



BANK OF GREECE
EUROSYSTEM

The return of inflation amid elevated uncertainty

First Deputy Governor

Professor Theodore Pelagidis

The Cyprus Economic Society – Nicosia June 10, 2022

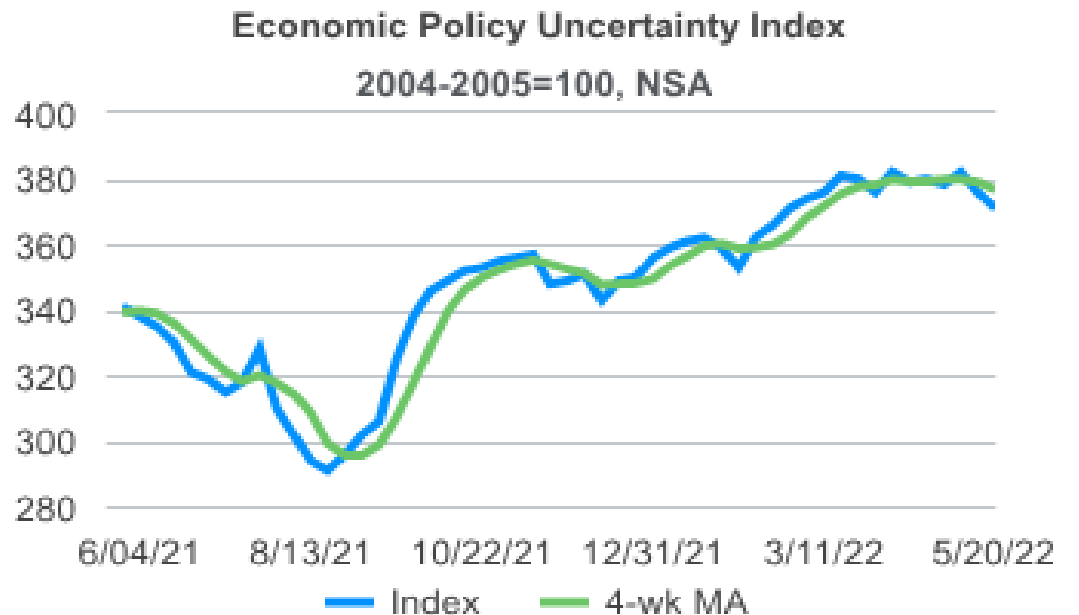
Uncertainty itself...Fluctuations show Data better or worse than expected

The degree to which economic data is beating or missing estimates



Monetary policy should rise because the Federal Reserve has essentially hit the panic button; it is aggressively raising rates and financial market conditions have tightened significantly.

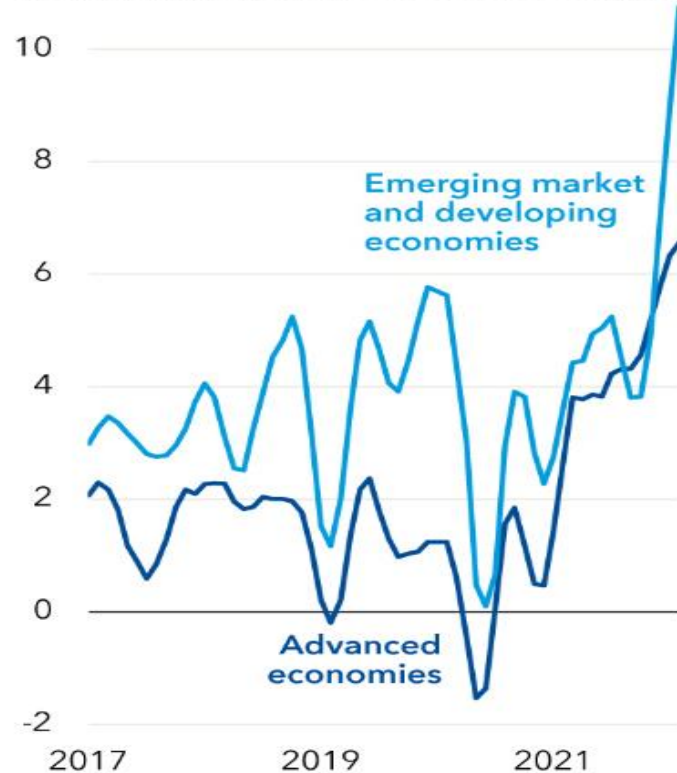
https://www.economy.com/economicview/indicator/usa_pui/060F537B-3215-4E9D-9189-19A7A9D98339/United-States-Moodys-Analytics-Policy-Uncertainty-Index



Global Inflation

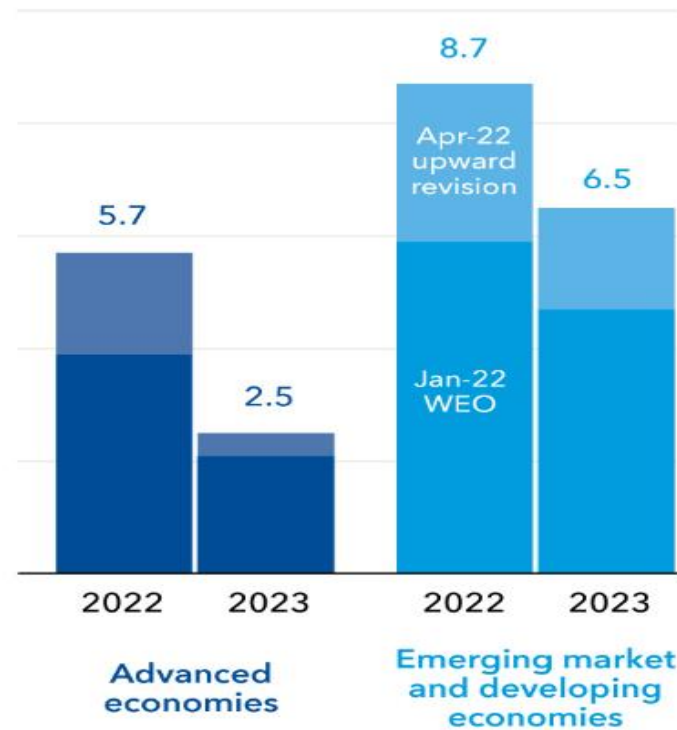
Inflation trends

(consumer price index, three-month moving avg; annualized percent change)



Inflation forecast

(consumer prices, percent)

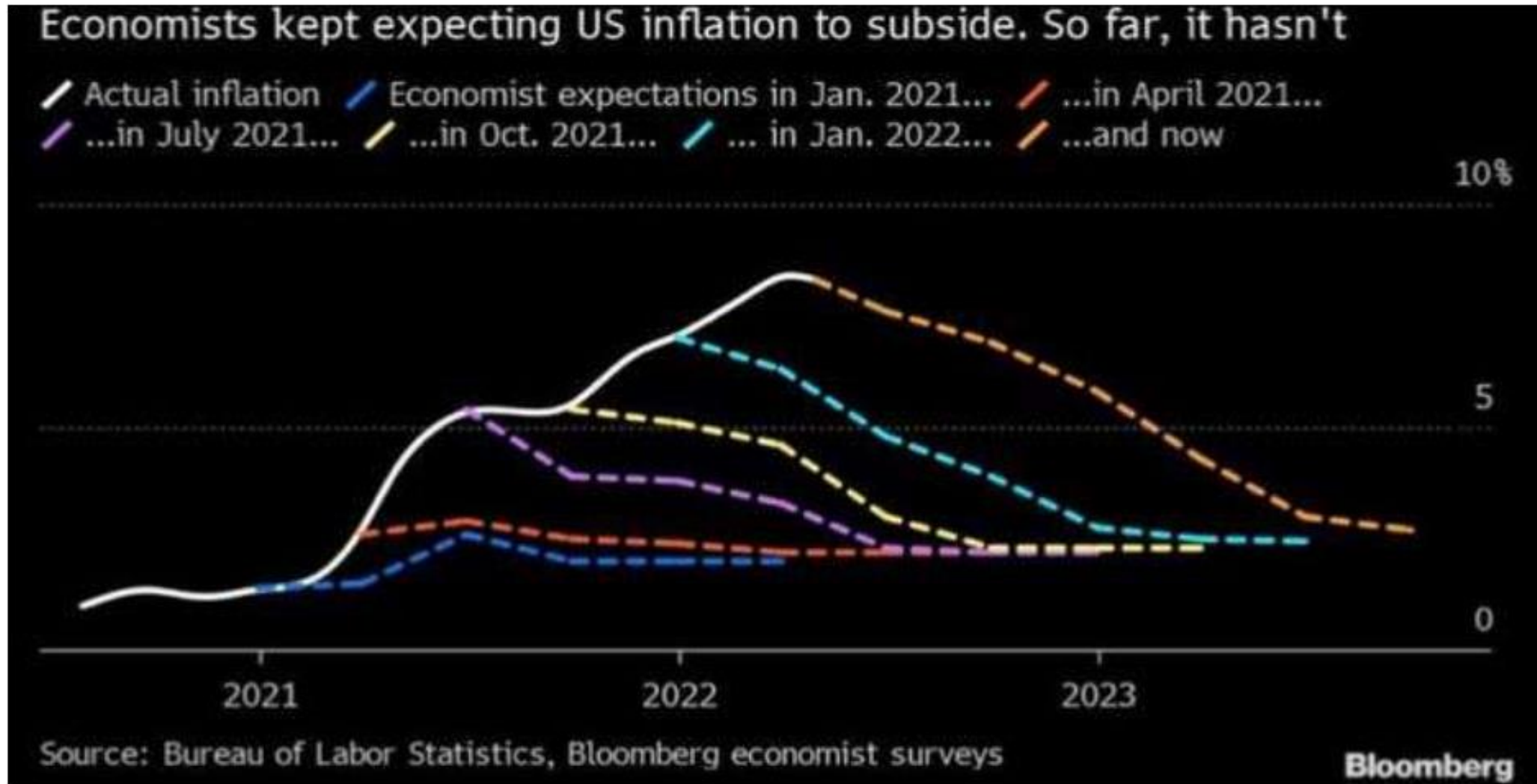


- High inflation is a worldwide phenomenon.
- Almost 60% of AEs currently have year-on-year inflation above 5% – more than 3 percentage points above typical inflation targets. This is the largest share since the late 1980s.
- Also, In more than half of EMEs inflation rates are above 7%.

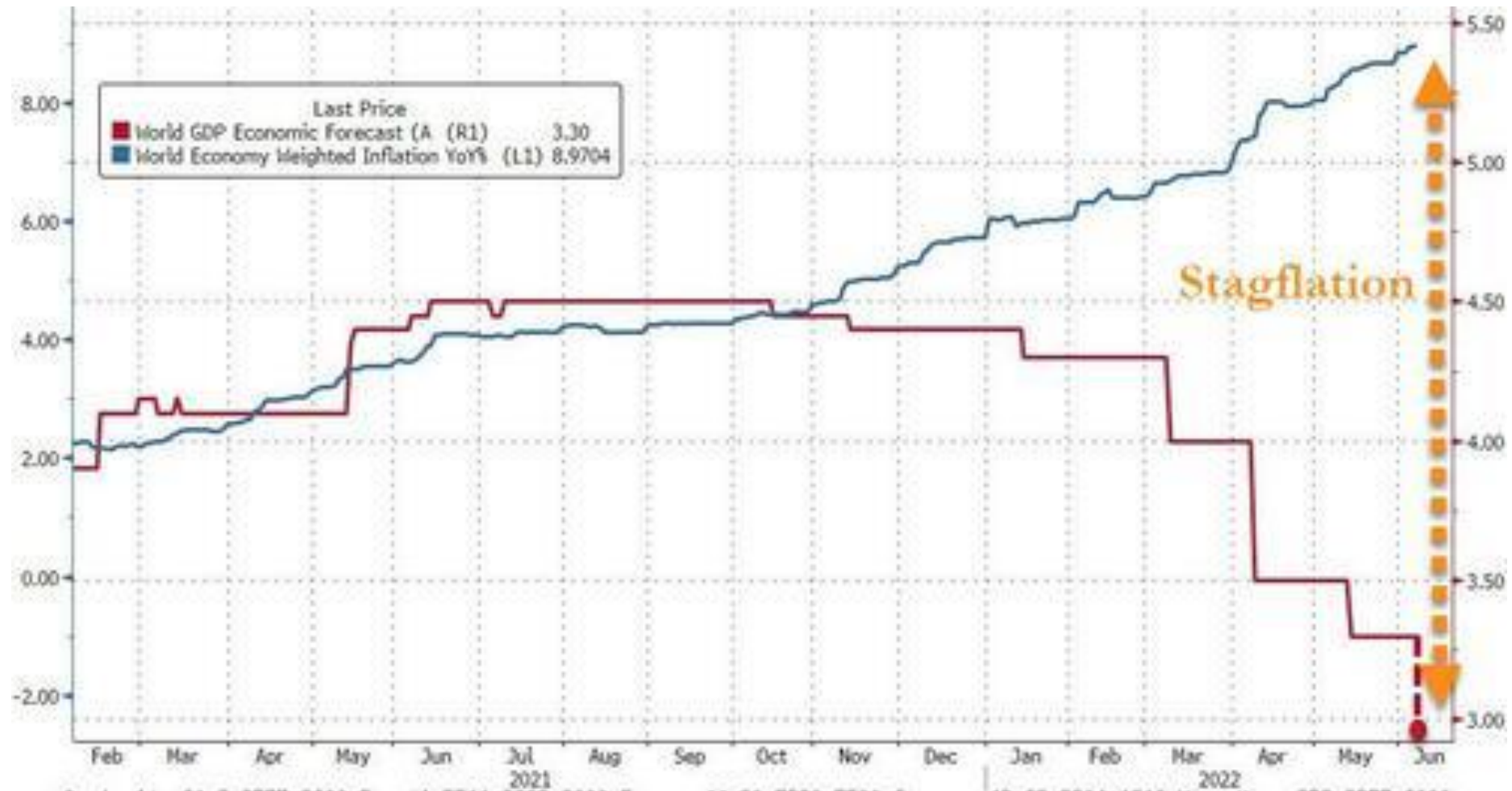
Sources: IMF, *World Economic Outlook*; and IMF staff calculations.

Note: Left panel average inflation rates by economy group are purchasing-power-parity GDP-weighted averages.

The perils of living behind the curve...



