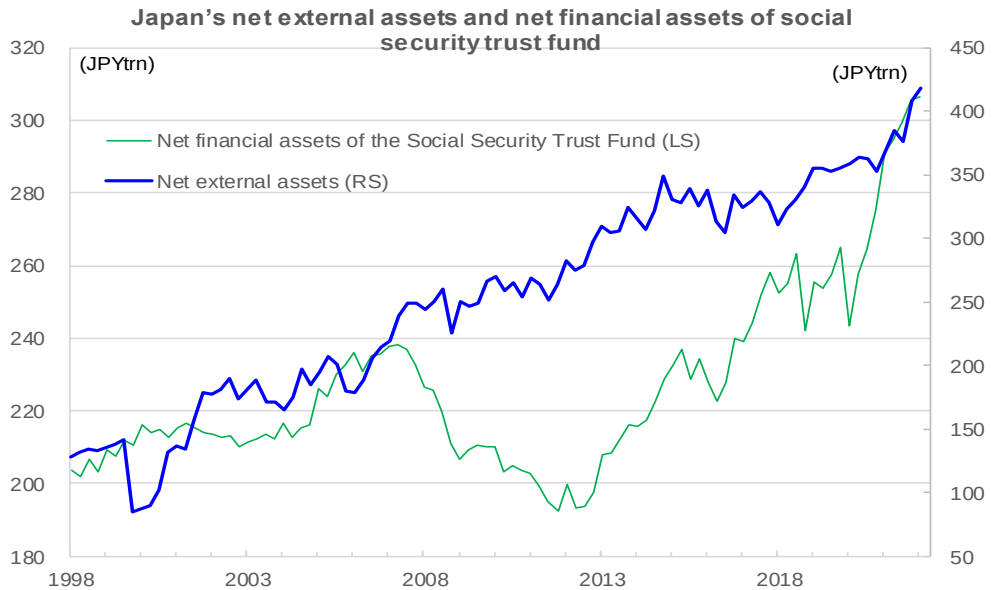
Note: Excluding Treasury Discount Bills. Sources: BoJ, SBI SECURITIES

- A large part of the concern on the central bank insolvency is addressed if 1) the government covers a possible loss incurred by the central bank in the process of holding or selling securities, and 2) the central bank can choose the proportion of their profit to be returned to the national treasury at their discretion.
- The BoJ's monetary policy normalization steps: 1) stabilize the ratio of their JGB holding to GDP, 2) gradually shorten the average maturity of JGBs held, and 3) shorten the YCC's duration target to eventually return to short-term interest rate targeting.

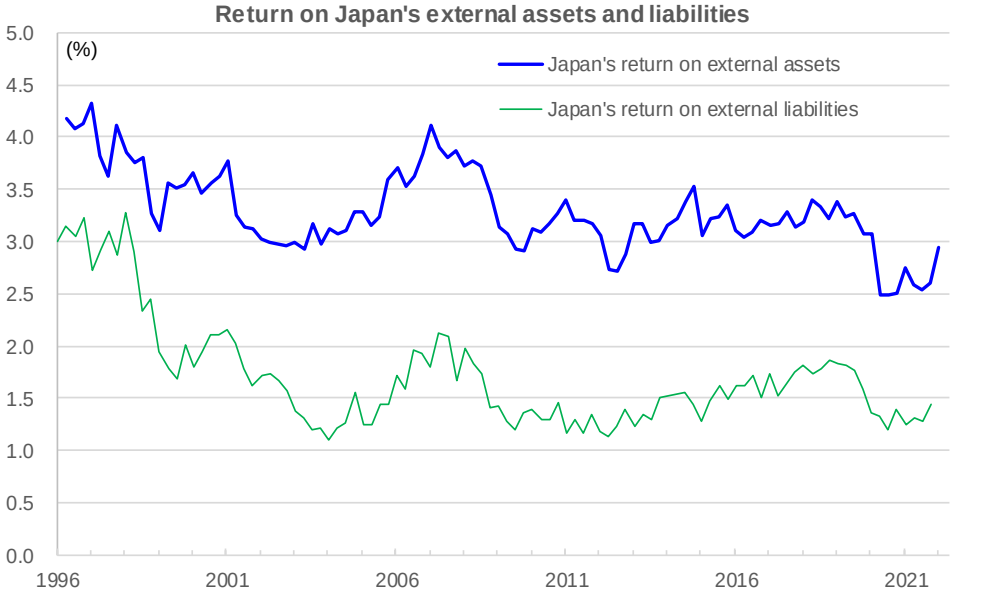
Is JPY depreciation not desirable? (1)

1) The profit share of overseas activities in consolidated Japanese businesses has been rising due to their globalization, which reinforces the positive effect of JPY depreciation to the consolidated corporate profit.
2) The net financial assets of the social security trust funds and the public pension funds (such as GPIF) has been rising substantially following the QQE in 2013: from JPY192.4t (end-2011) to JPY306.5t (at the end of March 2022 at the end of March 2022).
3) Japan's net foreign assets have continued to rise: JPY263.9t (end-2011) to JPY418.5t (at the end of March 2022).
4) For the net creditor nation, depreciation of its currency and a rise in foreign interest rates further reinforce the situation of "the return on Japan's foreign assets > the return on non-residents' holding of Japanese assets". This leads to a further expansion of Japan's primary income surplus which offsets at least a part of Japan's expanding trade deficit.
5) Are people who are critical of JPY depreciation and rising prices now and who were critical of JPY appreciation and falling prices in the early 2010s consistent in their logic?
6) Normalization of the BoJ's monetary policy can wait until the BoJ becomes convinced that demand-driven inflationary forces sustain inflation at around 2%.
7) Monetary policy normalization which precedes normalization of real economy cannot be sustained.
8) The rise in fiscal sustainability comes first in other developed countries due to their monetary tightening ahead of Japan.
9) Japan has been conducting the most appropriate monetary policy among developed countries so that it could build up various buffers and prepare for the rise in demand for safe assets (Japanese yen) once monetary tightening in other developed countries turns out to be a mistake.

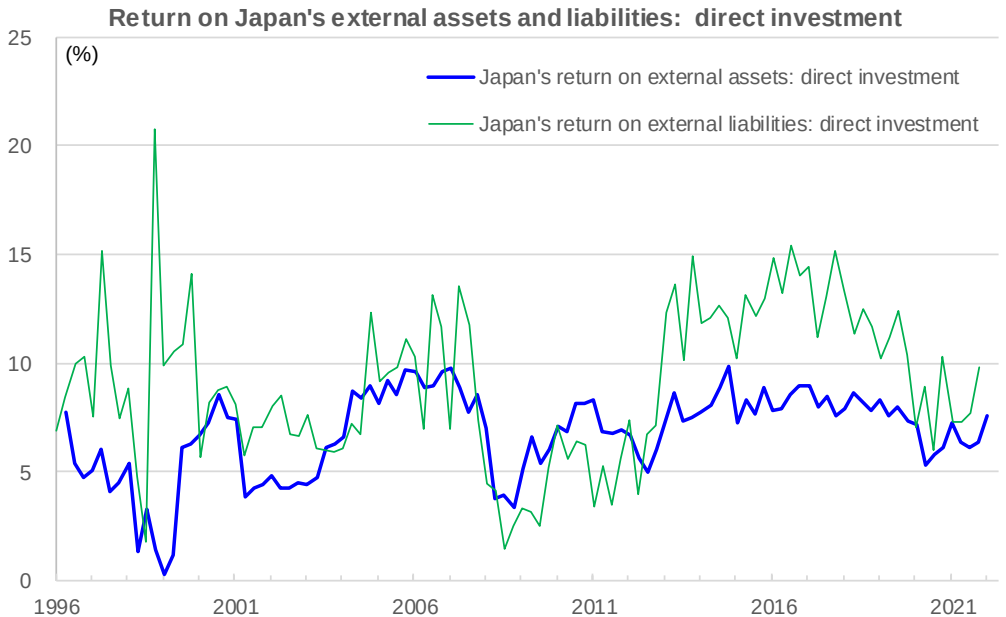
Is JPY depreciation not desirable? (2)



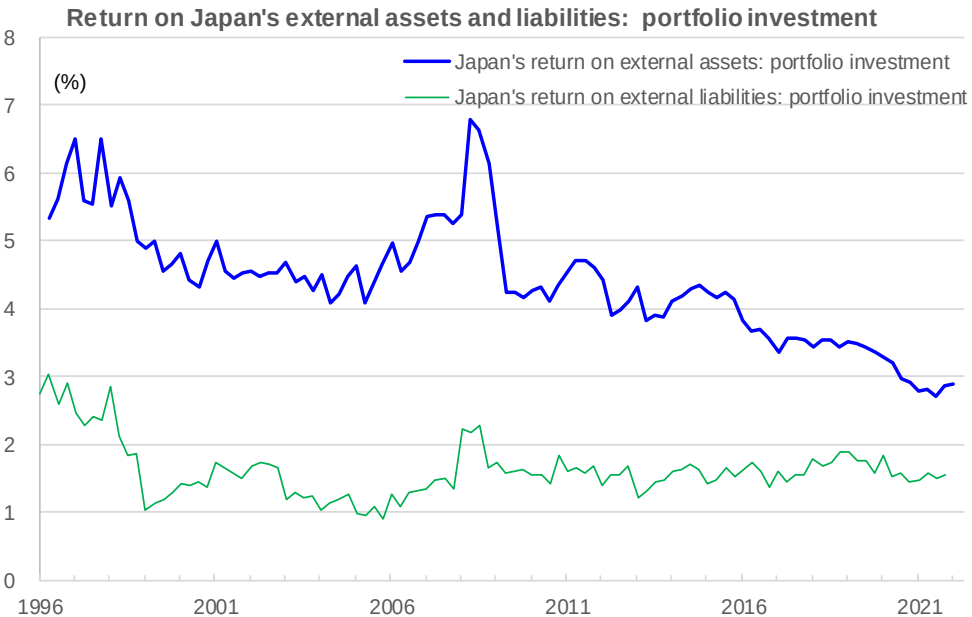
Sources: BoJ, Cabinet Office, SBI Securities.



Sources: CEIC Database, BoJ, SBI SECURITIES

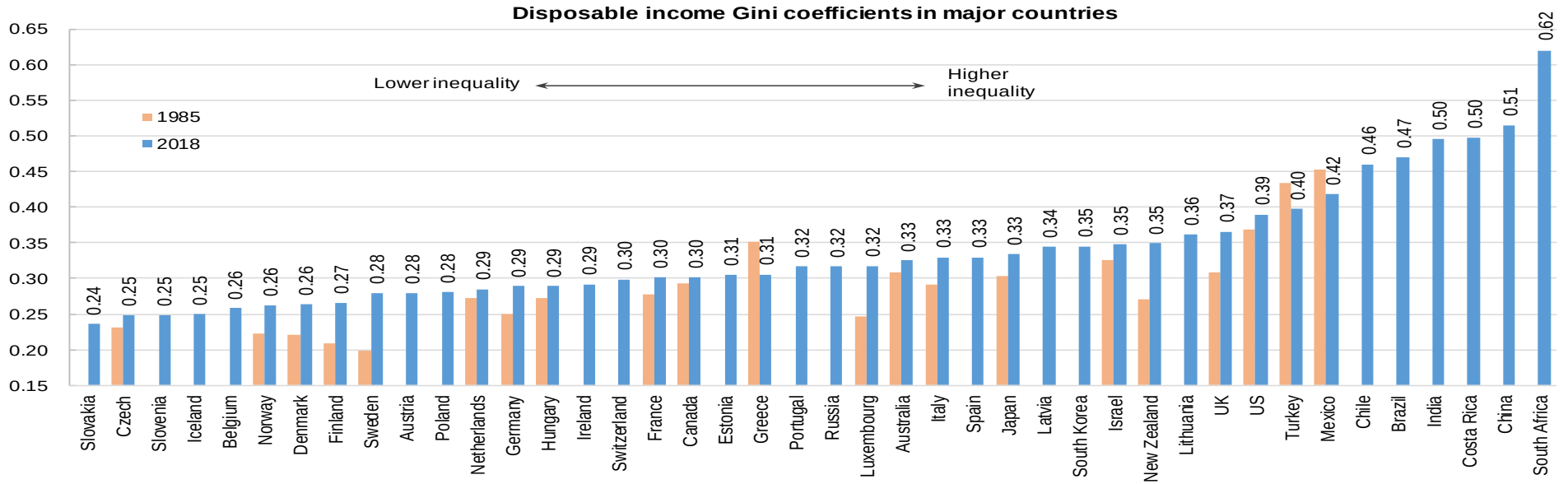


Sources: CEIC Database, BoJ, SBI SECURITIES

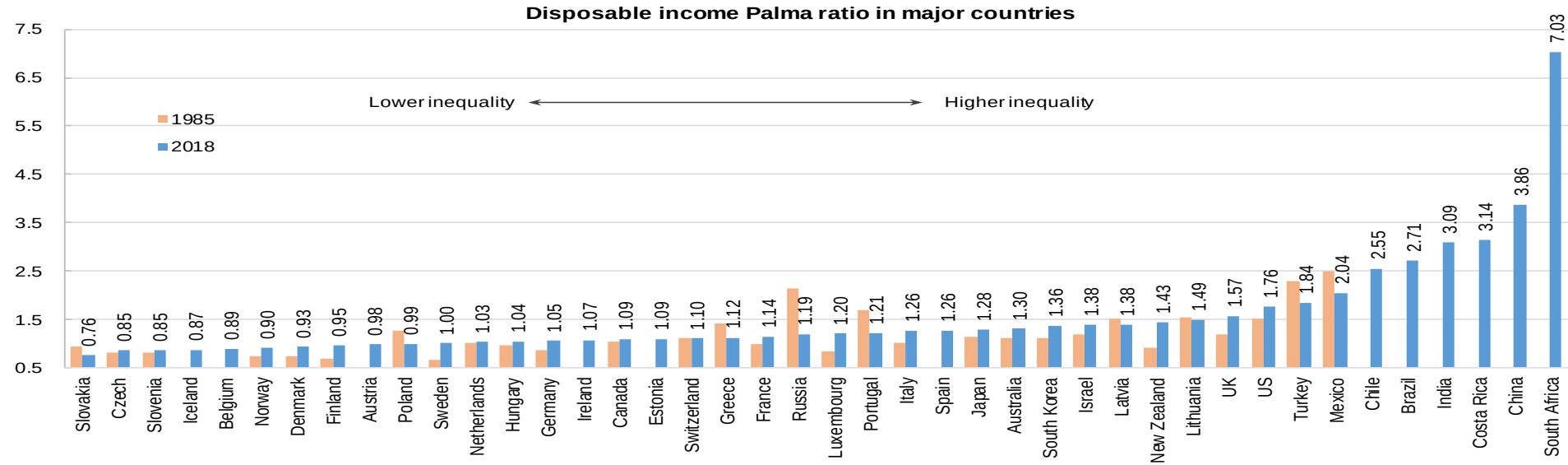


Sources: CEIC Database, BoJ, SBI SECURITIES

Rising income and wealth inequality in developed countries (1)

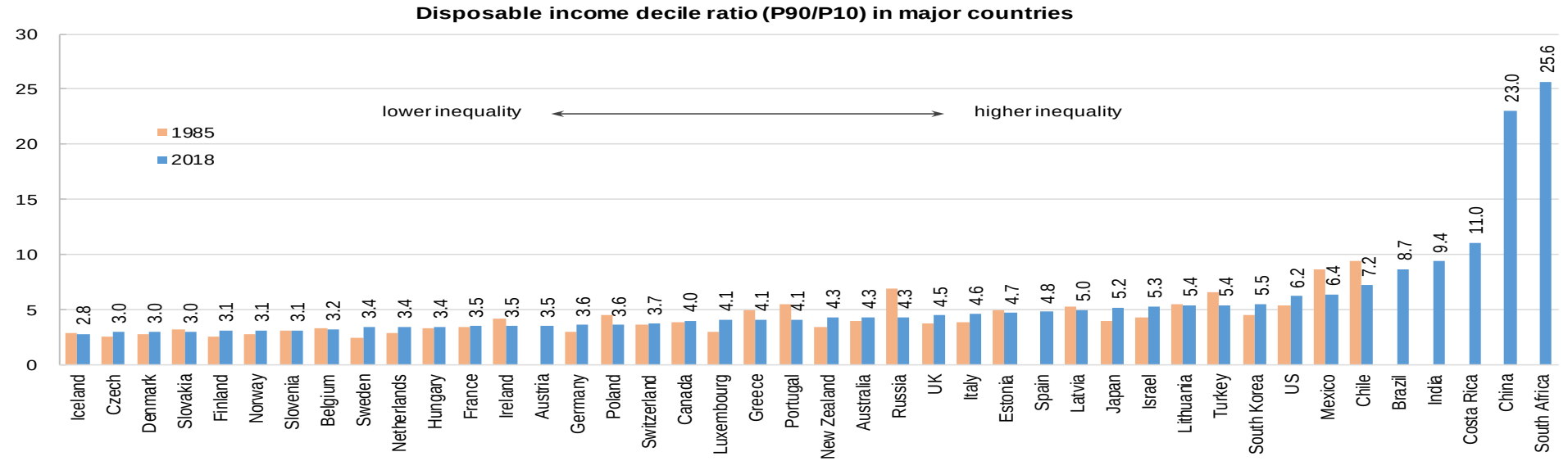


Note: 1985 is the oldest available year between 1985 and 2000; 2018 or the latest available year. Sources: OECD, SBI SECURITIES

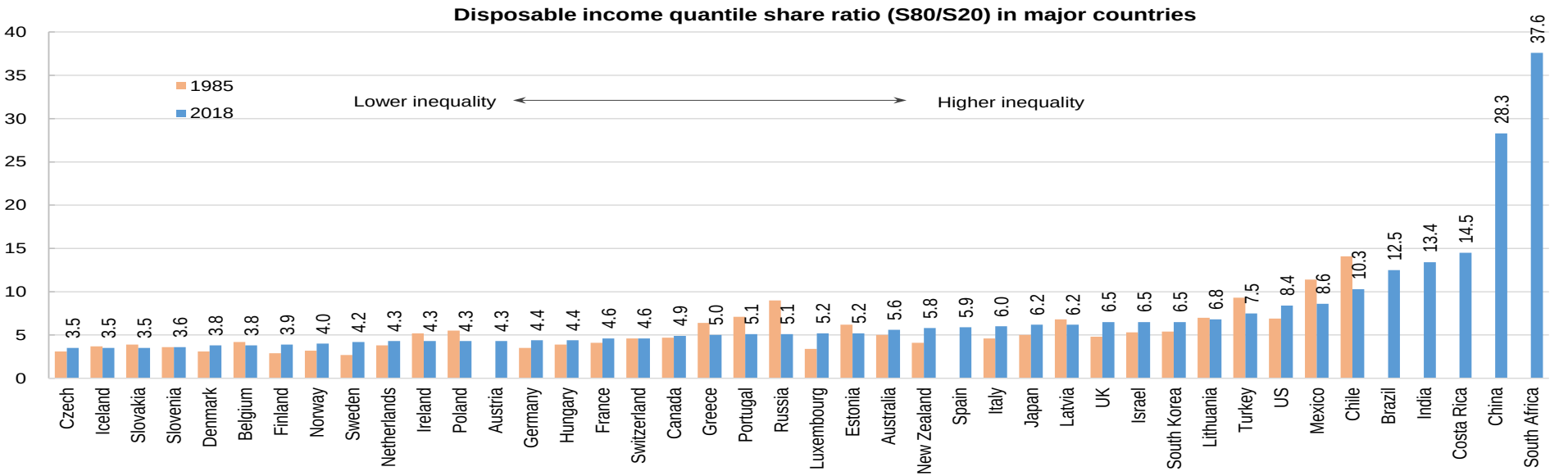


Notes: 1985 is the oldest available year between 1985 and 2000; 2018 or the latest available year. The Palma ratio is the share of the sum of income received by people with top 10% disposable income divided by the share of the sum of income received by people with the lowest 40% disposable income. Sources: OECD, SBI SECURITIES

Rising income and wealth inequality in developed countries (2)



Notes: 1985 is the oldest available year between 1985 and 2000; 2018 or the latest available year. Disposable income decile ratio (P90/P10) is ratio of disposable income at the 90 percentile to that at the 10 percentile. Sources: OECD, SBI SECURITIES