The risk of stagflation. The balance of growth and inflation is deteriorating



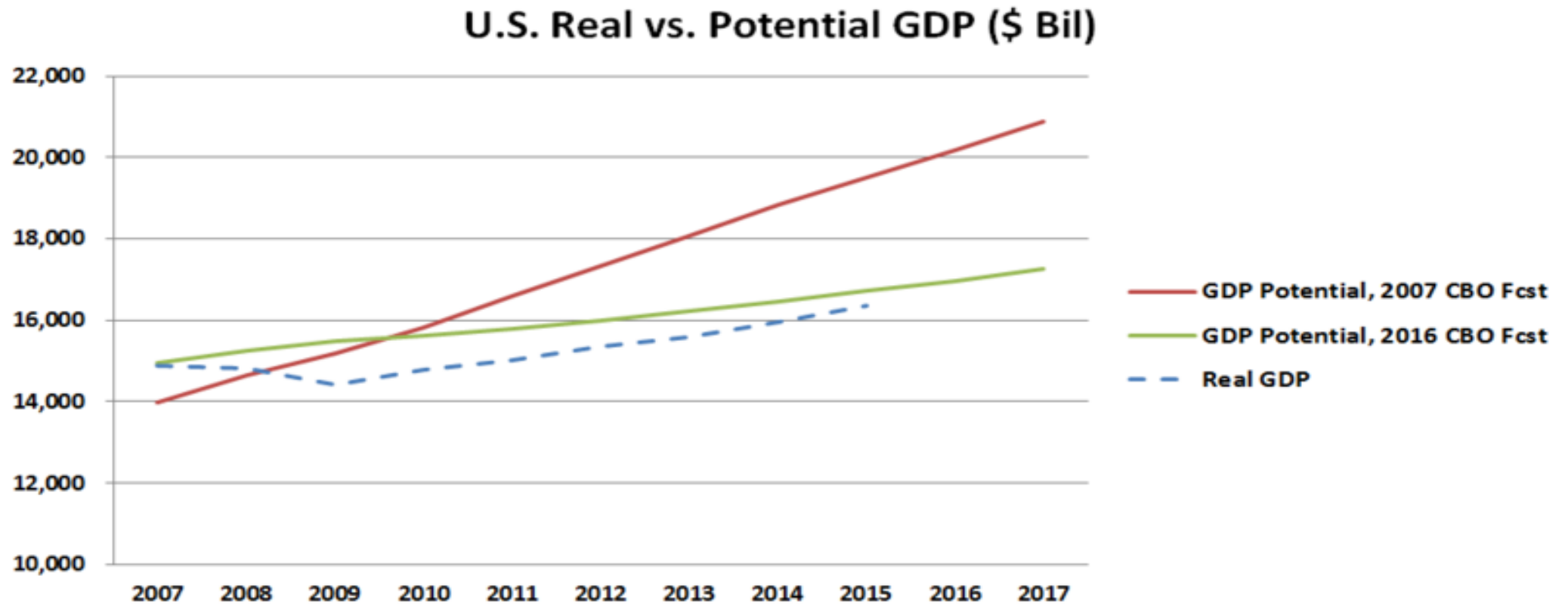
The return of inflation

- 1. From secular stagnation to (un)anchored Inflation? The role of expansionary fiscal and accommodative –unconventional- monetary policy
- 2. The inflation puzzle: Cost or demand inflation? How much is transient and how structural?
 - 3. Where inflation is going?
- 4. The critical labor market and the revolt of the unprivileged: “Lying Flat” and the “Great Resignation”
 - 5. A fragmented new world economy?
 - 6. The shortage economy
- 7. Demand from Asia: Learning to live with an above 2% inflation?

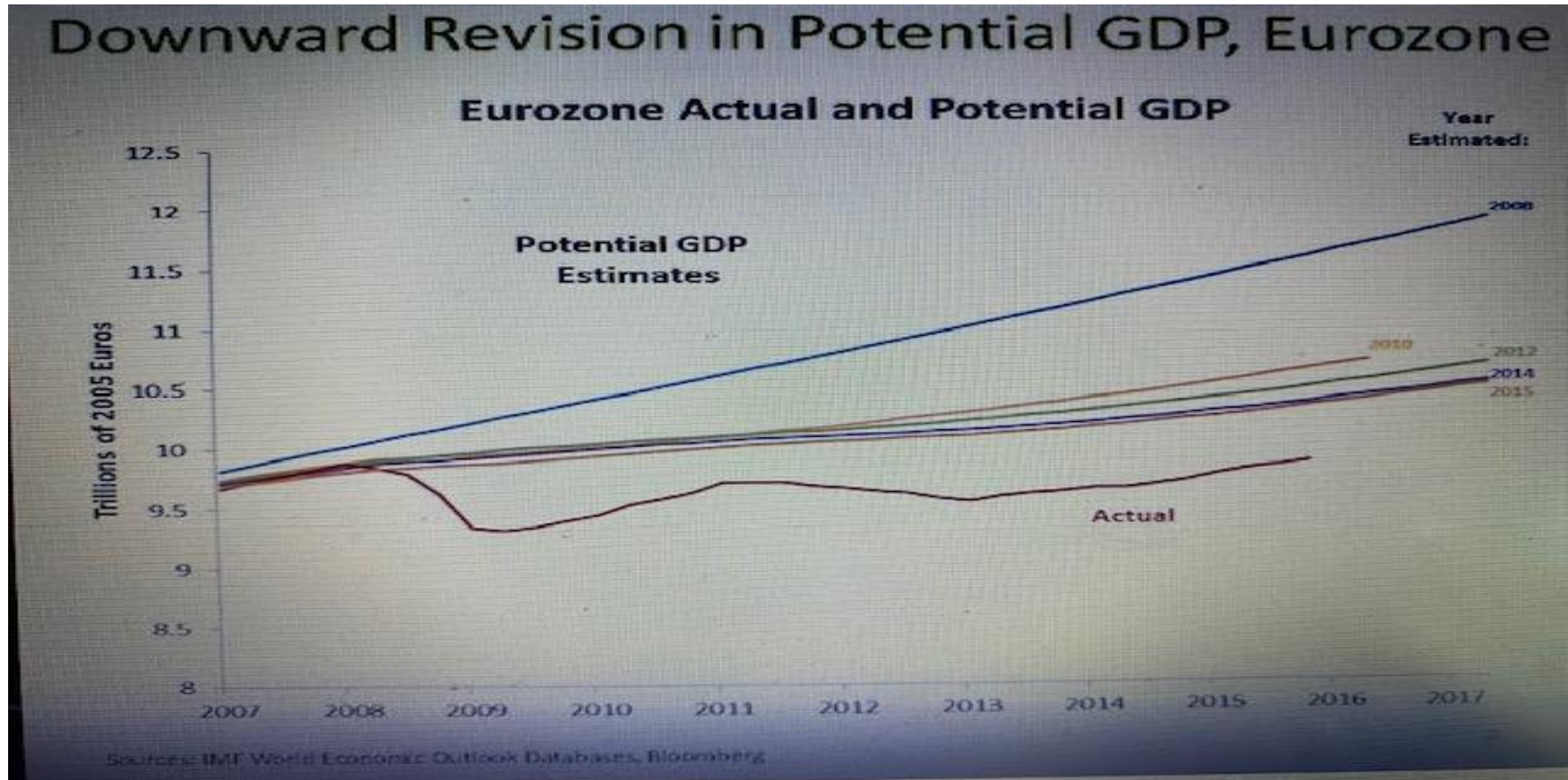
1. SECULAR STAGNATION IN ITS PEAK DURING COVID

- What brings about lack of aggregate demand ? High dependency ratio (deteriorating demographics, A. Hansen) Globalization and technology, income inequality, periods of too much debt (2009-2012), low productivity (R.Gordon-supply side secular stagnation) all these things lead to $S > I$ pulling down natural interest rates. As $S > I$, money pours to financial assets and real estate leading these markets to possible bubbles.
- Natural/neutral, short term, Interest rate -where I and S bring about full employment- is close to ZLB or negative. This has the following consequences: it reduces CBs power as if the FED cuts R below zero, people will hoard money instead of putting them in the bank. So zero bound is the limit. In such a liquidity trap people prefer to hold money instead of holding a debt, so investment is anemic as a result of a chronic lack of demand.
- Economy is functioning chronically and systemically well below potential (GDP has fallen behind potential) despite negative real rates. No excess aggregate demand can be created but possibly only with oceans of money. Friedman's view that ZLB issues could be overcome with QE has been actually implemented. Did it work?
- So, my view is that we saw inflation coming as covid helicopter drops abruptly exemplified demand and so inflation. So we live in a transition period from secular stagnation to demand pull inflation with random supply shocks.

Potential GDP before and after the Great recession: US



Eurozone's fall of potential GDP.



Deflation bias in the pre-covid economy. Forces of pushing up saving propensity – exhaustion of investment opportunities

Fall in Investment propensity

- Fall in capital goods prices
- Demassification of the economy
- Demographics and the increasing dependency ratio

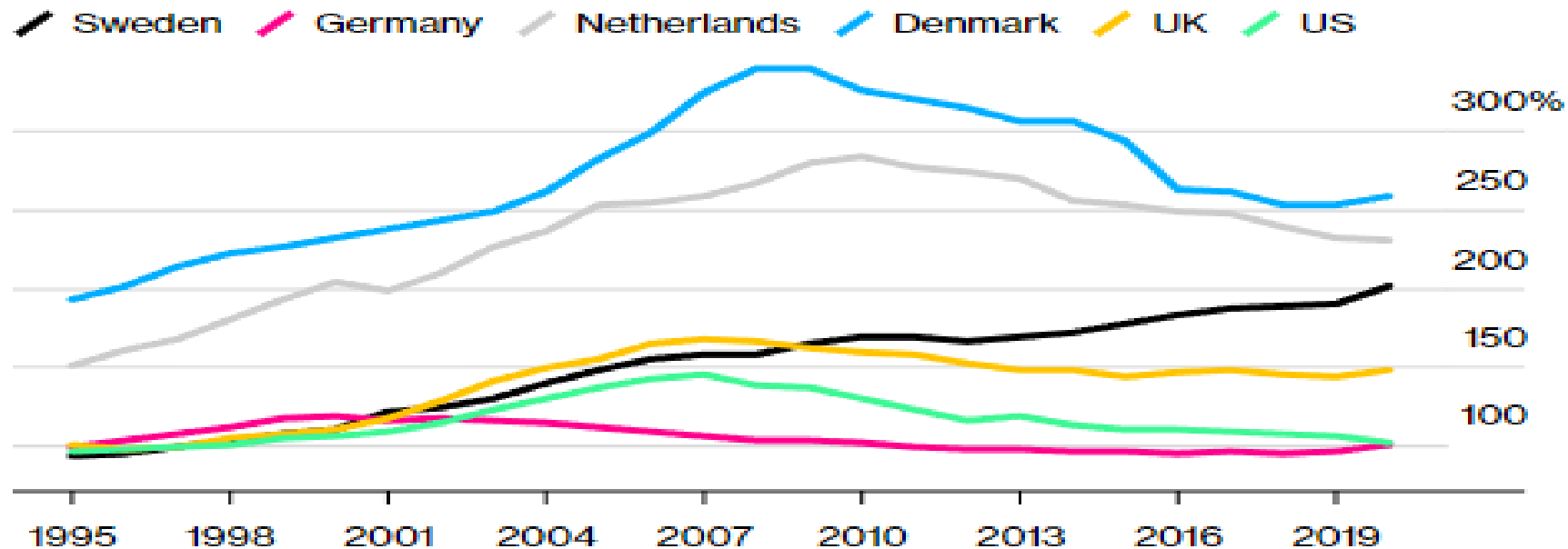
Increase in Savings

- Income Inequality
- Retirement preparation and demographics
- Reserve accumulation or capital flight

Household Spending in the biggest western economies USA & Germany remained stagnant...

Borrowing Boom

Sweden has outpaced most peers in household debt growth



Source: OECD

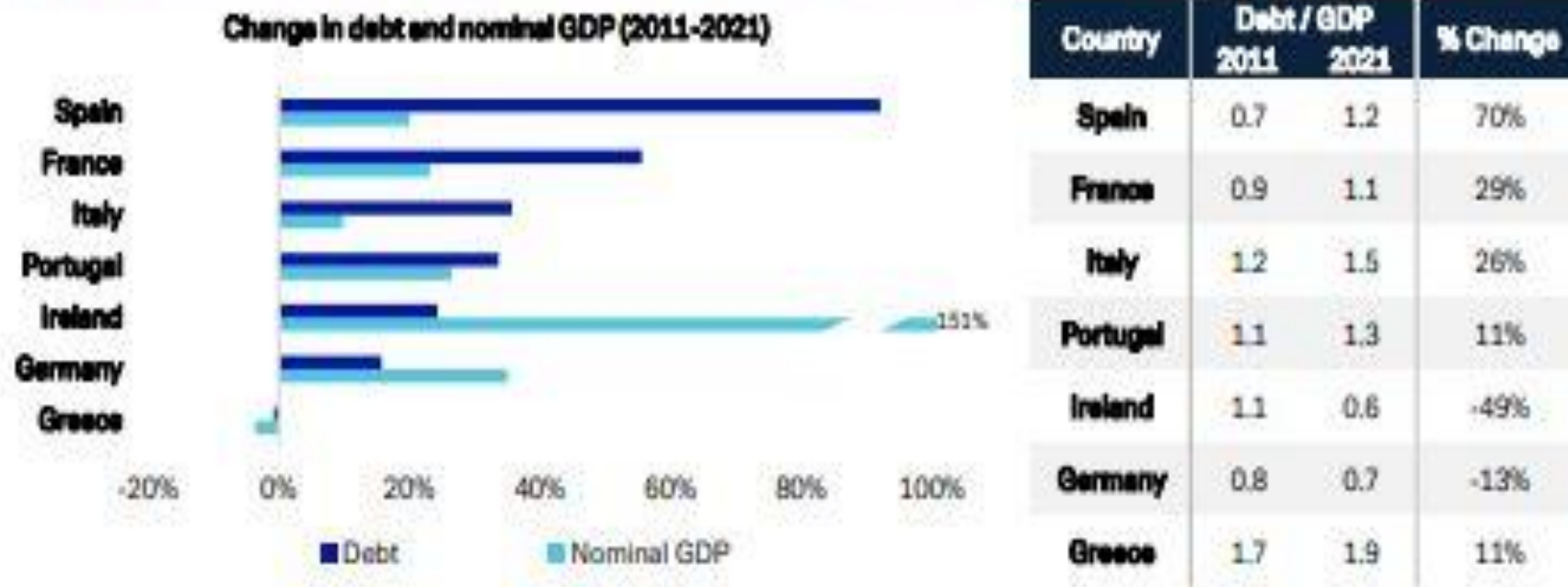
* total outstanding debt of households as a percentage of net disposable income

Government as vast absorber of S (>I)

General government gross debt Percent of GDP															
Country	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Euro area	66,0	69,7	80,3	85,7	87,6	90,6	92,5	92,7	90,8	90,0	87,5	85,5	83,5	97,3	96,0
European Union	62,2	65,4	75,5	80,5	82,7	86,3	88,4	88,7	86,6	85,8	83,2	81,1	78,8	91,8	90,3
Austria	64,7	68,4	79,6	82,4	82,2	81,7	81,0	83,8	84,4	82,5	78,6	74,0	70,6	83,2	83,1
Belgium	87,3	93,2	100,2	100,3	103,5	104,8	105,5	107,0	105,2	105,0	102,0	99,9	97,7	112,8	108,3
Finland	33,9	32,6	41,5	46,9	48,3	53,6	56,2	59,8	63,6	63,2	61,2	59,8	59,6	69,0	66,7
France	64,5	68,8	83,0	85,3	87,8	90,6	93,4	94,9	95,6	98,0	98,1	97,8	97,4	115,2	112,3
Germany	64,2	65,7	73,2	82,0	79,4	80,7	78,3	75,3	72,0	69,0	64,7	61,3	58,9	68,7	70,2
Netherlands	42,0	53,8	55,8	59,4	61,8	66,4	67,8	68,0	64,6	61,9	56,9	52,4	47,6	52,8	56,7
Greece	104,0	110,3	127,8	147,5	183,9	162,0	178,7	181,7	178,7	183,1	182,7	190,1	185,1	211,9	198,9
Italy	103,9	106,2	116,6	119,2	119,7	126,5	132,5	135,4	135,3	134,8	134,2	134,4	134,1	155,3	150,9
Portugal	72,7	75,6	87,8	100,2	114,4	129,0	131,4	132,9	131,2	131,5	126,1	121,5	116,6	135,2	127,5
Spain	35,8	39,7	53,3	60,5	69,9	86,3	95,8	100,7	99,3	99,2	98,6	97,5	95,5	120,0	118,7
Japan	172,8	180,7	198,7	205,7	219,1	226,1	229,6	233,5	228,4	232,5	231,4	232,5	236,1	259,0	263,1
United Kingdom	41,4	49,0	62,8	74,0	79,5	82,7	83,6	85,5	86,0	85,8	85,1	84,5	83,9	102,6	95,3
United States	64,6	73,5	86,6	95,2	99,5	103,1	104,6	104,6	105,1	107,2	106,2	107,5	108,8	134,2	132,6