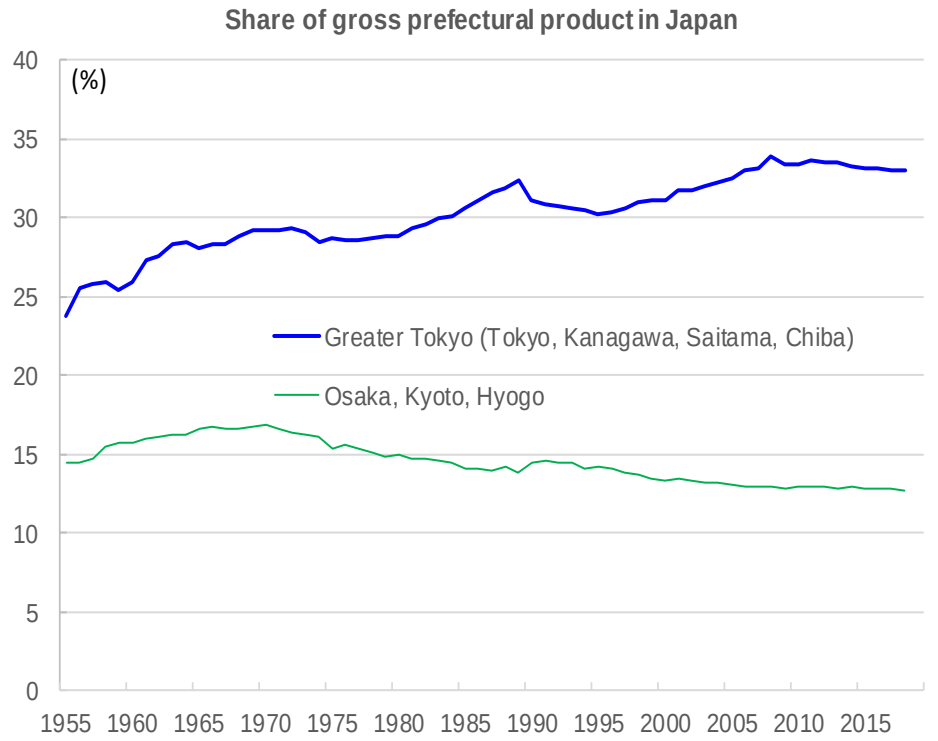
Notes: 1985 is the oldest available year between 1985 and 2000; 2018 or the latest available year. Disposable income quintile share (S80/S20) is the ratio of aggregate income of the fifth quintile (highest 20%) to that of the first quantile (lowest 20%). Sources: OECD, SBI SECURITIES

Review of separate tax rate of 20% on financial income, concentration to Tokyo

Effective tax rate on personal income tax by income bracket in 2019

Income group (JPYmn)			Effective tax rate (%)	Total income (JPYbn)	Total tax (JPYbn)
	~	0.7	0.40	93.7	0.4
0.7	~	1.0	1.64	235.0	3.9
1.0	~	1.5	1.93	840.1	16.2
1.5	~	2.0	2.30	1,308.7	30.1
2.0	~	2.5	2.59	1,486.0	38.5
2.5	~	3.0	2.87	1,462.3	41.9
3	~	4	3.54	2,723.2	96.3
4	~	5	4.54	2,341.3	106.2
5	~	6	5.94	1,988.6	118.1
6	~	7	7.28	1,754.6	127.8
7	~	8	8.51	1,488.3	126.6
8	~	10	10.38	2,356.6	244.6
10	~	12	12.58	1,871.5	235.4
12	~	15	15.17	2,321.5	352.1
15	~	20	18.19	3,109.2	565.5
20	~	30	21.78	3,690.0	803.7
30	~	50	25.43	3,470.1	882.3
50	~	100	27.37	3,126.7	855.7
100	~	200	26.94	1,866.3	502.7
200	~	500	23.70	1,436.7	340.5
500	~	1,000	22.46	784.4	176.2
1,000	~	2,000	20.21	573.5	115.9
2,000	~	5,000	18.48	592.6	109.5
5,000	~	10,000	15.81	207.5	32.8
10,000	~		15.84	508.4	80.5

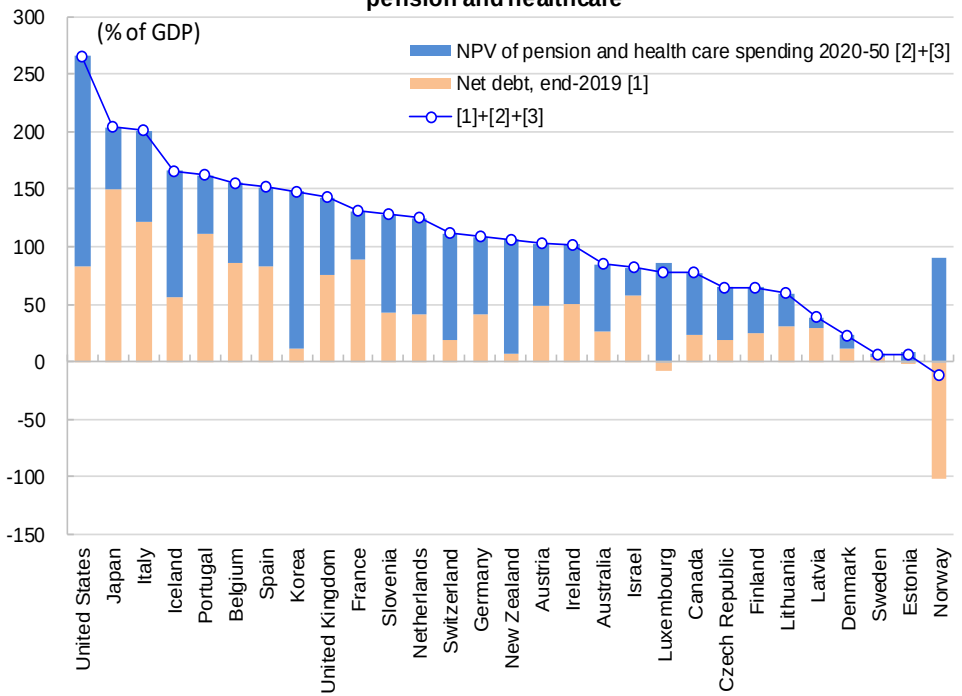
Sources: NTA, SBI SECURITIES



Sources: Cabinet Office, SBI SECURITIES

Japan's additional social security spending (NPV) smaller than in other countries

General government liabilities including NPV of future rise in spending on pension and healthcare



Sources: IMF, SBI SECURITIES

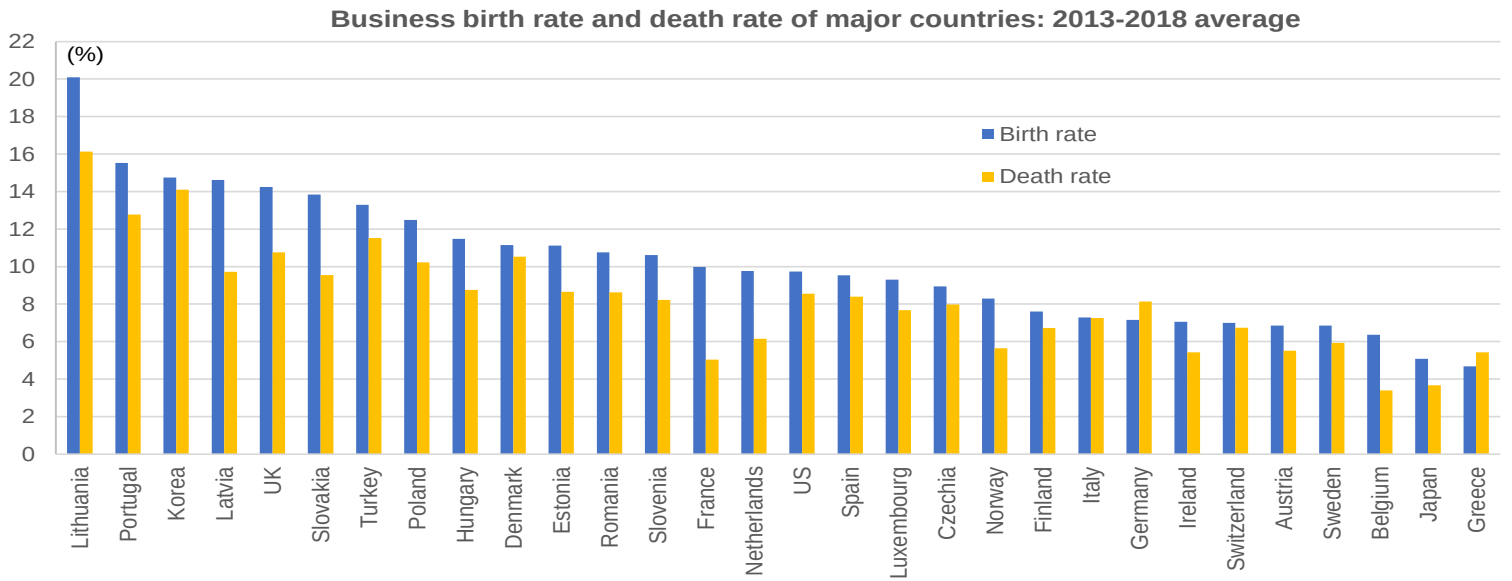
- Additional future government spending (NPV basis) on public pensions, healthcare and elderly care is smaller than in other developed countries (21nd highest among 29 countries), because of:
- i) progress of population aging so far ahead of others, which limits the future rise in spending
- ii) an introduction of macroeconomic sliding indexation to the public pensions

General government liabilities including NPV of future rise in spending on pension and healthcare

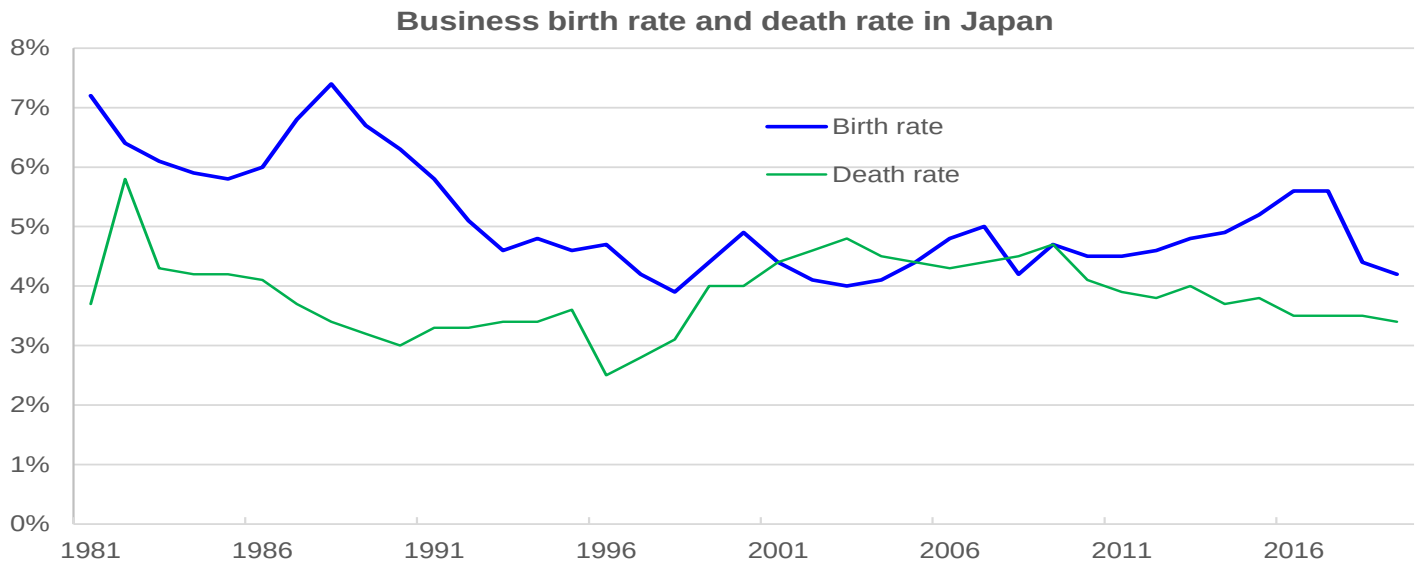
(% of GDP)	Net debt, end-2019 [1]	Net present value of pension spending change, 2020-50 [2]	net present value of health care spending change, 2020-50 [3]	[2]+[3]	[1]+[2]+[3]
Australia	26.24	20.51	38.21	58.72	84.96
Austria	47.90	16.15	38.43	54.58	102.48
Belgium	85.22	20.33	50.14	70.46	155.68
Canada	23.38	12.54	41.63	54.16	77.54
Cyprus	48.08	23.14	…	n.a.	n.a.
Czech Republic	18.28	20.83	25.37	46.19	64.47
Denmark	11.91	-23.09	34.09	11.00	22.91
Estonia	-2.15	-14.30	22.17	7.87	5.72
Finland	24.55	8.37	31.33	39.70	64.25
France	89.35	0.40	41.38	41.78	131.13
Germany	41.37	32.13	35.32	67.44	108.82
Hong Kong	…	46.30	…	n.a.	n.a.
Iceland	55.43	52.16	58.59	110.75	166.18
Ireland	49.41	29.91	22.23	52.14	101.54
Israel	57.20	12.25	12.12	24.37	81.57
Italy	122.08	49.11	29.67	78.78	200.86
Japan	150.43	-2.80	56.46	53.66	204.08
Korea	11.80	62.29	73.81	136.10	147.90
Latvia	28.51	-13.96	23.91	9.95	38.46
Lithuania	30.37	-1.28	30.13	28.85	59.23
Luxembourg	-8.42	47.47	38.56	86.03	77.60
Malta	30.76	-8.25	…	n.a.	22.51
Netherlands	41.64	22.14	60.94	83.08	124.72
New Zealand	6.96	44.80	54.76	99.56	106.52
Norway	-101.89	18.33	71.49	89.83	-12.06
Portugal	110.66	17.54	34.25	51.79	162.45
Singapore	…	32.48	…	n.a.	n.a.
Slovak Republic	…	-8.27	19.27	10.99	n.a.
Slovenia	42.73	54.50	30.39	84.89	127.62
Spain	82.20	24.30	44.95	69.26	151.46
Sweden	3.54	-15.95	18.96	3.01	6.54
Switzerland	19.42	12.63	79.41	92.04	111.46
United Kingdom	75.29	14.10	53.51	67.61	142.90
United States	83.01	30.34	152.29	182.63	265.64

Sources: IMF "Fiscal Monitor" April 2021, Statistical Table A8 and Table A23, SBI SECURITIES

Japan's low business birth and death rates

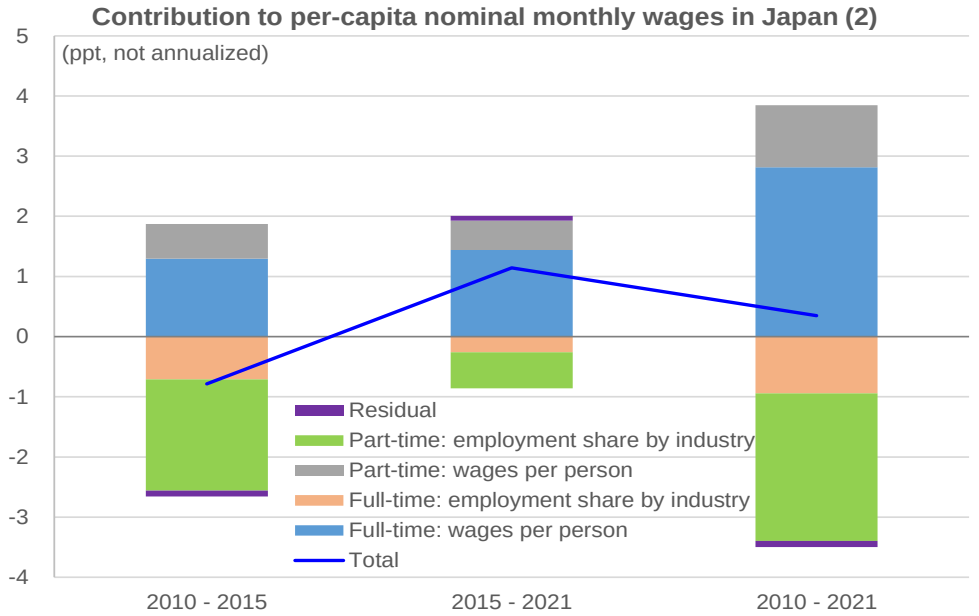


Sources: OECD, The Small and Medium Enterprise Agency, SBI SECURITIES

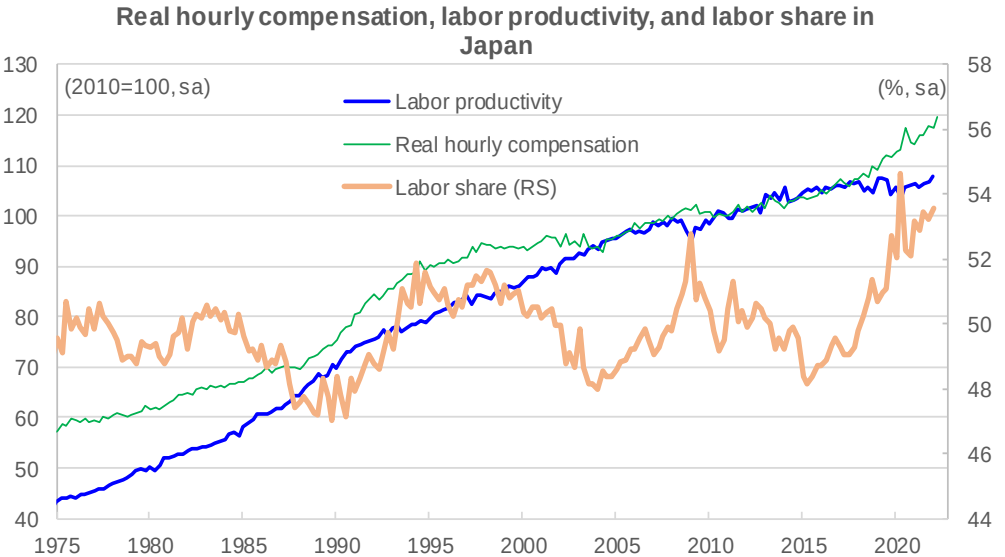


Sources: The Small and Medium Enterprise Agency, SBI SECURITIES

Why have wages in Japan not risen?