Super Expansionary fiscal policy

Figure 1: Absolute and relative debt levels have increased sharply in the EZ



Source : Eurostat (Debt), Bloomberg Finance LP (GDP), Deutsche Bank Research

Super accommodative monetary policy



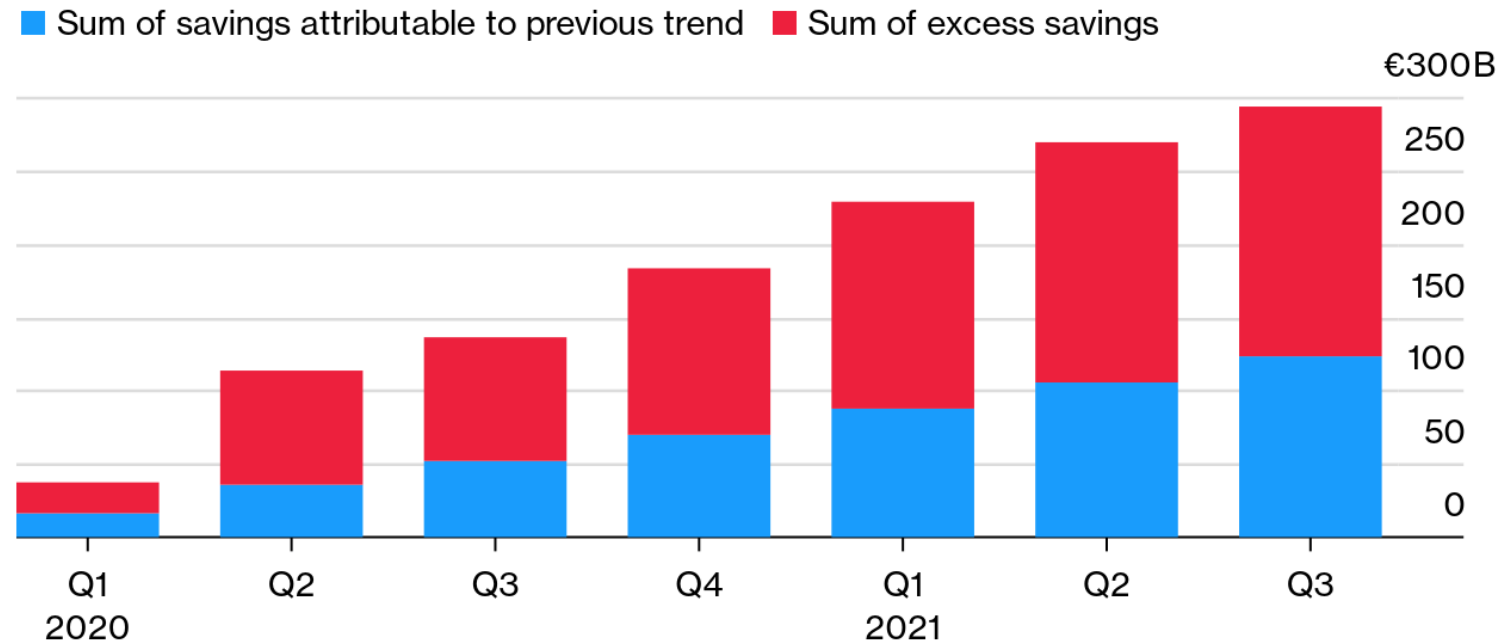
$S > I$, causes and remedies. The pull (spending)-forward problem of monetary policy (but you have a permanent demand problem!) + the consequence of hyper-liquidity measures is also increasing the risks of low quality investments with so low rates...(severe diminishing returns!)

- Raise inflation target
- QE
- Forward Guidance
- Negative rates

Pandemic added to saving bias...in the beginning

Pandemic Stockpile

Stash of French household savings grew at a slower pace in the third quarter



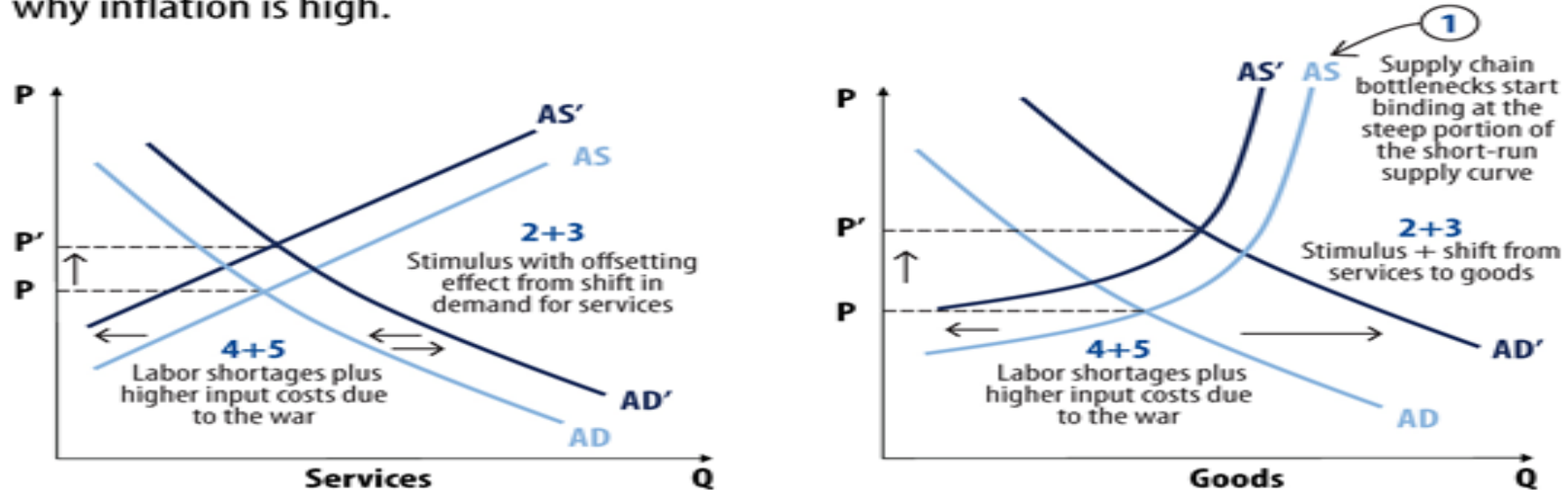
Source: Bank of France

Bloomberg

2. Why did inflation rise globally? A once in a lifetime combination of cost & demand inflation

Why is inflation high?

An old-school aggregate supply–aggregate demand (AS-AD) curve illustration of why inflation is high.



Five factors behind high inflation now

1. Supply chain bottlenecks binding for various products
2. Shift in demand for goods from services, opposite effects on demand for services and goods
3. Stimulus + Recovery shifts out demand curve
4. Labor shortages leading to leftward shift in supply curve
5. Supply shocks to energy and food due to the War in Ukraine

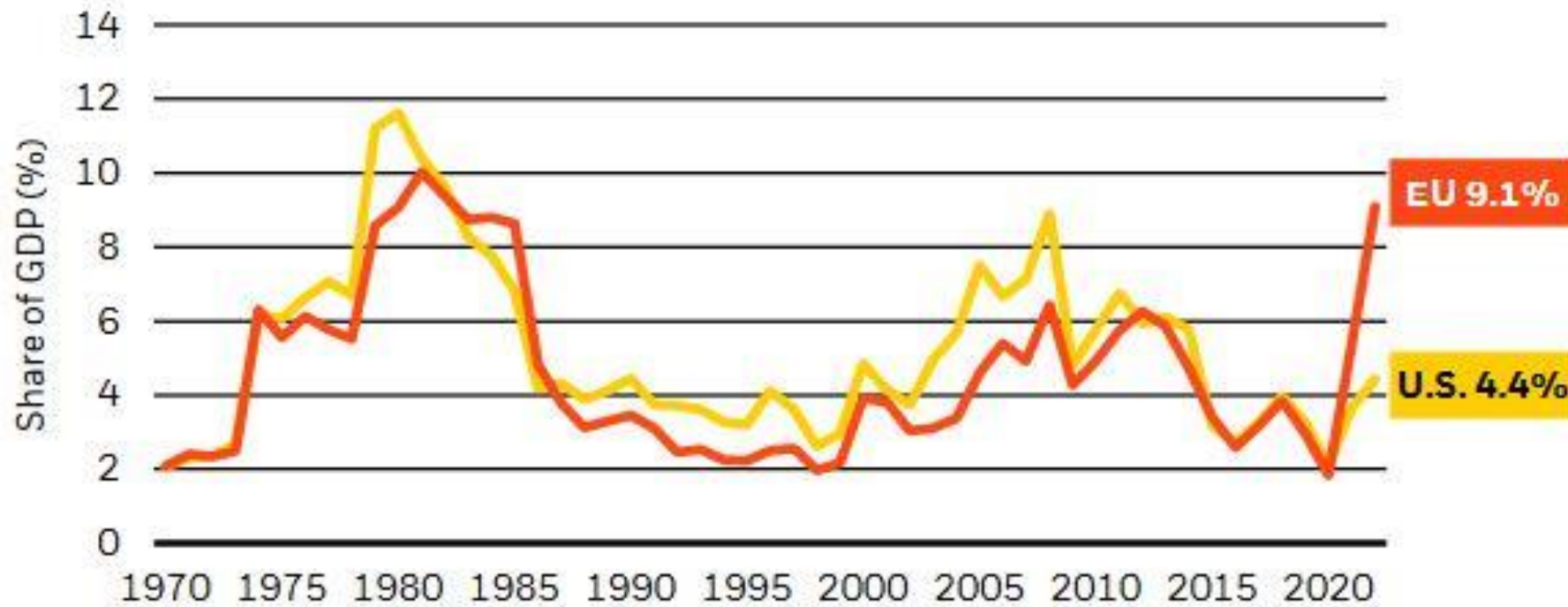
2.1 SUPPLY SIDE

- Supply-sidereal output was constrained.
- 1. consumption shifted from services to goods while exiting from the pandemic, and, because goods production is less responsive to market changes (more “inelastic”), it could not expand quickly enough.
- 2. labor supply was constrained by the pandemic and the policy response (owing to [weaknesses](#) in labor supply in the US, and to [reductions](#) in hours worked in Europe).
- particular markets, like the reduction in microchip production or
- the snarling of US ports.
- Energy (in Europe...)

Energy is the culprit for Europe (?)

Europe's energy conundrum

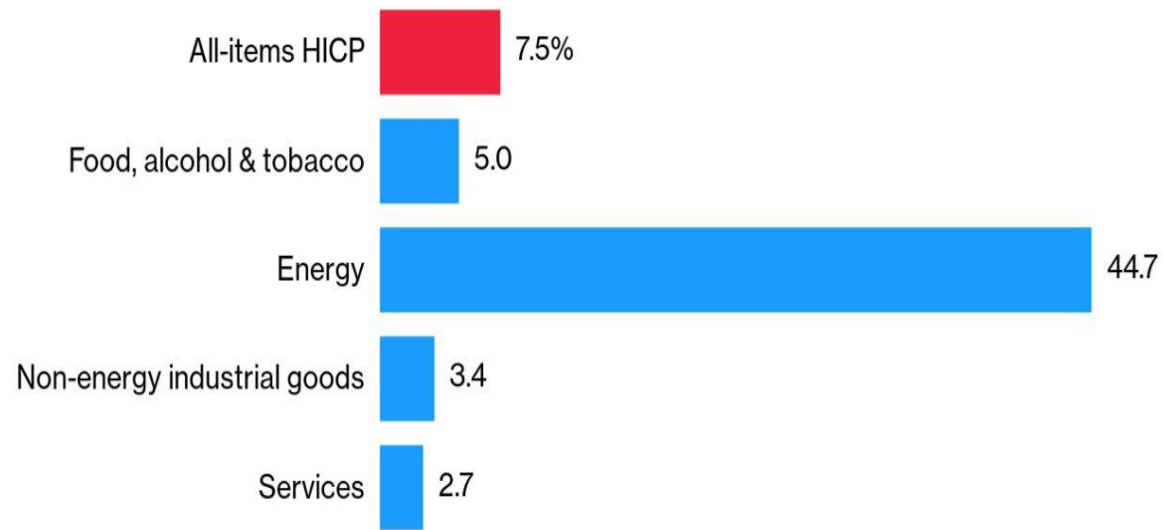
Energy burden as a share of GDP, 1970-2022



High energy cost in Euro-area

March Breakdown

Euro-area inflation accelerated more than anticipated last month



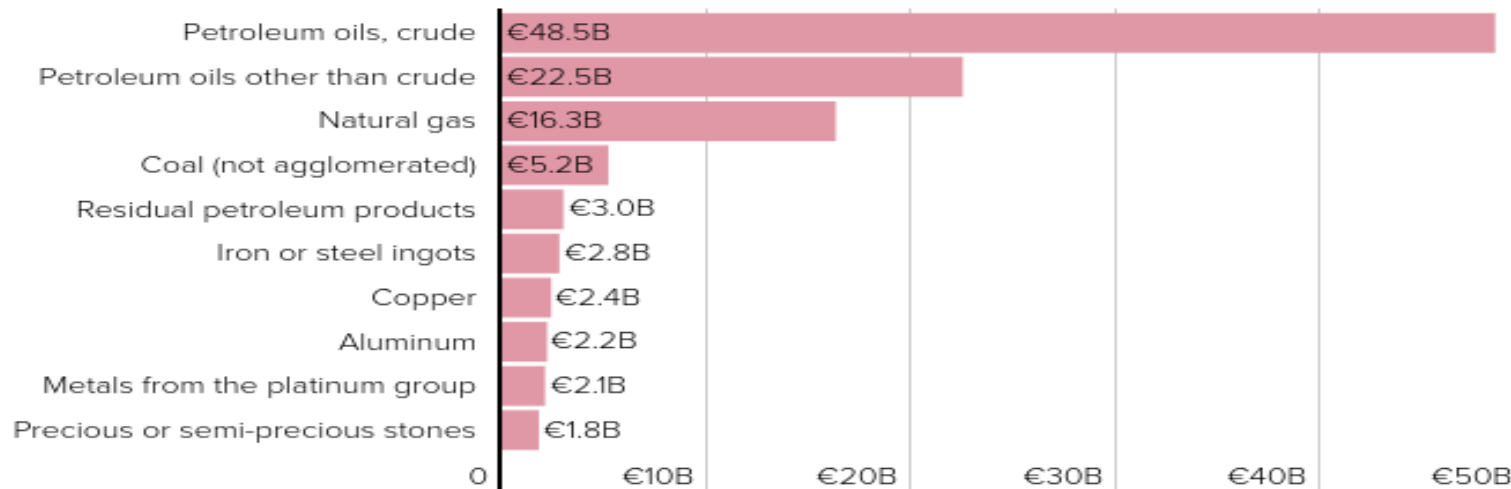
Source: Eurostat

Bloomberg

Imported inflation is exacerbated by the war in Ukraine because much of Europe's energy purchases are priced in dollars

IMPORTS BREAKDOWN

EU imports from Russia by product in 2021, in euros.