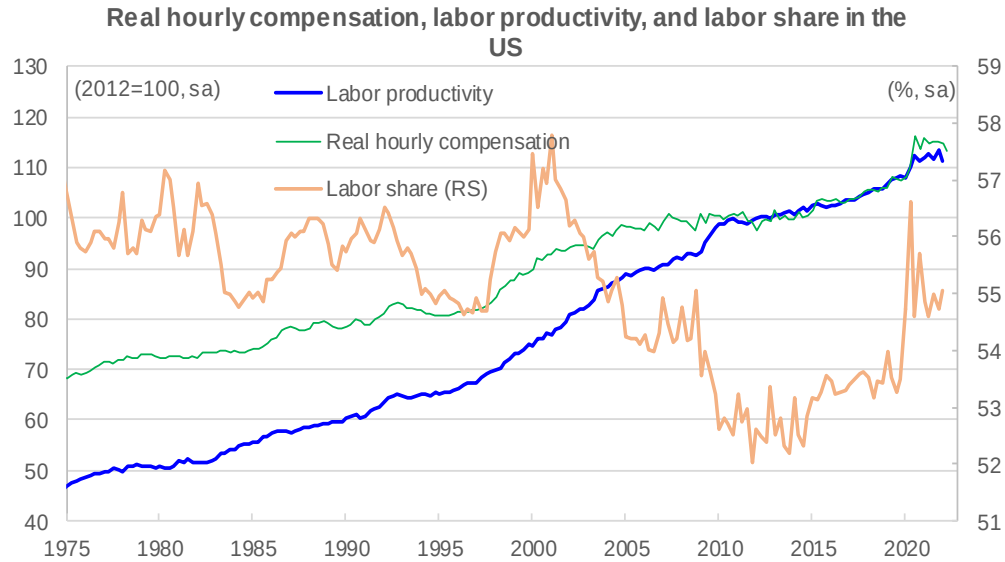


Sources: MHLW, SBI SECURITIES



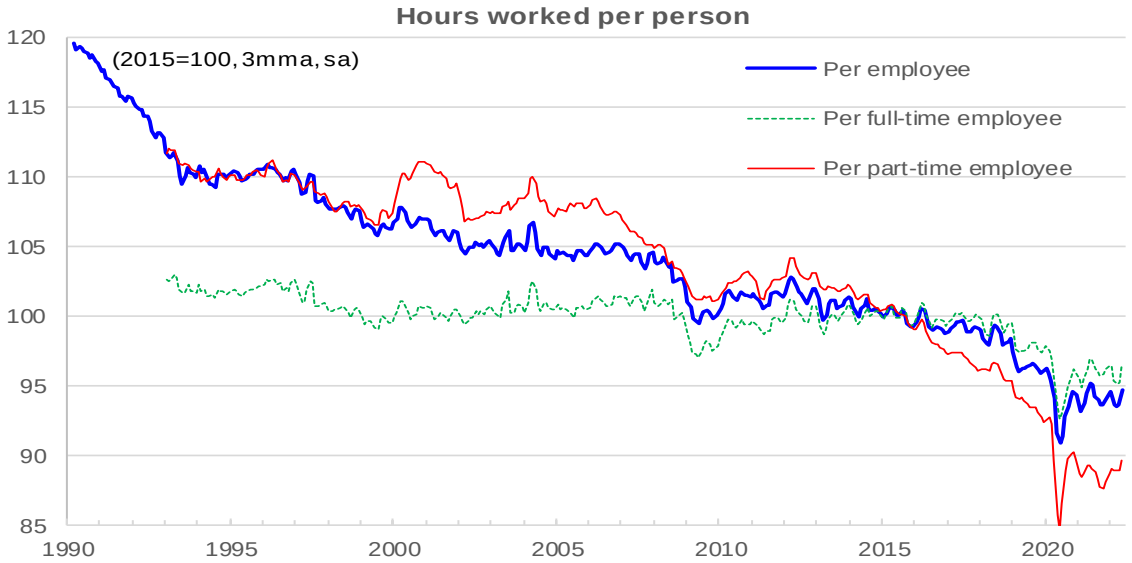
Note: Labor's share = nominal compensation of employees / nominal GDP.
Sources: CEIC Database, Cabinet Office, MHLW, SBI SECURITIES

- Nominal monthly wages in Japan has been suppressed by i) a shift of employment share to lower-wage industries and ii) a rise in the part-time employees' share.
- The two rounds of the shorter work hour shocks (1989 to early 1990s; 2018 onward) have pushed up the real hourly wages to the levels that are justified by a rise in labor productivity.
- This development in Japan is in contrast with the "great stagnation" of real hourly wages in the US since the 2000s which has lasted for 20 years.
- Asking for both higher wages and more employment is unrealistic. Prioritizing higher wages likely accompanies some sacrifice in employment.

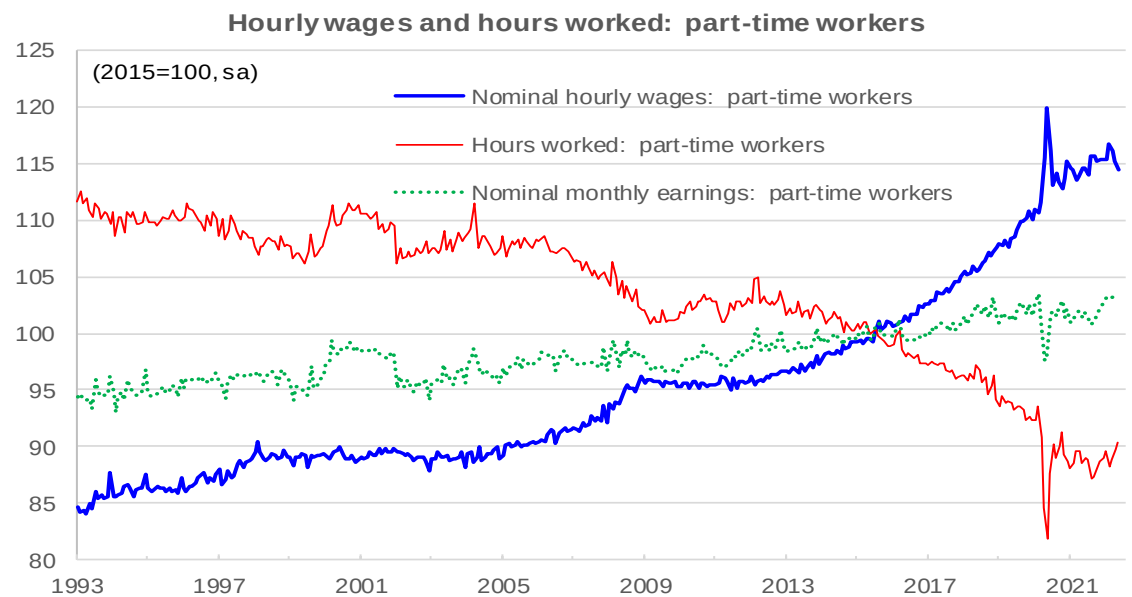


Note: Labor's share = nominal compensation of employees / nominal GDP.
Sources: CEIC Database, US BLS, US BEA, SBI SECURITIES

Work style reforms of 2018 act as the second shorter work hours shock (1)



Note: Business offices with 5 or more employees.
Sources: CEIC Database, MHLW, SBI SECURITIES



Notes: Business offices with 5 or more employees.
Sources: CEIC Database, MHLW, SBI SECURITIES

- Raising minimum hourly wages without eliminating various annual salary thresholds (cliffs; at ¥1.06m and ¥1.30m) justifies to limit labor supply just before reaching those thresholds.
- A decline in hours worked has become more noticeable after the introduction of the work style reforms in 2018 (because of the review of the long working hours practice for permanent workers, and of a continued rise in minimum wages for part-time workers).
- A decline in hours worked lowers the economy's potential growth.
- Lack of coordination between ministries (MoF in charge of taxes, MHLW in charge of social security system)
- The initial shorter work hours shock took place in 1989–1994 when weekly work hours were reduced from 48 hours to 40 hours.

Work style reforms of 2018 act as the second shorter work hours shock (2)

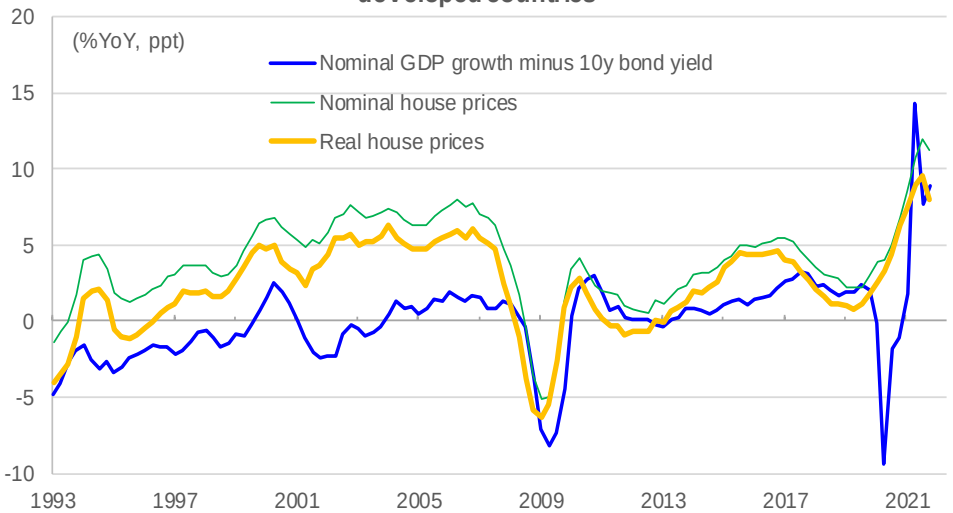
Various walls (disincentives) on annual income against work

Threshold annual gross	Type of dependence	Will this trigger a disposable income cliff?	
¥1.03mn	Income tax	No	Spouse's annual gross salary up to ¥1.03mn is eligible for the household's primary income earner's spouse deduction. Income tax starts to kick-in on annual gross salary at ¥1.03 (though spouse's disposable income does not decline because of this). Spouse deduction is eligible up to main income earner's income at ¥10mn. The deduction begins to diminish at ¥9mn.
¥1.06mn	Social security tax	Yes	Individuals with annual gross salary of ¥1.06mn with certain conditions need to enroll in social security. (Certain conditions: weekly work hours above 20 hours, monthly gross salary at ¥88,000 or higher, one-year or longer work contract, 501 or more enrollment in social security at the employer, not a student) Disposable income declines above ¥1.06mn gross salary
¥1.30mn	Social security tax	Yes	All individuals with annual gross salary of ¥1.30mn need to enroll in social security. Disposable income declines above ¥1.30mn gross salary
¥1.50mn	Income tax	No	¥1.50mn is the upper bound of the spouse's annual gross salary at which the main income earner is eligible for full special spouse deduction. Beyond ¥1.03mn annual gross salary of the spouse, the main income earner is still eligible for the special spouse deduction up to ¥1.50mn of the spouse's annual gross salary. (For the spouse's annual gross salary between ¥1.50mn –¥2.01mn, some fraction of the special spouse deduction is eligible for the main income earner, which diminishes with the main income earner's income.) Special spouse deduction is eligible up to main income earner's income at ¥10mn. The deduction begins to diminish at ¥9mn.
¥ ???	Employer's rule	Yes	Aside from these walls, employers may offer special allowance for spouse if the spouse's annual gross salary is below a certain threshold (for example, below ¥1.03mn

Sources: MoF, SBI SECURITIES

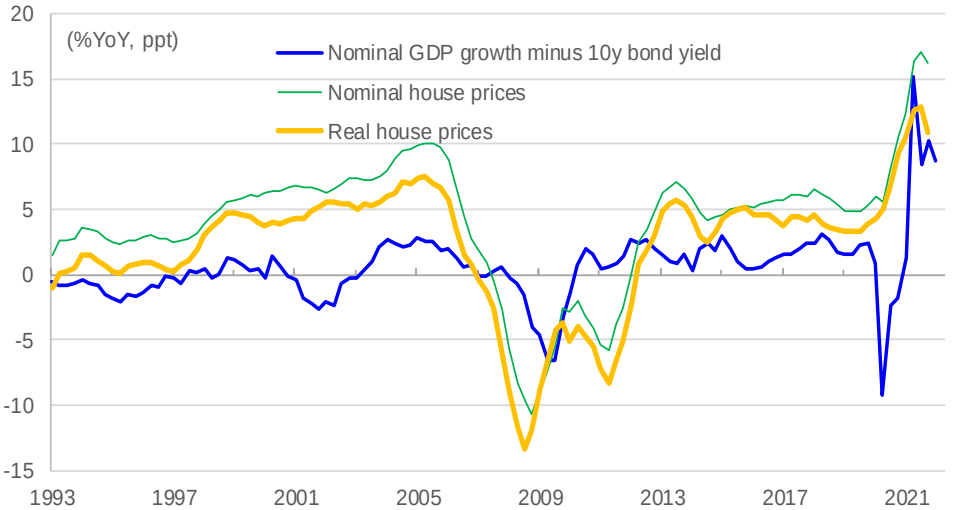
Monetary policy and house prices (1)