SOURCE: Eurostat

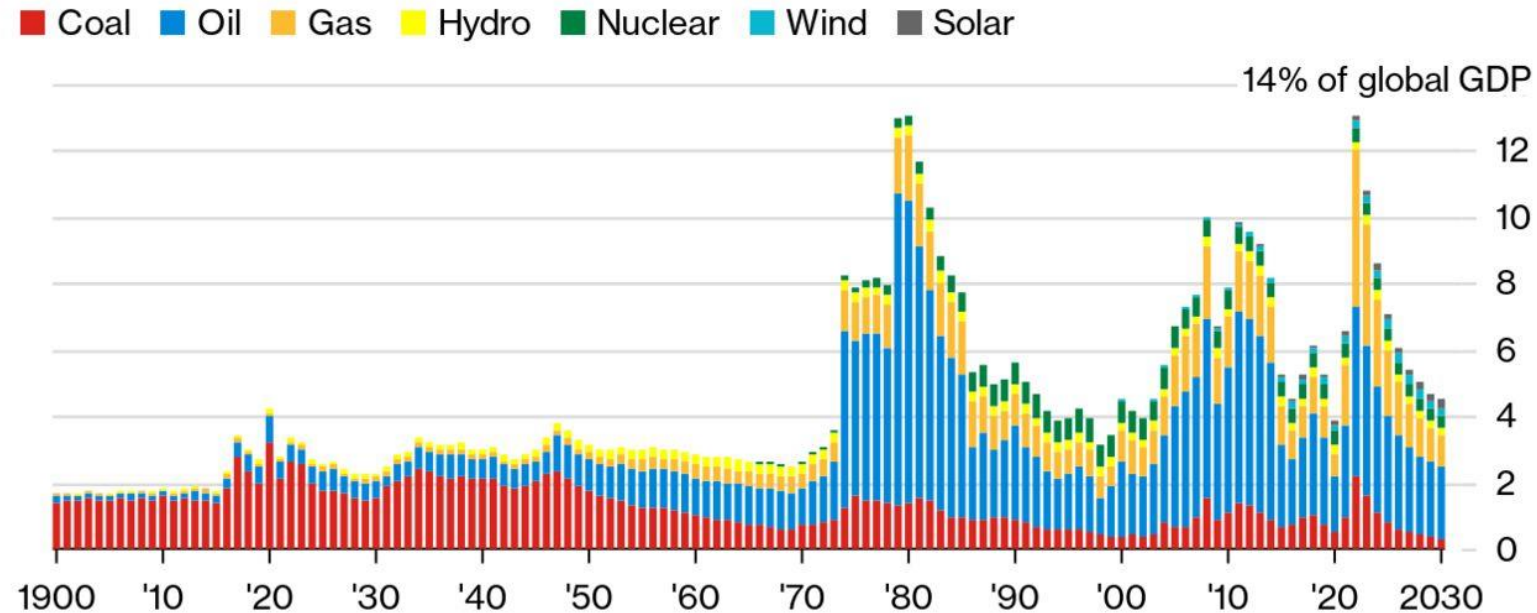
By Cornelius Hirsch and Giovanna Coi

POLITICO

Energy is becoming a huge issue

Expensive Energy

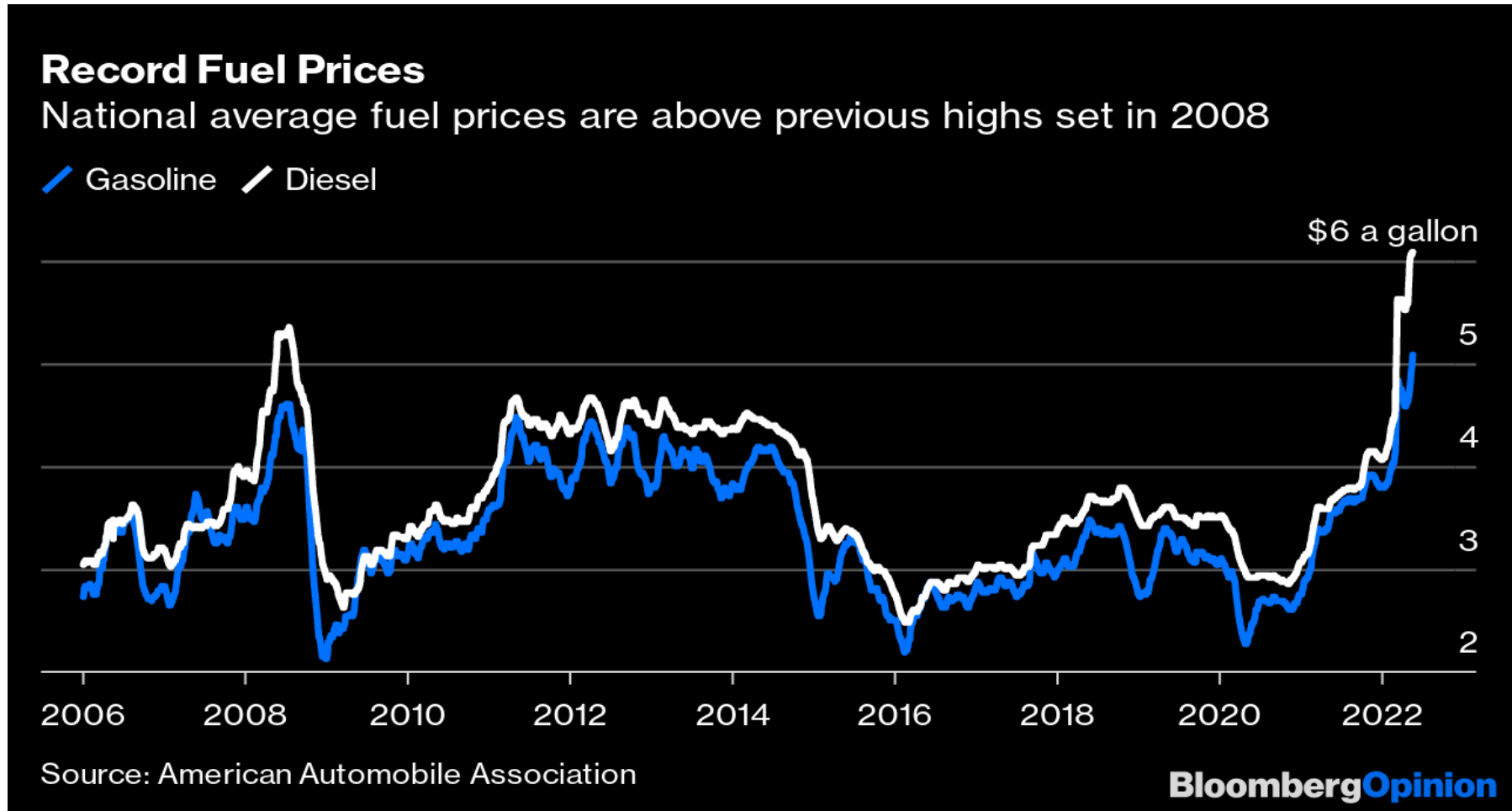
Energy costs are soaring as a proportion of global GDP



Source: Thunder Said Energy

Bloomberg

US fuel prices



2.2 But Demand higher...!

- New data from the Joint Organizations Data Initiative (JODI) shows that **global oil demand surpassed pre-pandemic levels** in March, while production of crude oil was stuck at 97 percent of the level before the onset of COVID-19. The JODI oil and gas databases were updated on Monday with more than 50 countries reporting data for the latest month of March 2022. The March data submissions account for 70% of global oil demand and 55% of global crude production.
- **Highlights from the aggregated total of countries that reported oil data for March include:**
 - **Oil demand in March was at 101% of 2019 levels** while crude production was only at 97%. Oil price hikes may be “parabolic” henceforth...
 - **Demand exceeded 2019 levels despite sharp declines in China.**

+ Jason Furman of Harvard and former head of CEA

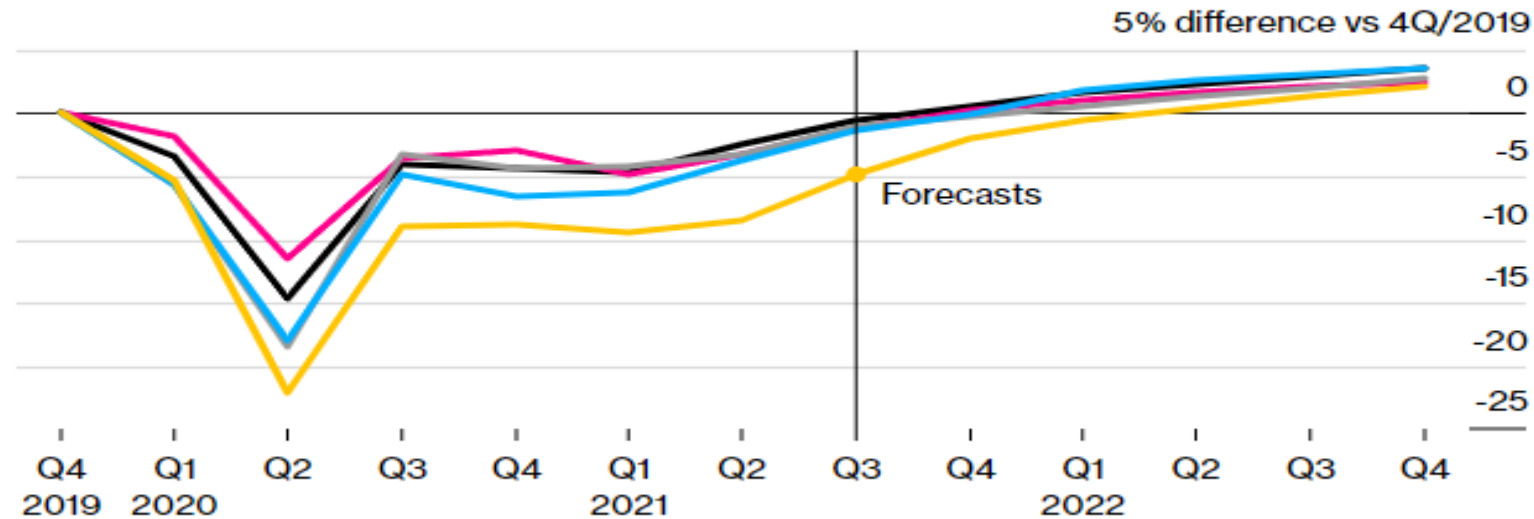
- The **economic rebound has been surprisingly rapid**, outpacing what forecasters expected and setting this recovery apart from the aftermath of previous recessions.
- Strong real (inflation-adjusted) GDP [growth](#) suggests that economic activity has not been significantly hampered by supply issues, and that the **recent inflation is mostly driven by demand**. Moreover, there is reason to expect demand to remain very strong, which means that inflation will persist.
- All the individual supply stories would add up to the generalized inflation we have seen. It is far more likely that **the increase in demand exceeds what the economy can produce, leading to higher prices**

The current level of nominal spending growth is still super-high by historical standards, enforcing the notion that inflation is not simply a supply issue.

Wait for It

Economic activity in the euro area is coming back to pre-pandemic levels

▬ Euro-area GDP ▬ Germany ▬ France ▬ Italy ▬ Spain



Source: Bloomberg Economics

Not so transient dear “transitory team”!

Euro-Area Price Worry

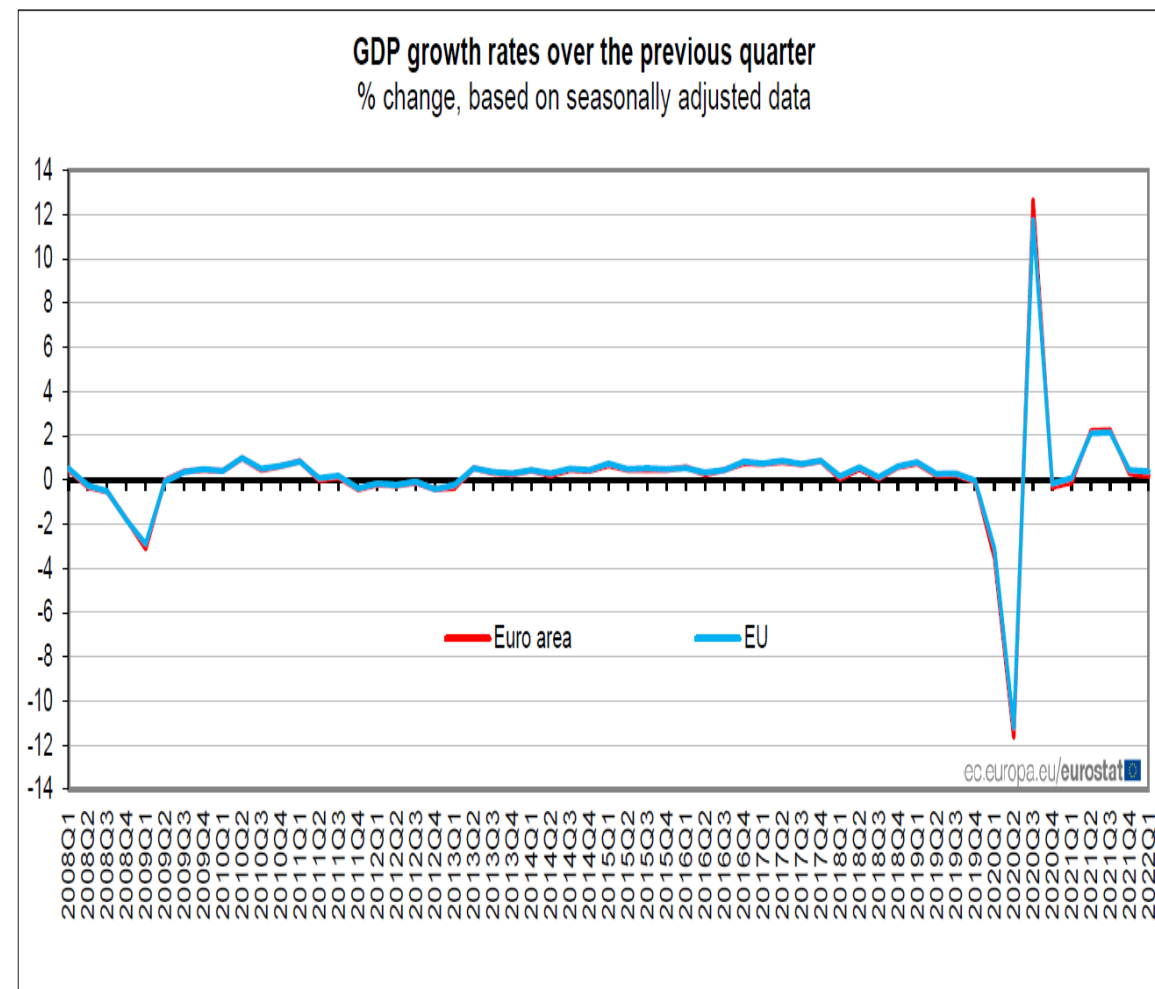
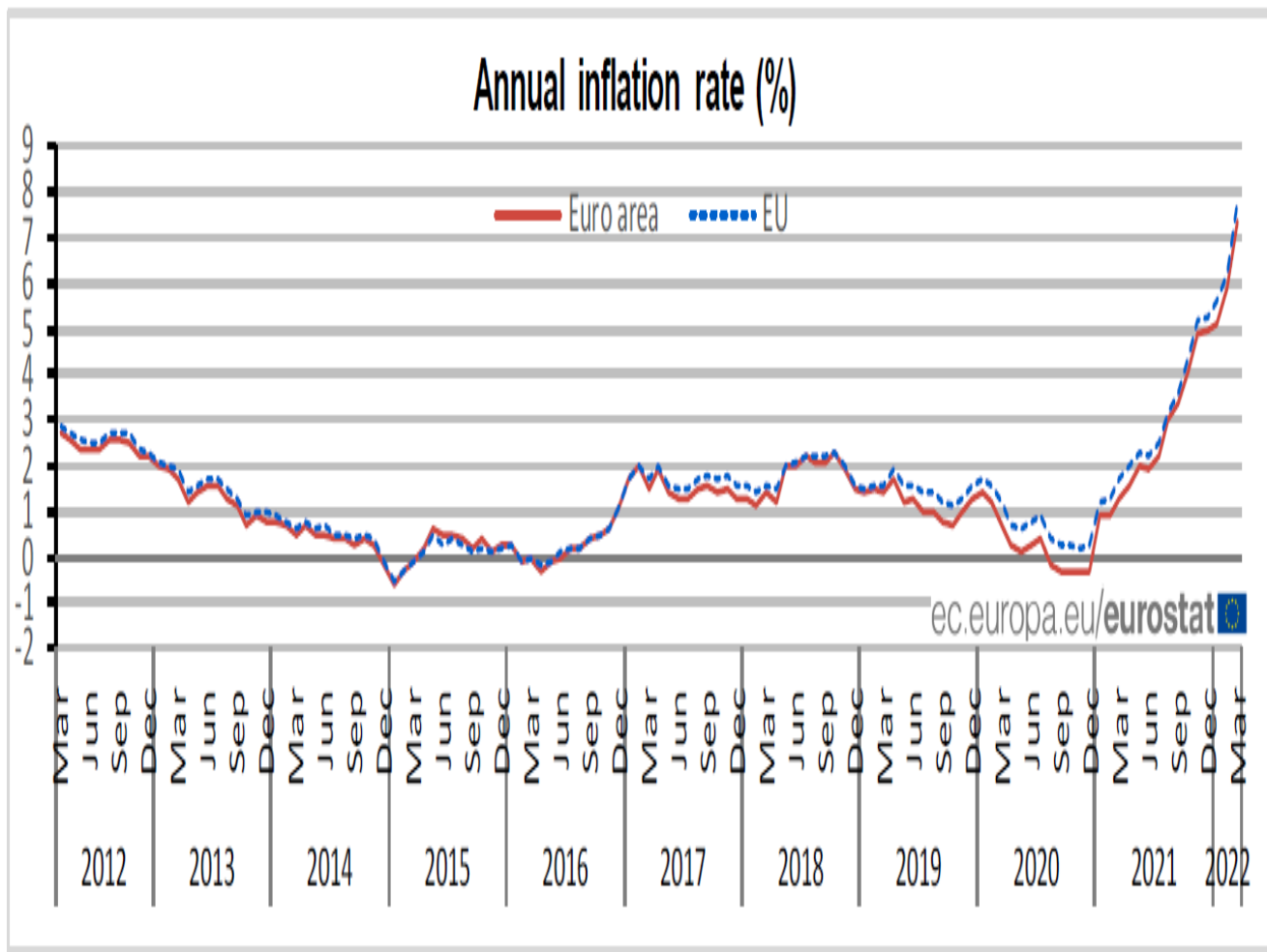
Consumers' inflation expectations are at highest level since records began



Source: European Commission

Bloomberg

Euro area Inflation and GDP

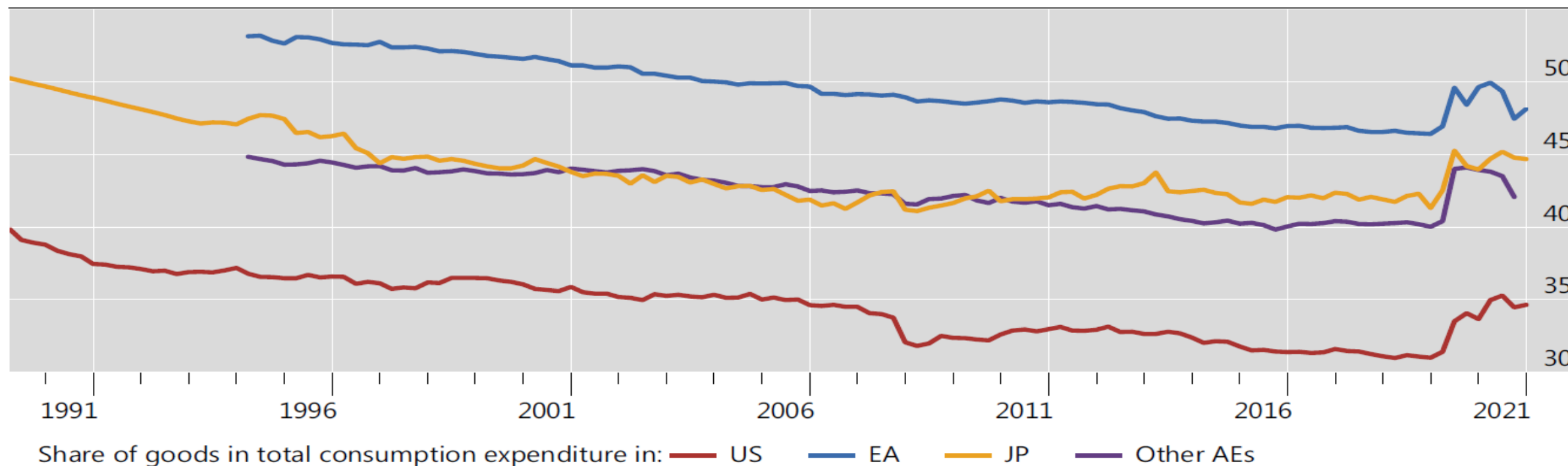


Why did really inflation rise globally?

So, Demand for goods boosted and supply has been slow to respond

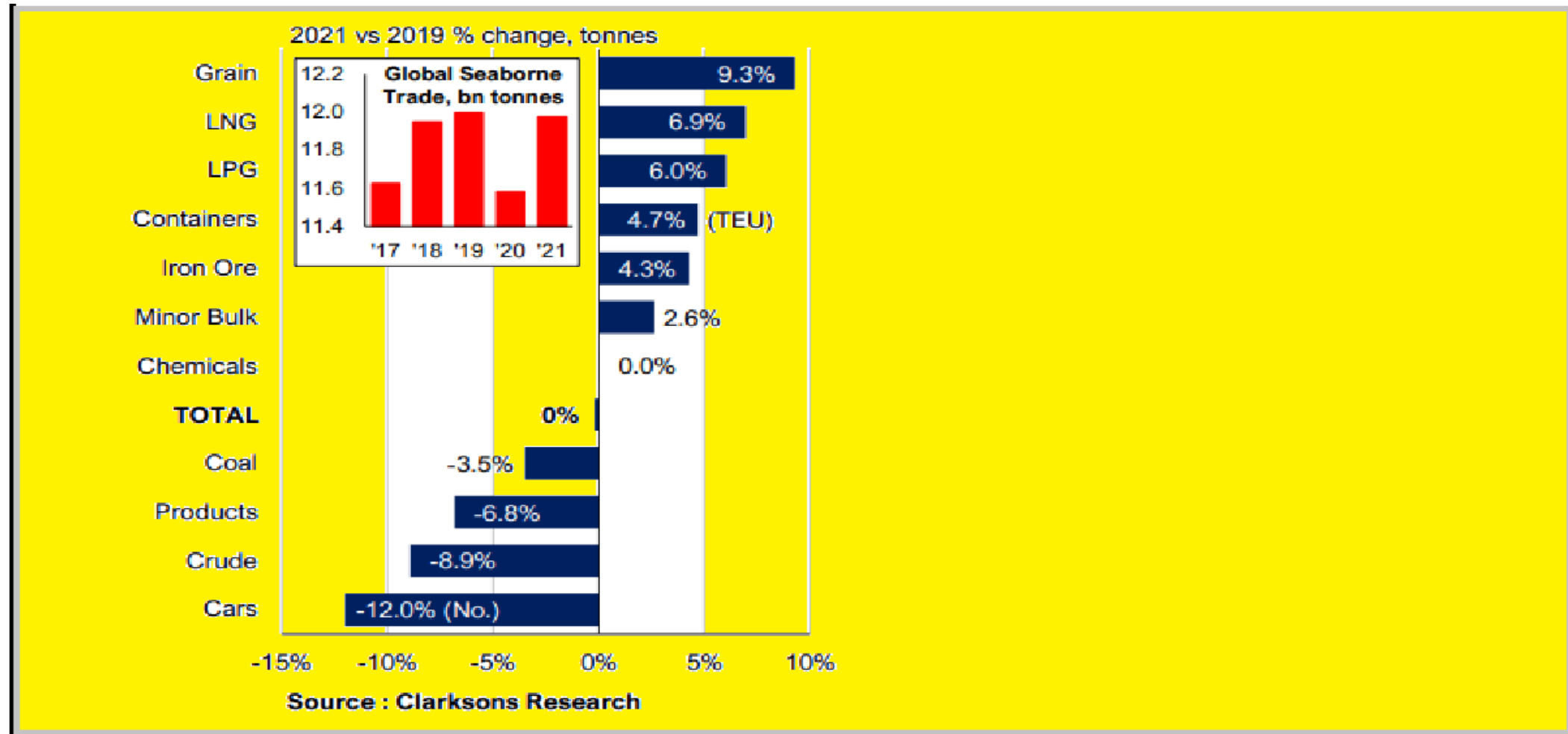
Demand rotation to goods has persisted

In per cent

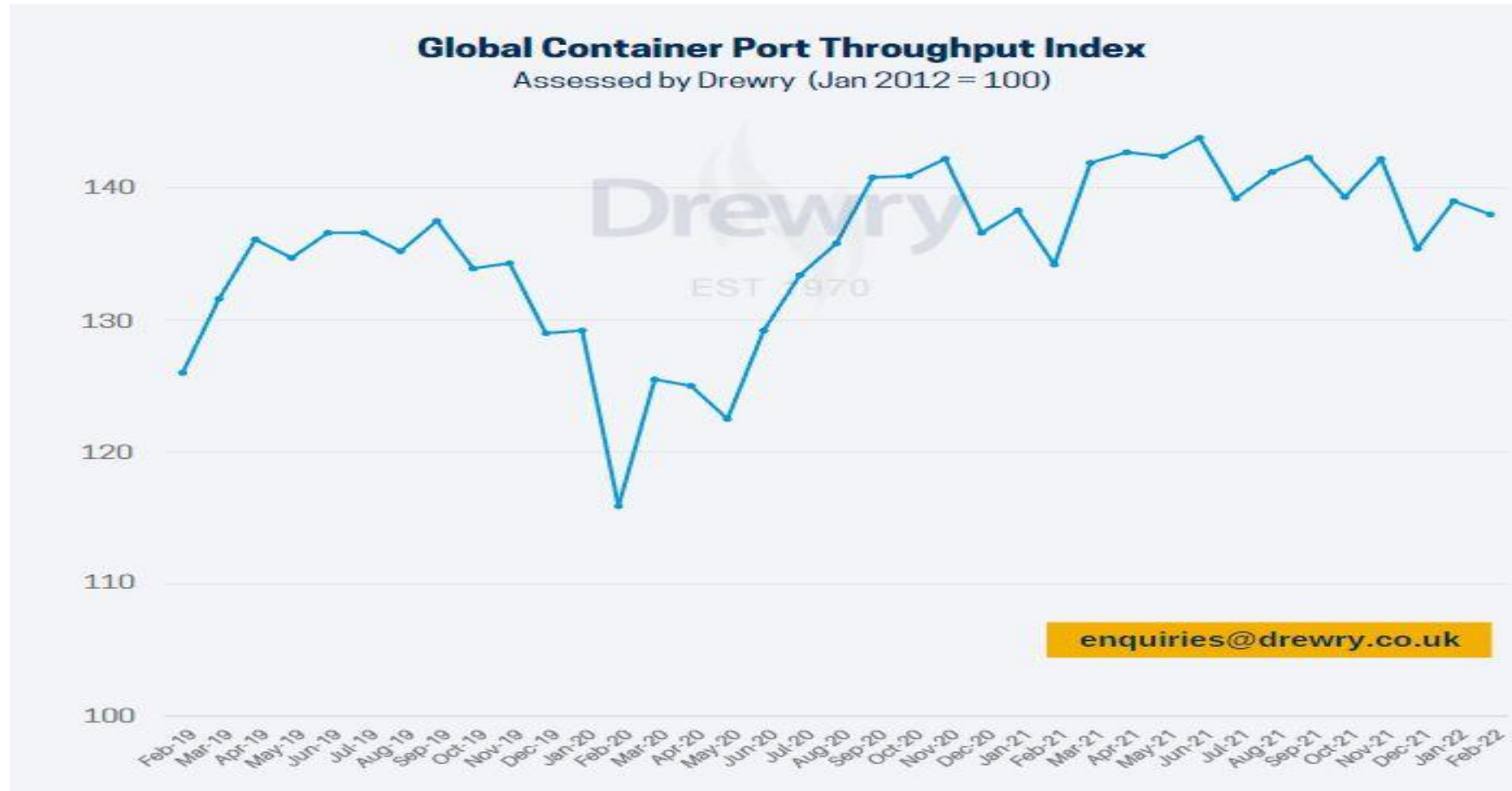


Sources: OECD; BIS calculations.

The Port of Long Beach achieved its most active April, continuing a streak of single-month records set in 2022. Dockworkers and terminal operators moved 820,718 twenty-foot equivalent units of container cargo last month, up 10% from the previous record set in April 2021. Imports rose 9.2% to 400,803 TEUs, while exports were down 1.8% to 121,876 TEUs. Empty containers moved through the Port increased 16.9% to 298,039 TEUs.