'Nominal GDP growth minus 10y yield' and house price inflation in developed countries



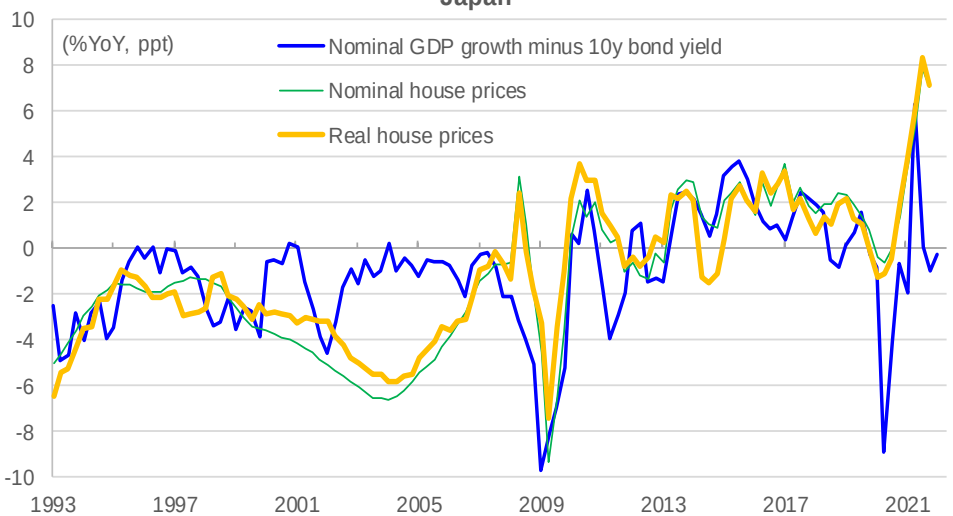
Note: Average from 15 developed countries and the euro area.
Sources: CEIC Database, OECD, SBI SECURITIES

'Nominal GDP growth minus 10y yield' and house price inflation in the US



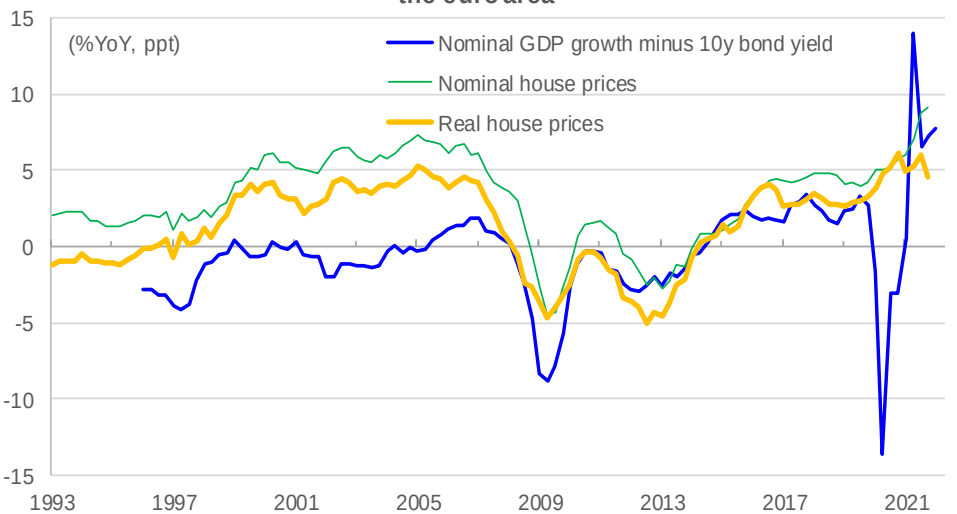
Sources: CEIC Database, OECD, SBI SECURITIES

'Nominal GDP growth minus 10y yield' and house price inflation in Japan



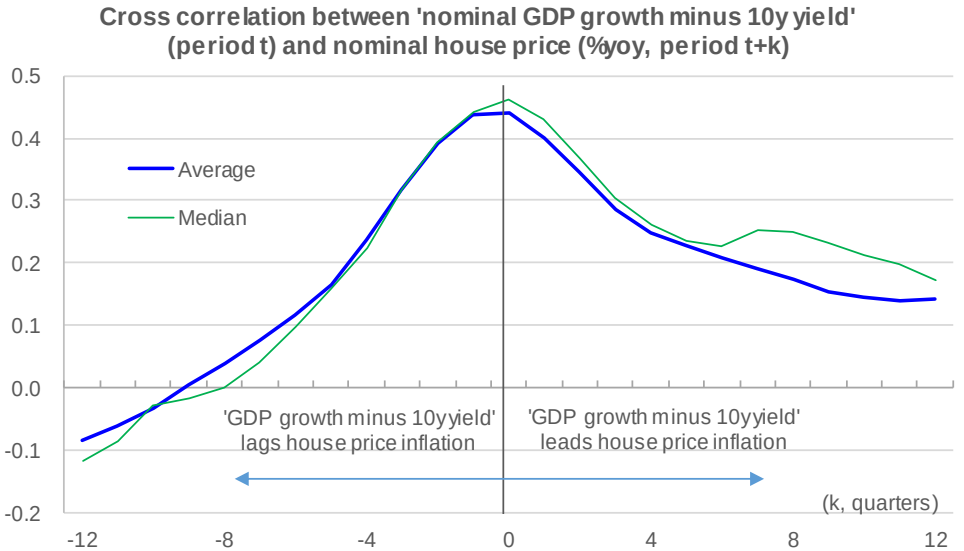
Sources: CEIC Database, OECD, SBI SECURITIES

'Nominal GDP growth minus 10y yield' and house price inflation in the euro area

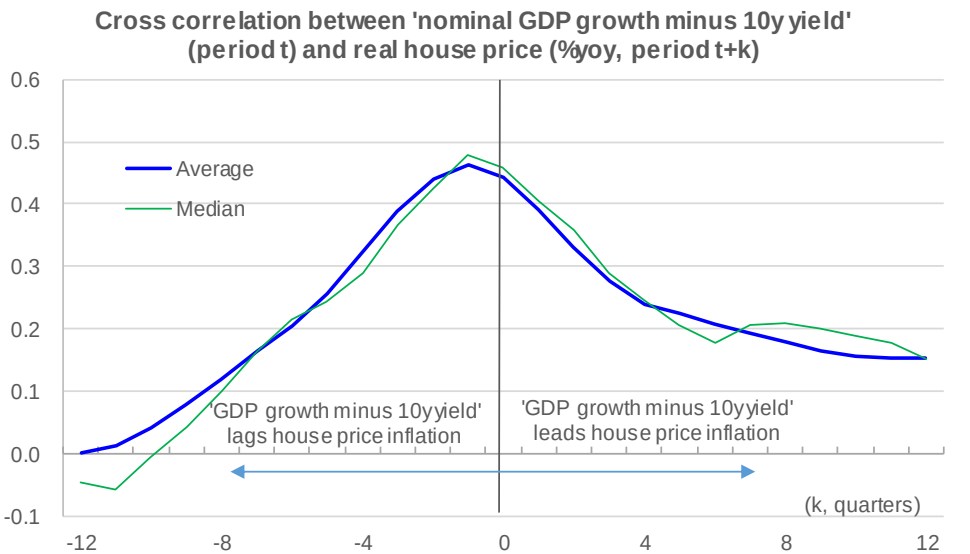


Sources: CEIC Database, OECD, SBI SECURITIES

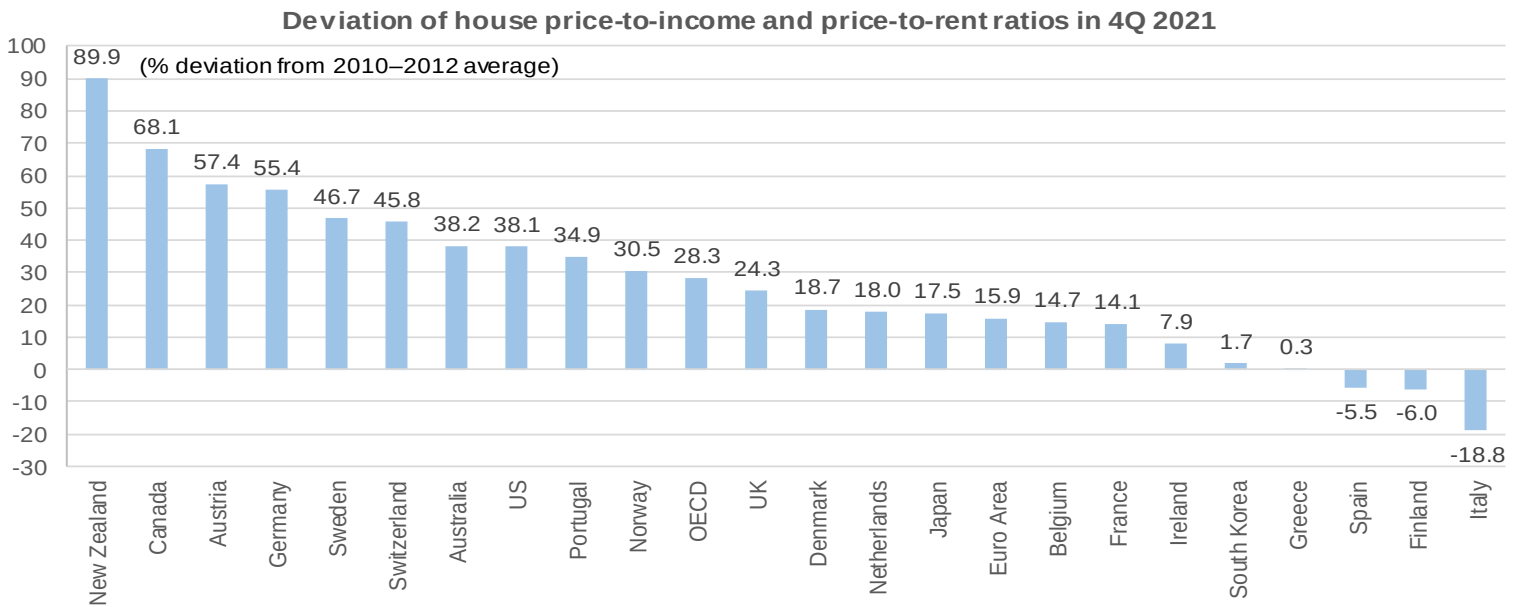
Monetary policy and house prices (2)