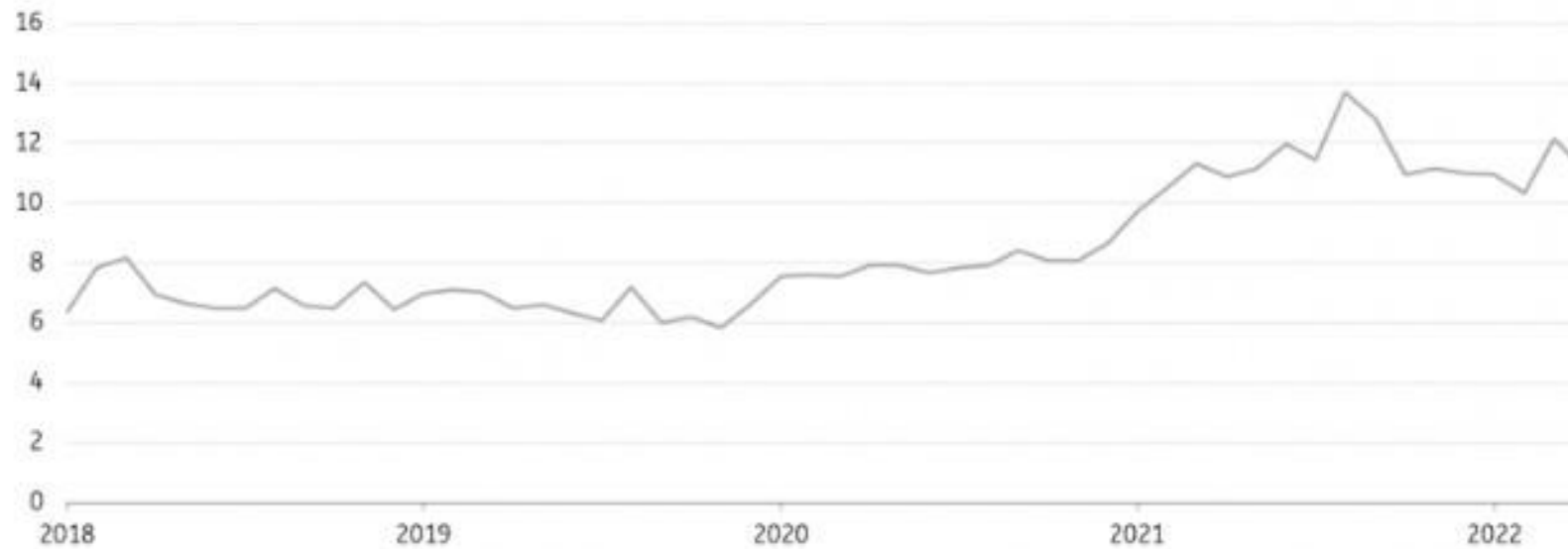


North America was the top regional performer, witnessing double-digit growth on both a monthly and annual basis. The index has achieved a remarkable 31% growth since its pre-pandemic February 2020 level despite on-going port congestion. In contrast the performance of the Europe Port Index remains lackluster with high and rising inflation acting as a drag on economic growth. Source: Drewry



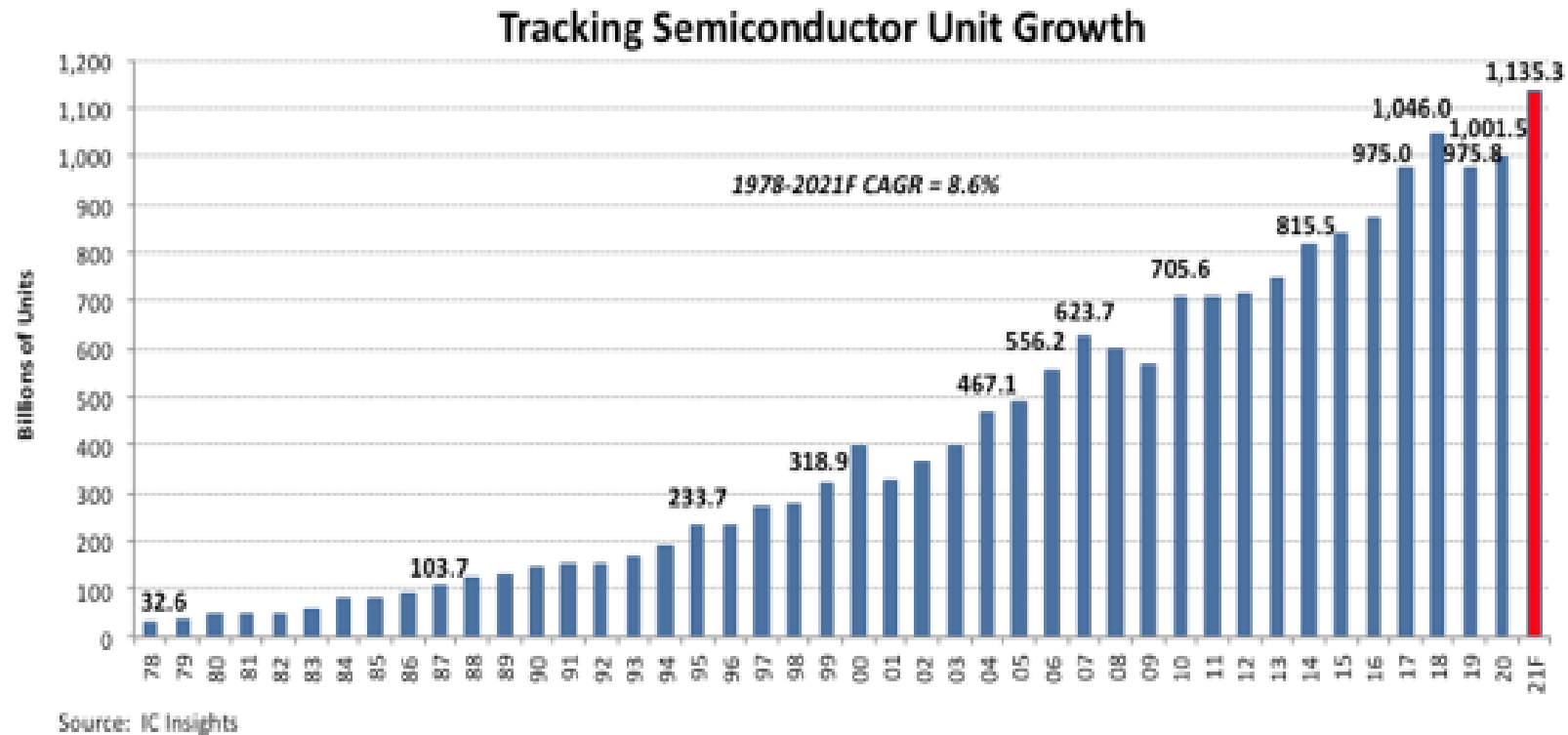
Goods waiting for ...redemption

Percentage of goods on waiting container ships, globally

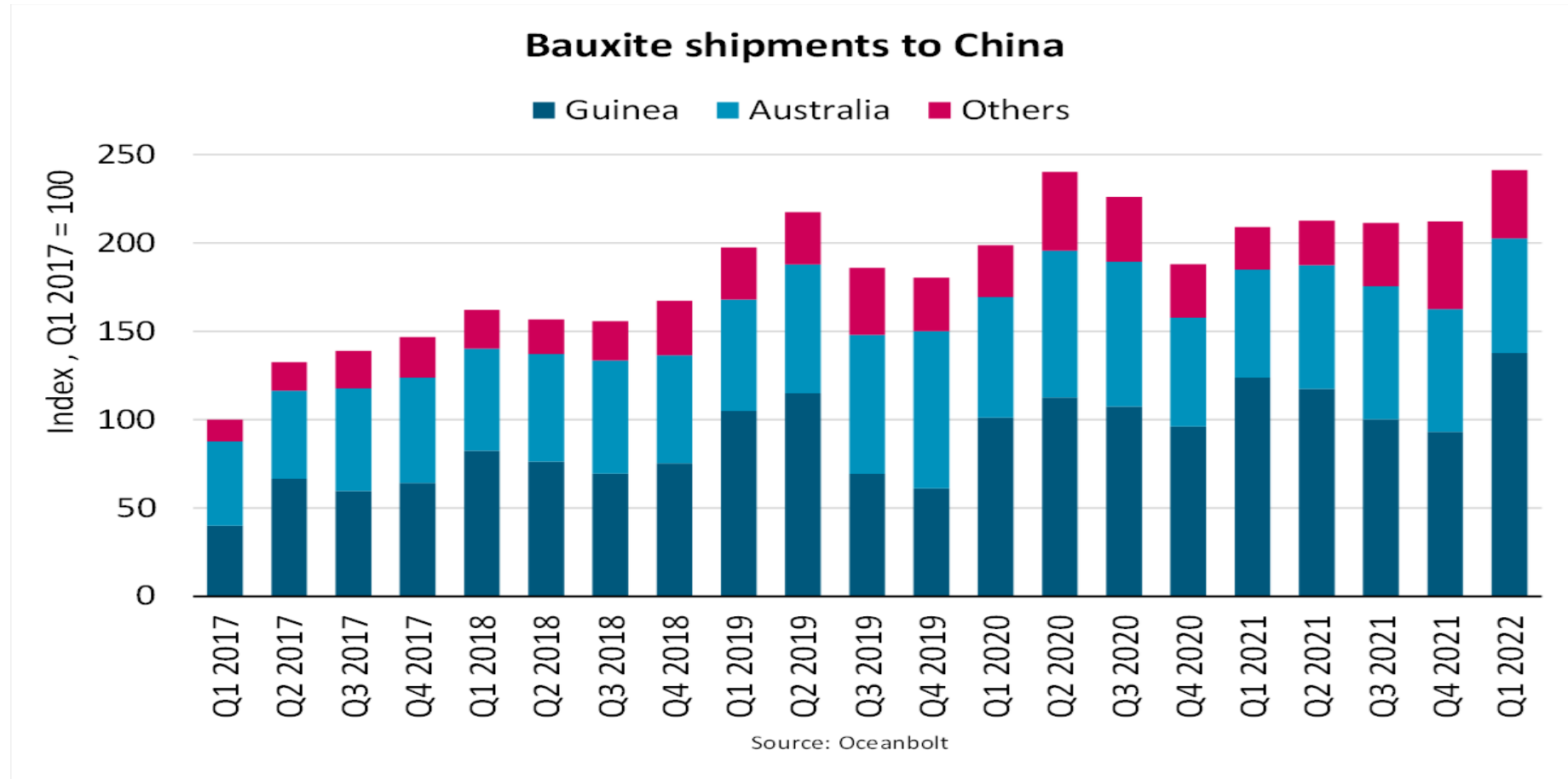


Source: Kiel Trade Indicator

The 13% increase to 1,135.3 billion semiconductor units follows a 3% increase in 2020 as the Covid-19 pandemic was wreaking havoc across many segments of the economy. From 1978, when 32.6 billion units were shipped, through 2021, the compound annual growth rate (CAGR) for semiconductor units is forecast to be 8.6%—an impressive 43-year annual growth rate even though the growth rate has waned for many key semiconductor applications such as PCs and cellphones. The strong CAGR also demonstrates that new market drivers continue to emerge that fuel demand for more semiconductors.



Demand for Bauxite

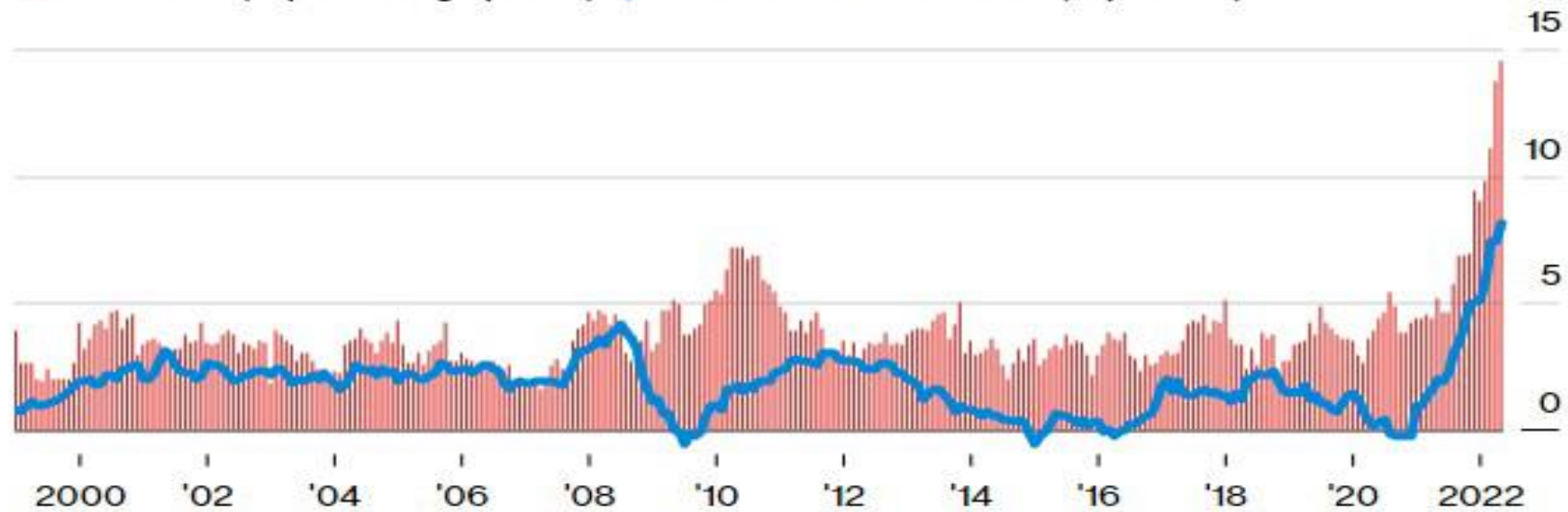


3. WHERE INFLATION IS GOING?

Inflation Divergence

Gap between lowest and highest readings has never been bigger

■ Difference (in percentage points) / Euro-area inflation rate (in percent)



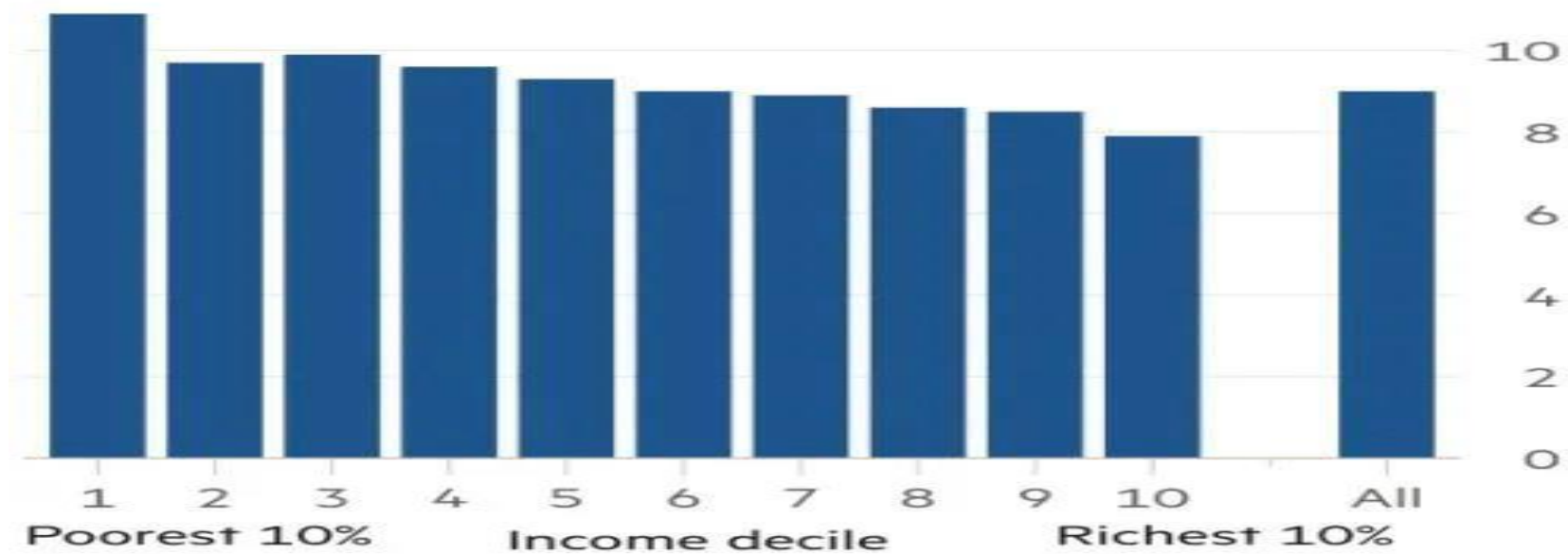
Source: Eurostat, Bloomberg

Note: Euro area consists of 11 economies from 1999, 12 from 2001, 13 from 2007, 15 from 2008, 16 from 2009, 17 from 2011, 18 from 2014, 19 from 2015

Another uncomfortable issue...