Notes: Sample period: 1Q 1990 – 4Q 2021. 15 developed countries and euro area.
Sources: CEIC Database, OECD, SBI SECURITIES



Note: Sample period: 1Q 1990 – 4Q 2021. 15 developed countries and euro area
Sources: CEIC Database, OECD, SBI SECURITIES



Note: Simple average of two measures of deviation. Sources: CEIC Database, OECD, SBI SECURITIES

Japan's economic outlook for 2022-2024

Japan's economic outlook

		FY20	FY21	FY22(F)	FY23(F)	FY24(F)	CY20	CY21	CY22(F)	CY23(F)	CY24(F)
Real GDP	%YoY	-4.5	2.3	0.7	1.1	1.1	-4.6	1.7	0.6	1.0	1.1
Domestic demand contribution	%pt	-3.9	1.5	0.7	0.8	0.9	-3.7	0.7	0.8	0.7	0.9
External demand contribution	%pt	-0.7	0.9	0.0	0.3	0.2	-0.9	1.1	-0.2	0.3	0.2
Real final sales	%YoY	-4.4	2.3	0.6	1.1	1.1	-4.4	1.8	0.4	1.1	1.1
Real private consumption	%YoY	-5.5	2.6	1.8	1.0	0.9	-5.2	1.3	2.0	1.1	0.9
Real private nonresidential investment	%YoY	-7.6	1.3	-0.6	0.3	1.2	-6.7	-0.4	-0.3	-0.2	1.1
Real exports of goods and services	%YoY	-10.3	12.7	1.4	4.2	5.4	-11.8	11.9	2.2	3.2	5.2
Real imports of goods and services	%YoY	-6.6	7.2	1.5	2.9	4.6	-6.9	5.1	3.4	1.7	4.4
Nominal GDP	%YoY	-3.9	1.2	1.7	2.0	1.4	-3.7	0.8	1.0	2.3	1.5
CPI overall	%YoY	-0.3	0.1	1.9	0.4	0.4	0.0	-0.2	1.8	0.7	0.4
CPI excl. food & energy	%YoY	-0.1	-1.3	0.5	0.4	0.4	0.0	-0.8	-0.2	0.6	0.4
Industrial production	%YoY	-10.0	5.9	-1.7	1.9	1.4	-10.6	5.6	-1.5	1.1	1.5
Unemployment rate	%	2.9	2.8	2.6	2.5	2.4	2.8	2.8	2.7	2.5	2.4
Nominal compensation of employees	%YoY	-1.4	1.7	1.3	1.1	0.3	-1.1	1.6	1.1	1.1	1.1
Unit labor cost	%YoY	3.0	-0.3	-0.9	0.0	0.1	3.1	0.4	-0.9	-0.1	0.1
Labor productivity	%YoY	-0.7	1.2	1.3	0.9	1.5	-1.3	1.0	1.5	0.7	1.5
Labor's share	%	53.0	53.3	53.1	52.6	52.0	52.7	53.2	53.3	52.7	52.5
Policy rate (eop)	%	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
10-yr government bond yield (period avg)	%	0.04	0.09	0.25	0.23	0.20	0.01	0.07	0.23	0.24	0.20
M2	%YoY	8.1	4.9	3.1	2.8	2.9	6.5	6.4	3.3	2.8	2.8
USD/JPY exchange rate (period avg)	¥/$	106	112	128	125	123	107	110	125	126	124
General government net lending	% of GDP	-9.8	-5.4	-3.8	-3.3	-2.9	-8.8	-6.0	-4.1	-3.4	-3.0
Current account balance	¥trn	15.91	12.56	7.09	9.29	9.70	15.48	15.42	7.20	9.07	9.61
	% of GDP	3.0	2.3	1.3	1.7	1.8	2.9	2.9	1.3	1.7	1.7

Notes: Final sales = GDP minus increases in inventories; Household saving rate = household saving / household disposable income;
Labor's share = nominal compensation of employees / nominal GDP; labor productivity = real GDP / (total hours worked per person x number of workers).
CY and FY growth rates are calculated from seasonally adjusted series, which could slightly differ from the published figures that are calculated from unadjusted series.
Sources: Cabinet Office, BoJ, METI, MHLW, MoF, MIC, SBI SECURITIES forecast.

Quarterly profile of Japan's economic outlook (1)

Real Gross Domestic Product

		2021				2022				2023				2024				2025
(¥trn in 2015 prices, saar)		Q1	Q2	Q3	Q4	Q1	Q2(F)	Q3(F)	Q4(F)	Q1(F)	Q2(F)	Q3(F)	Q4(F)	Q1(F)	Q2(F)	Q3(F)	Q4(F)	Q1(F)
Real GDP	¥trn	535.4	538.2	534.2	539.2	537.9	539.7	540.5	541.5	542.8	544.4	546.6	547.8	548.9	550.4	552.0	553.7	555.1
	%QoQ	-0.3	0.5	-0.7	0.9	-0.2	0.3	0.1	0.2	0.2	0.3	0.4	0.2	0.2	0.3	0.3	0.3	0.3
	%saar	-1.3	2.1	-2.9	3.8	-1.0	1.4	0.6	0.7	1.0	1.2	1.6	0.9	0.8	1.1	1.2	1.2	1.1
	%YoY	-1.7	7.4	1.2	0.4	0.5	0.3	1.2	0.4	0.9	0.9	1.1	1.2	1.1	1.1	1.0	1.1	1.1
Contribution from domestic demand	%pt, QoQ	-0.5	0.8	-0.8	0.9	0.2	0.3	0.1	0.0	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Contribution from external demand	%pt, QoQ	0.2	-0.3	0.1	0.1	-0.4	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0
Final sales	¥trn	535.8	538.3	533.6	539.5	537.0	538.7	539.7	541.1	542.4	544.1	546.0	547.5	548.8	550.3	551.9	553.6	555.0
	%QoQ	-0.4	0.5	-0.9	1.1	-0.5	0.3	0.2	0.3	0.2	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.3
	%saar	-1.6	1.8	-3.4	4.5	-1.8	1.3	0.8	1.0	1.0	1.2	1.4	1.1	1.0	1.1	1.2	1.2	1.1
	%YoY	-1.5	7.9	1.1	0.3	0.2	0.1	1.2	0.3	1.0	1.0	1.2	1.2	1.2	1.1	1.1	1.1	1.1
Private consumption	¥trn	287.1	289.0	286.0	293.1	293.0	294.4	295.0	295.6	296.5	297.4	298.1	298.8	299.5	300.1	300.7	301.3	302.0
	%QoQ	-0.8	0.7	-1.0	2.5	0.0	0.5	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	%saar	-3.0	2.7	-4.0	10.2	-0.1	2.0	0.8	0.8	1.2	1.2	1.0	0.9	0.9	0.9	0.8	0.8	0.8
	%YoY	-3.0	6.8	0.4	1.3	2.1	1.9	3.1	0.9	1.2	1.0	1.1	1.1	1.0	0.9	0.9	0.9	0.8
Private housing investment	¥trn	18.73	18.92	18.60	18.38	18.18	18.23	18.27	18.27	18.27	18.27	18.31	18.35	18.38	18.40	18.42	18.42	18.42
	%QoQ	1.0	1.0	-1.7	-1.2	-1.1	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.0	0.0
	%saar	3.9	4.1	-6.6	-4.5	-4.3	1.0	1.0	0.0	0.0	0.0	0.8	0.8	0.8	0.4	0.4	0.0	0.0
	%YoY	-4.0	-3.0	0.2	-0.9	-2.9	-3.7	-1.8	-0.6	0.5	0.2	0.2	0.4	0.6	0.7	0.6	0.4	0.2
Private nonresidential investment	¥trn	84.44	86.27	84.24	84.55	84.95	84.74	84.53	84.32	84.32	84.32	84.57	84.83	85.08	85.34	85.59	85.85	86.11
	%QoQ	0.0	2.2	-2.4	0.4	0.5	-0.2	-0.2	-0.2	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	%saar	0.2	8.9	-9.1	1.5	1.9	-1.0	-1.0	-1.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	%YoY	-5.9	3.3	1.3	0.2	0.6	-1.8	0.3	-0.3	-0.7	-0.5	0.0	0.6	0.9	1.2	1.2	1.2	1.2
Change in private inventories	¥trn	-0.39	-0.03	0.77	-0.25	0.91	1.00	0.70	0.30	0.30	0.25	0.50	0.25	0.00	0.00	0.00	0.00	0.00
	%pt, QoQ	0.1	0.1	0.1	-0.2	0.2	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Government consumption	¥trn	114.2	115.1	116.4	116.0	116.7	117.1	117.4	117.8	118.1	118.5	118.8	119.2	119.5	119.9	120.3	120.6	121.0
	%QoQ	-0.7	0.8	1.1	-0.3	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	%saar	-2.9	3.2	4.5	-1.1	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	%YoY	2.6	3.0	2.0	0.9	2.2	1.7	0.9	1.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Public investment	¥trn	29.76	28.66	27.56	26.27	25.33	24.95	24.76	24.68	24.68	24.68	24.68	24.68	24.68	24.68	24.68	24.68	24.68
	%QoQ	-0.1	-3.7	-3.8	-4.7	-3.6	-1.5	-0.8	-0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	%saar	-0.3	-14.0	-14.5	-17.4	-13.6	-5.9	-3.0	-1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	%YoY	5.4	-1.8	-5.9	-11.8	-14.9	-12.9	-10.1	-6.1	-2.6	-1.1	-0.3	0.0	0.0	0.0	0.0	0.0	0.0
Net exports	¥trn	1.88	0.42	1.00	1.57	-0.67	-0.26	0.22	0.96	1.01	1.45	2.00	2.12	2.14	2.34	2.76	3.19	3.42
Exports of goods and services	¥trn	100.43	103.22	102.93	103.85	105.04	104.58	104.62	105.29	106.20	107.63	109.04	110.28	111.53	112.99	114.69	116.44	118.00
	%QoQ	2.6	2.8	-0.3	0.9	1.1	-0.4	0.0	0.6	0.9	1.3	1.3	1.1	1.1	1.3	1.5	1.5	1.3
	%saar	10.9	11.6	-1.1	3.6	4.7	-1.8	0.2	2.6	3.5	5.5	5.4	4.6	4.6	5.4	6.2	6.2	5.5
	%YoY	1.8	27.1	15.8	6.1	4.6	1.3	1.6	1.4	1.1	2.9	4.2	4.7	5.0	5.0	5.2	5.6	5.8
Imports of goods and services	¥trn	98.55	102.80	101.93	102.28	105.71	104.84	104.41	104.33	105.19	106.18	107.04	108.16	109.39	110.65	111.94	113.25	114.58
	%QoQ	1.8	4.3	-0.8	0.3	3.4	-0.8	-0.4	-0.1	0.8	0.9	0.8	1.0	1.1	1.2	1.2	1.2	1.2
	%saar	7.3	18.4	-3.3	1.4	14.1	-3.3	-1.6	-0.3	3.3	3.8	3.3	4.3	4.6	4.7	4.8	4.8	4.8
	%YoY	-0.8	4.8	11.4	5.6	7.3	2.0	2.4	2.0	-0.5	1.3	2.5	3.7	4.0	4.2	4.6	4.7	4.8

Notes: QoQ contributions to GDP growth and the sum of GDP components do not add up. Final sales = GDP minus changes in inventories.
Sources: Cabinet Office, SBI SECURITIES forecast.