Poorer households face a higher inflation rate than richer ones

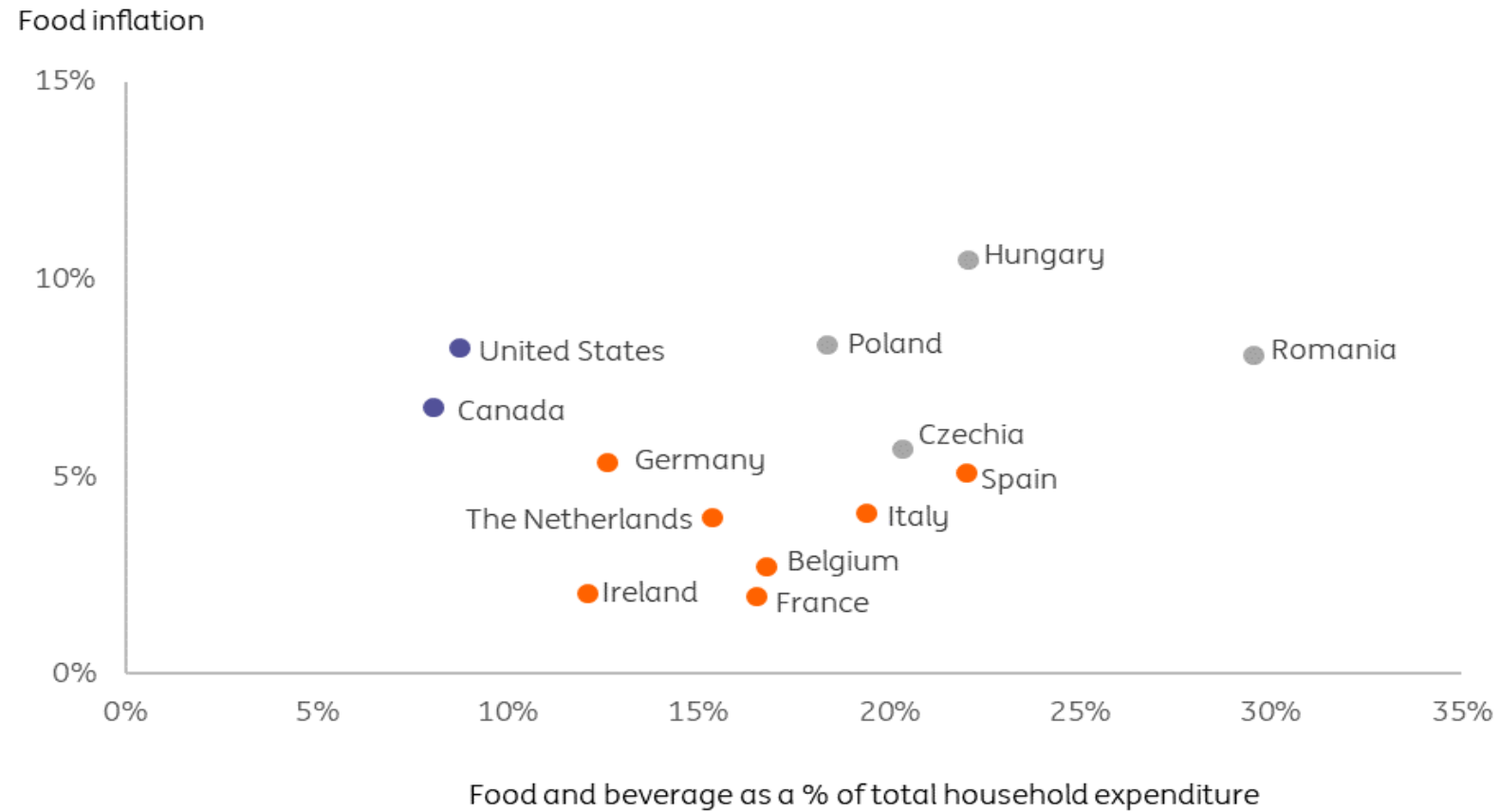
CPI inflation YoY by income decile (%)



Source: IFS, ONS

© FT

My precious....food

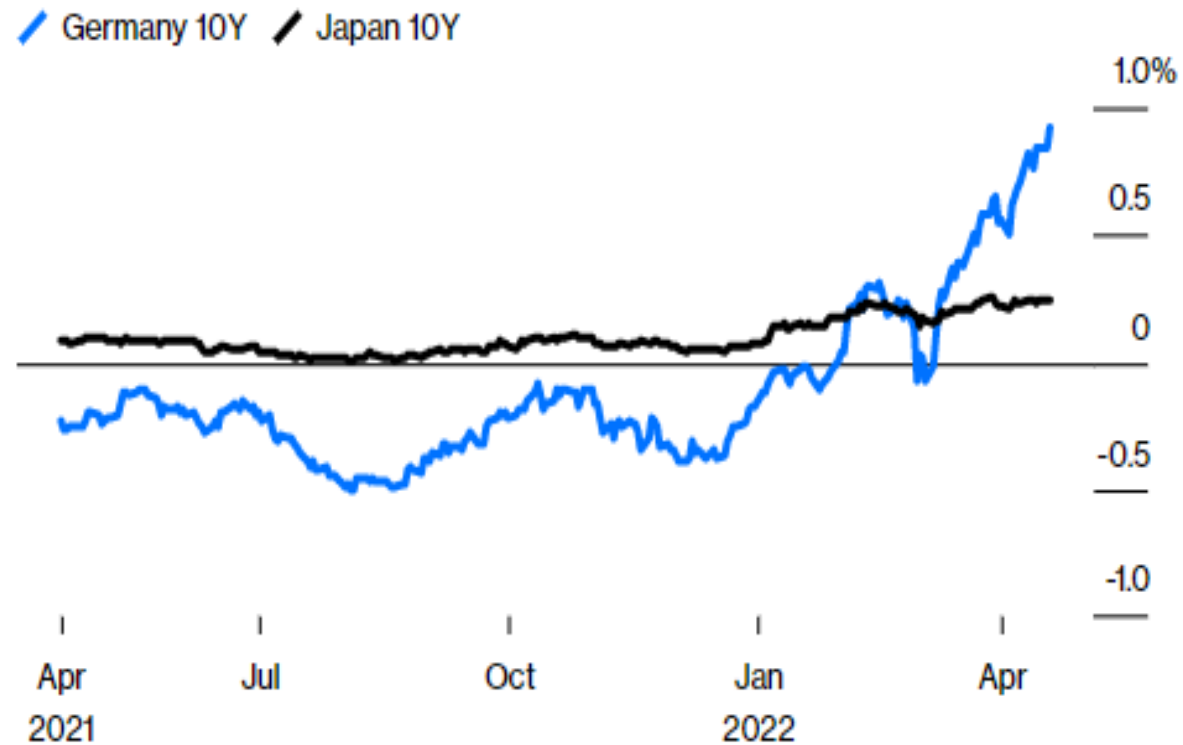


Exchange rate and inflation...

Dollar strength and euro weakness has increased inflation, made worse by the central bank's continuing stimulus programs. It is exacerbating inflation, in part because imports become more expensive. A currency crisis of confidence is the last thing the European Central Bank needs. It already faces an almost impossible choice between counteracting soaring imported inflation or risking a renewed recession. But doing nothing is rapidly ceasing to be an option.



Interest rate territory now above 0

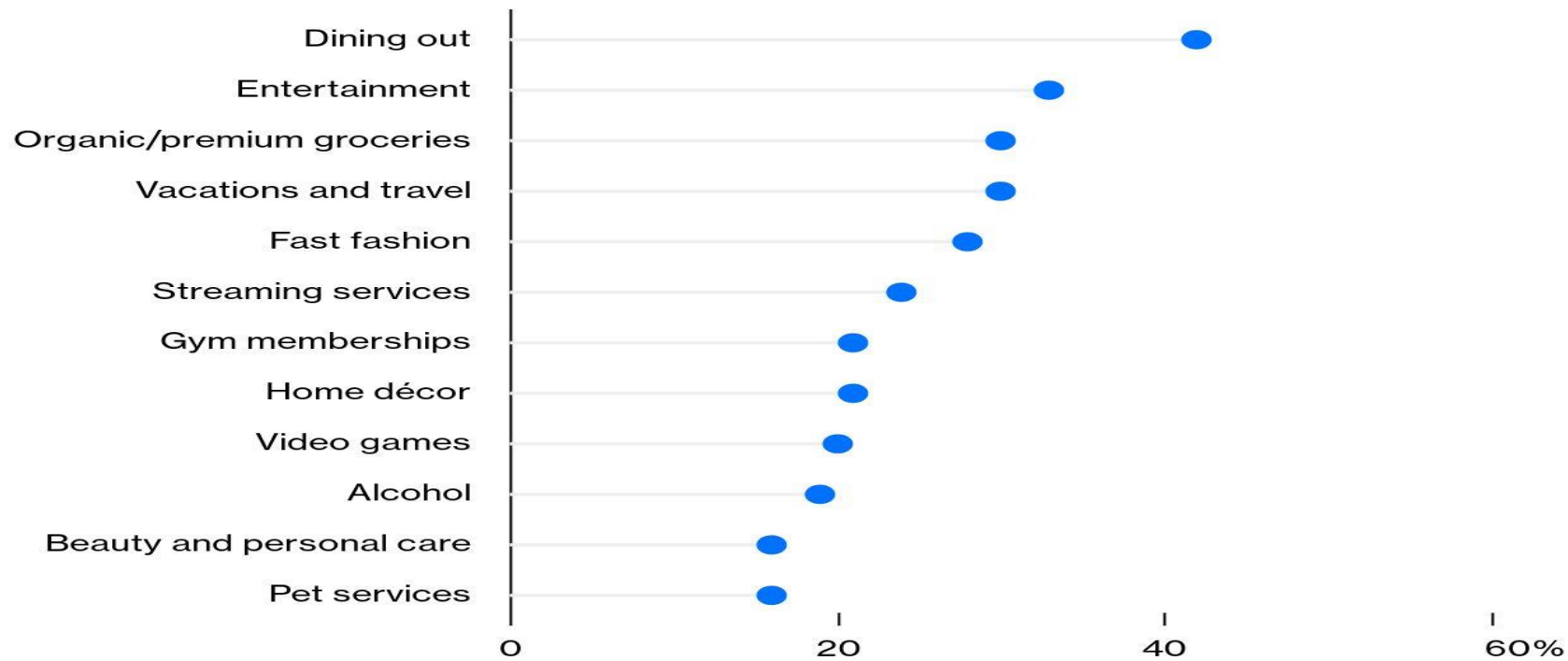


Source: Bloomberg

Inflation as a drug on Growth...?

Budgeting

What spending will you cut back on due to rising prices?

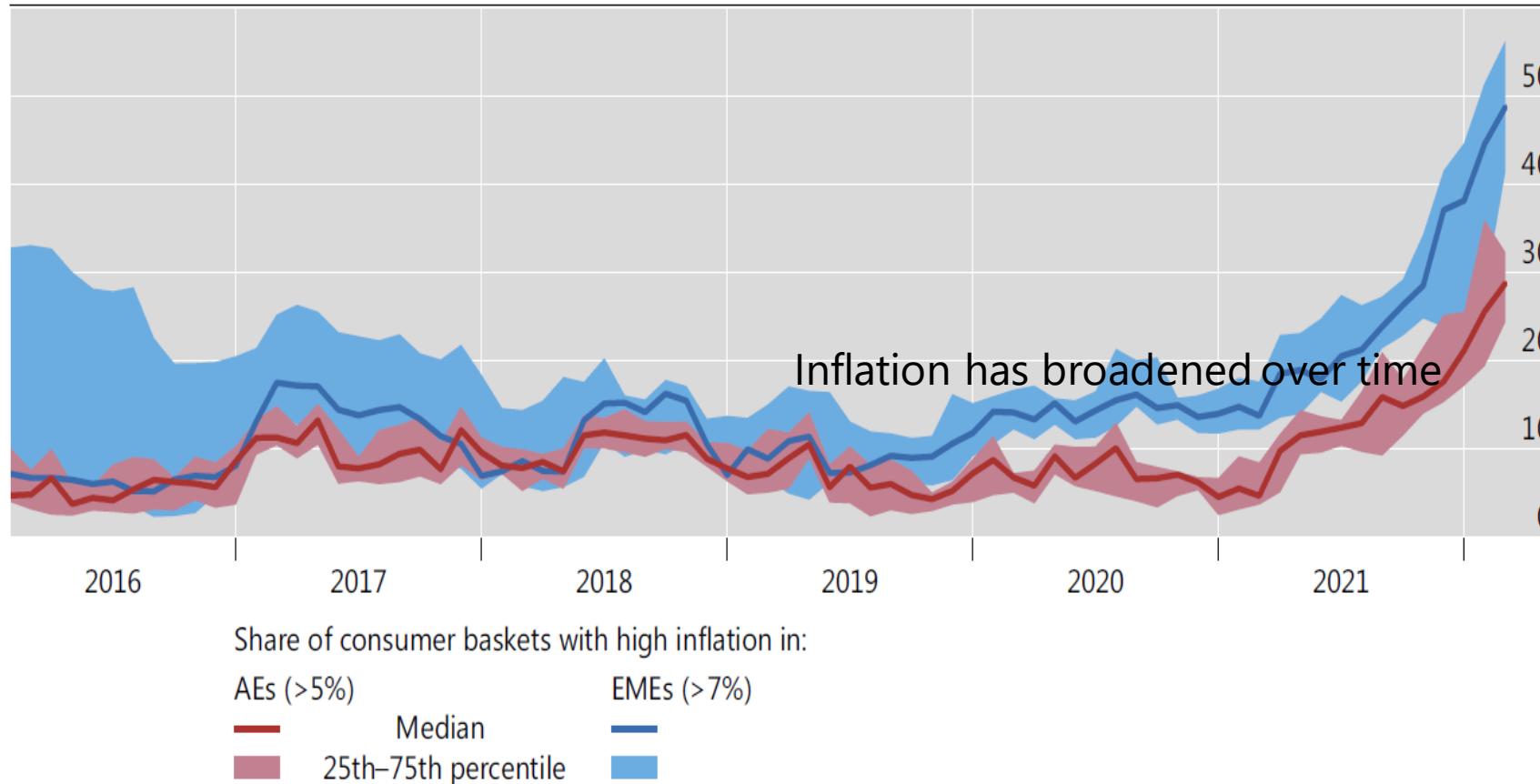


Source: First Insight

BloombergOpinion

Inflation has also broadened over time, becoming “entrenched”. So it is important to look at the labor market