Quarterly profile of Japan's economic outlook (2)

Main economic indicators

		2021				2022				2023				2024				2025
		Q1	Q2	Q3	Q4	Q1	Q2(F)	Q3(F)	Q4(F)	Q1(F)	Q2(F)	Q3(F)	Q4(F)	Q1(F)	Q2(F)	Q3(F)	Q4(F)	Q1(F)
Nominal GDP	¥trn	543.0	544.9	539.4	541.0	541.5	546.4	548.8	552.5	555.8	558.3	560.8	563.7	565.2	567.1	568.9	571.1	573.0
	%QoQ	-0.6	0.3	-1.0	0.3	0.1	0.9	0.4	0.7	0.6	0.4	0.5	0.5	0.3	0.4	0.3	0.4	0.3
	%saar	-2.4	1.3	-3.9	1.2	0.4	3.7	1.8	2.7	2.4	1.8	1.8	2.1	1.0	1.4	1.3	1.5	1.4
	%YoY	-1.8	6.3	0.1	-1.0	-0.3	0.3	1.7	2.1	2.6	2.2	2.2	2.0	1.7	1.6	1.4	1.3	1.4
GDP deflator	2015=100, sa	101.4	101.2	101.0	100.3	100.7	101.2	101.5	102.0	102.4	102.5	102.6	102.9	103.0	103.0	103.1	103.1	103.2
	%QoQ	-0.3	-0.2	-0.3	-0.6	0.4	0.6	0.3	0.5	0.4	0.1	0.1	0.3	0.1	0.1	0.0	0.1	0.1
Domestic demand deflator	2015=100, sa	101.3	101.5	102.1	102.1	103.0	103.7	104.1	104.3	104.4	104.5	104.6	104.8	105.0	105.2	105.4	105.6	105.8
	%QoQ	0.4	0.2	0.5	0.0	0.9	0.7	0.4	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Industrial production	2015=100, sa	96.3	96.5	94.7	94.9	95.7	94.0	93.1	93.8	94.5	94.9	95.4	95.9	96.2	96.5	96.7	97.0	97.3
	%QoQ	2.5	0.3	-1.9	0.2	0.8	-1.8	-1.0	0.8	0.6	0.5	0.5	0.5	0.3	0.3	0.3	0.3	0.3
Corporate goods prices	2015=100, sa	101.5	104.0	106.3	108.7	111.2	114.2	115.9	116.5	115.7	114.5	114.0	114.4	114.8	115.2	115.6	116.1	116.6
	%QoQ	1.6	2.5	2.2	2.3	2.2	2.8	1.5	0.5	-0.7	-1.0	-0.5	0.4	0.4	0.4	0.4	0.4	0.4
CPI Overall	2015=100, sa	99.9	99.3	99.8	100.0	100.8	101.6	101.8	102.0	102.1	102.2	102.2	102.3	102.4	102.6	102.7	102.8	102.9
	%YoY	-0.5	-0.8	-0.2	0.5	0.9	2.3	2.1	2.0	1.3	0.6	0.4	0.3	0.3	0.4	0.4	0.4	0.4
CPI excl. fresh food	2015=100, sa	100.1	99.3	99.8	100.0	100.6	101.4	101.7	101.8	101.9	102.0	102.1	102.2	102.3	102.4	102.5	102.6	102.7
	%YoY	-0.5	-0.7	-0.1	0.4	0.5	2.2	1.9	1.8	1.3	0.6	0.4	0.3	0.3	0.4	0.4	0.4	0.4
CPI excl. fresh food and energy	2015=100, sa	100.4	99.1	99.3	99.1	99.4	100.0	100.2	100.3	100.4	100.5	100.6	100.7	100.8	100.9	101.0	101.1	101.2
	%YoY	0.0	-1.0	-0.6	-0.7	-1.0	0.9	0.9	1.3	1.1	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CPI excl. food and energy	2015=100, sa	100.3	98.9	99.0	98.6	98.5	99.1	99.2	99.4	99.5	99.6	99.7	99.8	99.9	100.0	100.1	100.2	100.3
	%YoY	0.0	-1.1	-0.9	-1.2	-1.8	0.1	0.2	0.8	1.1	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Policy interest rate	%	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10
Total assets of the Bank of Japan	¥trn (eop)	714.6	716.9	724.1	723.8	735.8	740.8	747.8	754.8	761.8	766.8	771.8	776.8	779.8	782.8	785.8	788.8	790.8
10-yr government bond yield	% (period avg)	0.08	0.08	0.03	0.08	0.19	0.25	0.25	0.25	0.25	0.25	0.25	0.20	0.20	0.20	0.20	0.20	0.20
M2	%YoY	9.6	7.7	4.7	4.0	3.5	3.1	3.2	3.2	3.0	2.9	2.8	2.7	2.7	2.8	2.9	3.0	3.0
Customs trade balance	¥trn, saar	2.91	-0.35	-3.51	-5.27	-11.80	-14.89	-14.55	-12.83	-12.19	-12.42	-12.74	-12.36	-13.11	-13.48	-13.92	-14.12	-14.61
Merchandise trade balance (BoP)	¥trn, saar	6.11	4.02	-0.92	-2.86	-6.89	-11.05	-11.55	-10.34	-10.01	-10.44	-10.90	-10.63	-11.46	-11.92	-12.42	-12.69	-13.23
Exports	%QoQ	6.2	7.3	1.0	2.3	5.6	6.4	0.0	-0.7	-2.2	-2.2	-1.5	-0.2	-0.5	0.2	0.0	0.5	0.2
Imports	%QoQ	12.1	10.9	7.4	4.6	10.0	10.2	0.5	-1.8	-2.3	-1.6	-0.9	-0.5	0.4	0.6	0.5	0.7	0.7
Current account balance (BoP)	¥trn, saar	20.47	17.93	11.90	11.36	9.03	6.02	5.98	7.74	8.60	8.84	9.01	9.82	9.49	9.54	9.56	9.84	9.84
	% of GDP	3.8	3.3	2.2	2.1	1.7	1.1	1.1	1.4	1.5	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7
USD/JPY exchange rate	(¥/$, period avg)	106	109	110	114	116	128	128	128	127	126	125	125	124	124	123	123	123
Import oil prices	($/b)	55.9	67.0	73.1	80.4	86.1	110.0	115.0	110.0	100.0	95.0	93.0	90.0	90.0	90.0	90.0	90.0	90.0
Nominal compensation of employees	¥trn, saar	288.7	288.1	288.2	288.0	290.1	291.2	292.0	292.8	293.5	294.3	295.1	295.9	296.7	297.6	298.4	299.3	300.2
	%QoQ	1.4	-0.2	0.0	-0.1	0.7	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of employees	%QoQ	0.1	-0.2	0.1	-0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unemployment rate	%	2.9	2.9	2.8	2.7	2.7	2.7	2.6	2.6	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4
Hours worked per person	%QoQ	-0.6	1.4	-1.5	0.9	-1.1	0.1	0.1	0.0	0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Nominal disposable household income	¥trn, saar	319.1	316.4	316.5	316.2	319.6	321.4	317.6	318.5	318.8	319.2	319.7	320.2	320.6	321.2	321.7	322.3	322.8
	%QoQ	1.7	-0.8	0.0	-0.1	1.1	0.6	-1.2	0.3	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2
Household saving rate	%	10.5	9.4	10.0	9.0	10.3	7.8	8.0	7.4	6.7	6.3	6.1	6.0	5.8	5.7	5.7	5.6	5.6
General government net lending	¥trn, saar	-37.09	-33.20	-33.68	-25.11	-24.67	-22.22	-21.53	-20.73	-19.97	-19.28	-18.76	-18.24	-17.71	-17.18	-16.56	-15.94	-15.31
	% of GDP	-6.8	-6.1	-6.2	-4.6	-4.6	-4.1	-3.9	-3.8	-3.6	-3.5	-3.3	-3.2	-3.1	-3.0	-2.9	-2.8	-2.7
Unit labor cost	(2010=100)	104.0	103.7	104.3	103.6	103.4	102.8	102.8	102.8	102.9	102.9	102.8	102.8	102.9	102.9	102.9	102.9	102.9
	%QoQ	1.4	-0.3	0.6	-0.7	-0.2	-0.6	0.0	0.0	0.0	0.0	-0.1	0.1	0.1	0.0	0.0	0.0	0.0
Labor productivity	(2010=100)	106.3	105.7	106.4	106.9	107.7	107.9	107.9	108.0	108.1	108.4	108.8	109.2	109.6	110.0	110.5	110.9	111.4
	%QoQ	0.3	-0.6	0.7	0.5	0.8	0.2	0.0	0.1	0.1	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.4
Labor's share	% of GDP	53.2	52.9	53.4	53.2	53.6	53.3	53.2	53.0	52.8	52.7	52.6	52.5	52.5	52.5	52.5	52.4	52.4

Notes: Household saving rate = household saving / household disposable income; labor's share = nominal compensation of employees / nominal GDP; labor productivity = real GDP / (total hours worked per person x number of workers).
Sources: Cabinet Office, BoJ, METI, MHLW, MoF, MIC, SBI SECURITIES forecast.

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