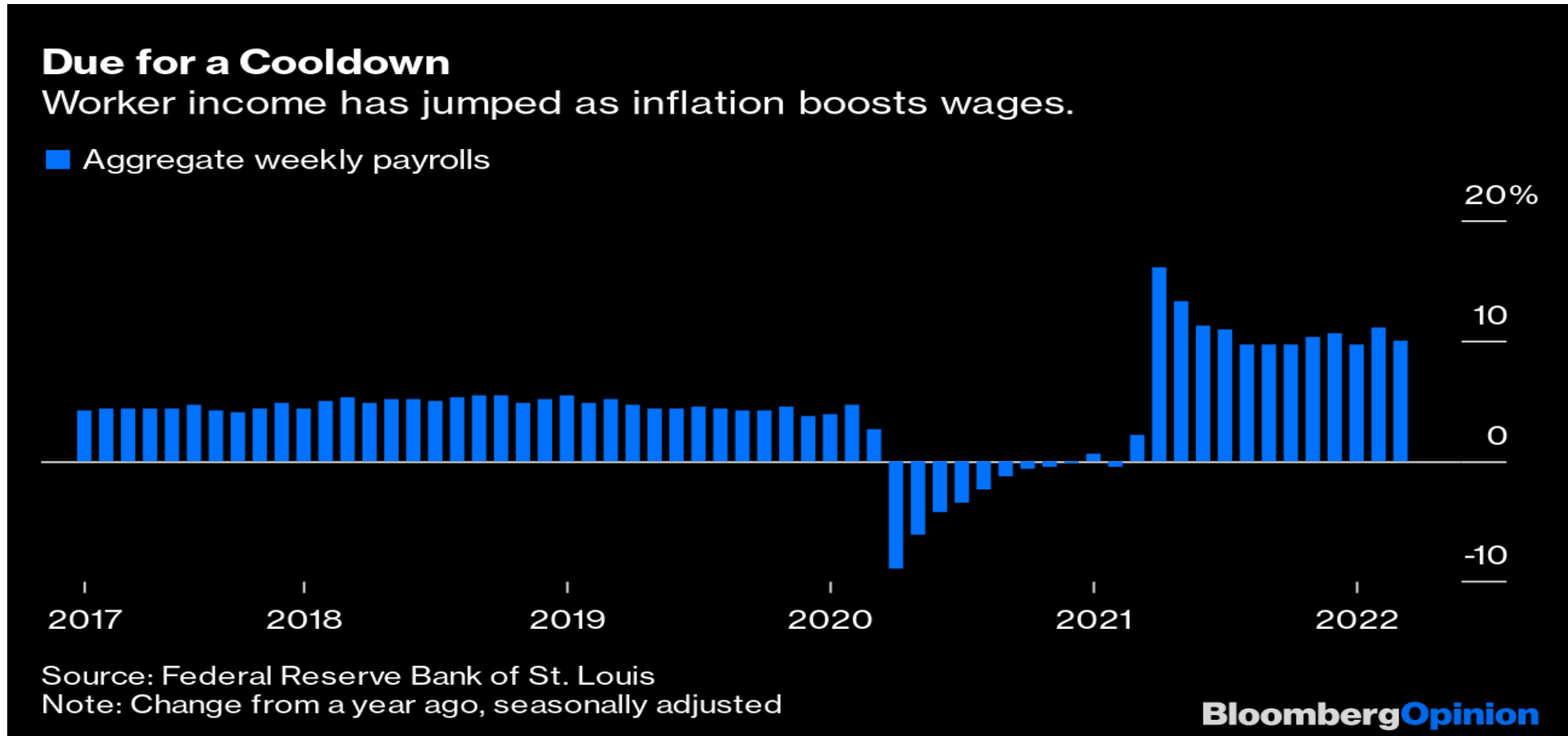
In per cent



- Since the start of 2021, the share of items in the consumption basket that have seen very large price rises has increased steadily.
- In particular, growth in service prices has accelerated.
- Because growth in service prices tends to be more persistent than that in goods, inflation is becoming more entrenched.

Source: national sources; BIS calculations.

4. The critical LABOUR market (US)



But Europeans seem more reluctant

Wage Restraint

Workers in large European economies are less likely to ask for pay rises



Source: YouGov

Note: Chart strips out the responses of those not working

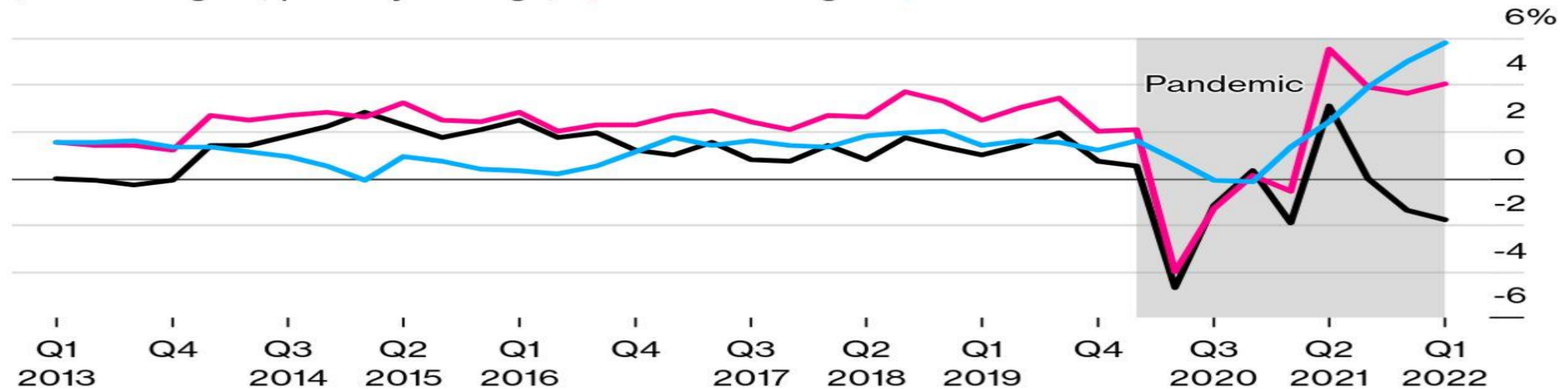
Bloomberg

We saw wages increases but not enough up to now especially in Europe

Income Squeeze

German nominal wages aren't keeping pace with surging inflation

Real wages (quarterly average) Nominal wages Inflation rate



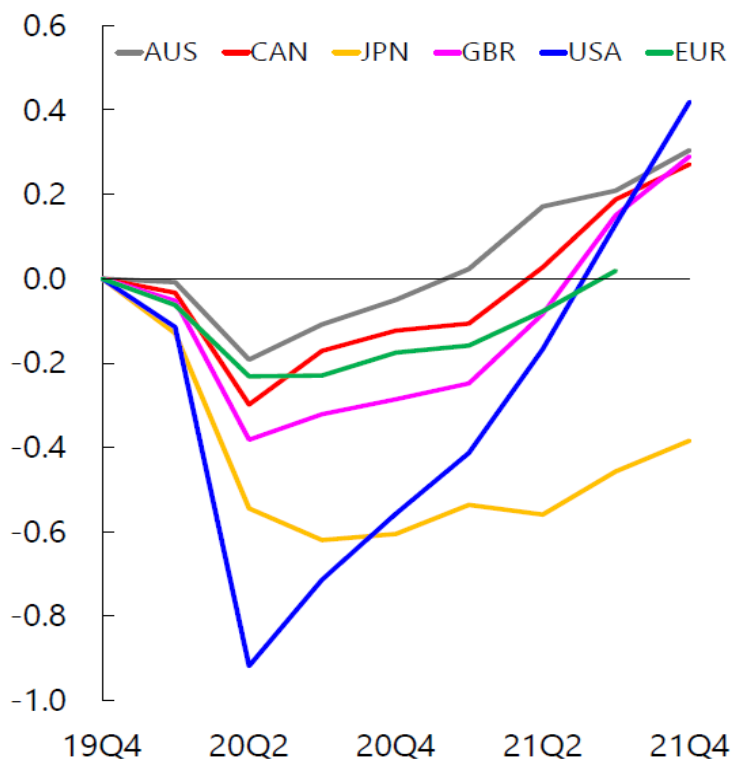
Source: German statistics office

Bloomberg

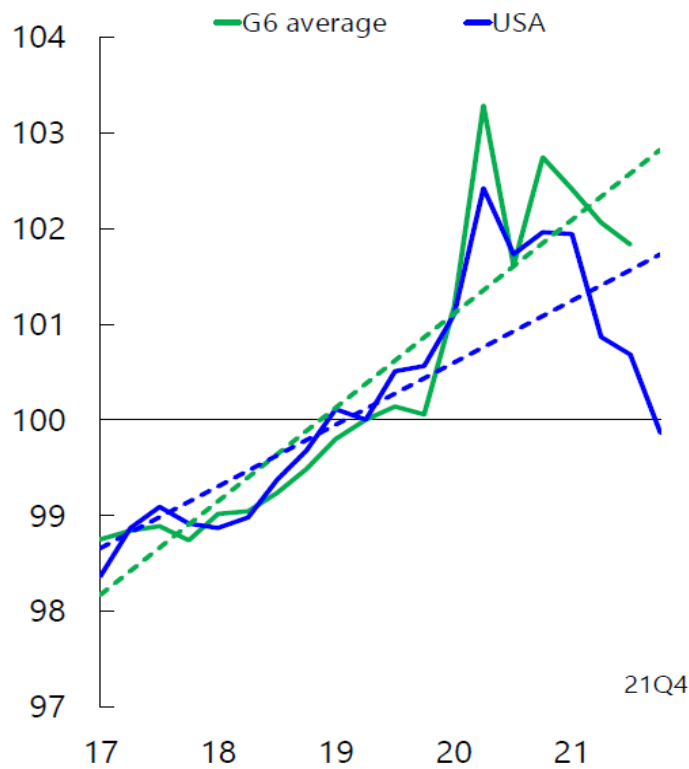
Why did inflation rise globally?

But Labor markets keep tightening and wage pressures building up

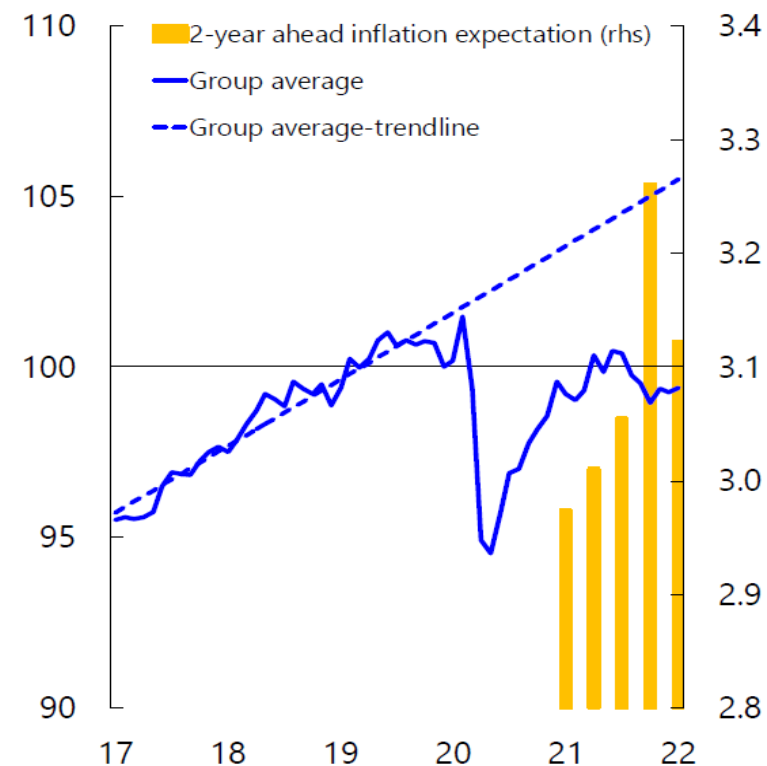
Vacancy-to-unemployment ratios
(deviation from 2019Q4; percentage points)



Real wages in major AE
(index; 2019Q2=100)



Real wages in major EM with tightening labor markets 1/
(index; Dec 2019=100)



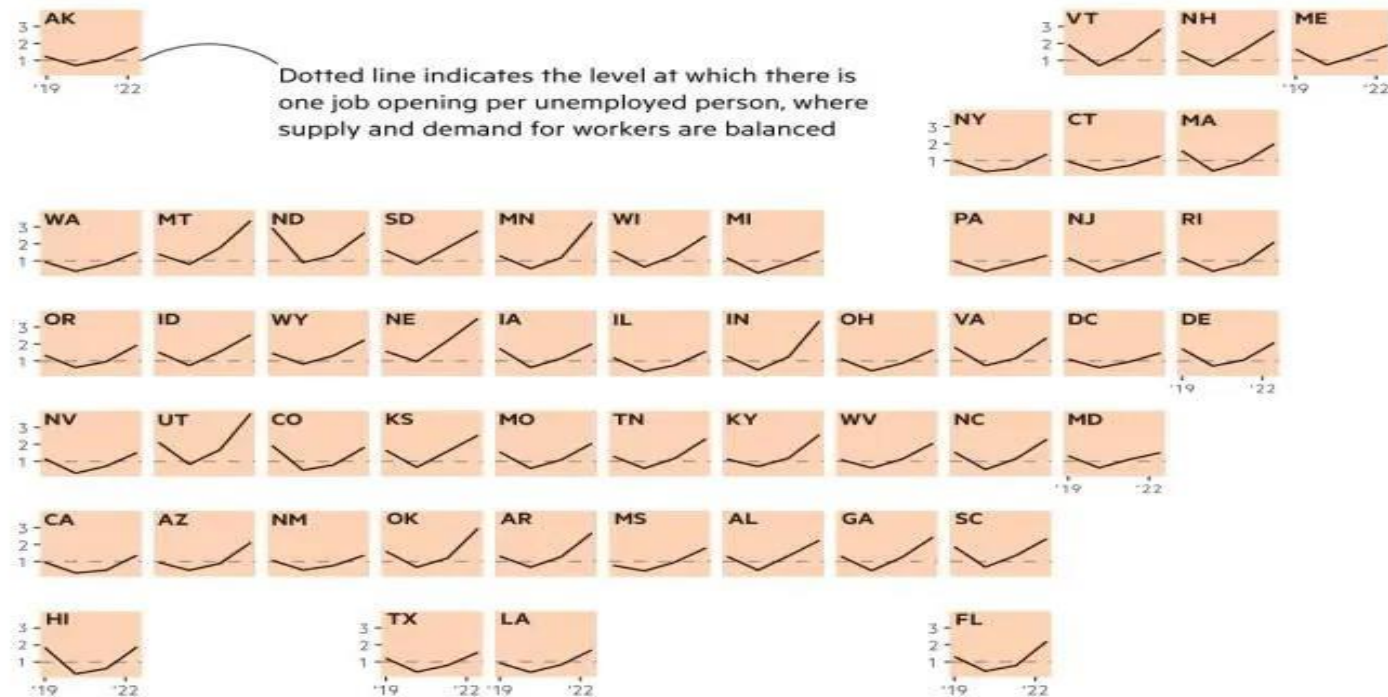
Sources: Haver Analytics; Consensus Forecast; OECD; IMF, *Global Data Source*; and IMF staff calculations.

1/ Includes Brazil, Chile, Colombia, and Peru.

It is not the trade union, stupid

Labour markets have become increasingly tight across US states

Tightness (number of job openings per unemployed person), in March of each year from 2019-2022



Source: Bureau of Labor Statistics

FT Graphic: Caitlin Gilbert / @caitlinsgilbert

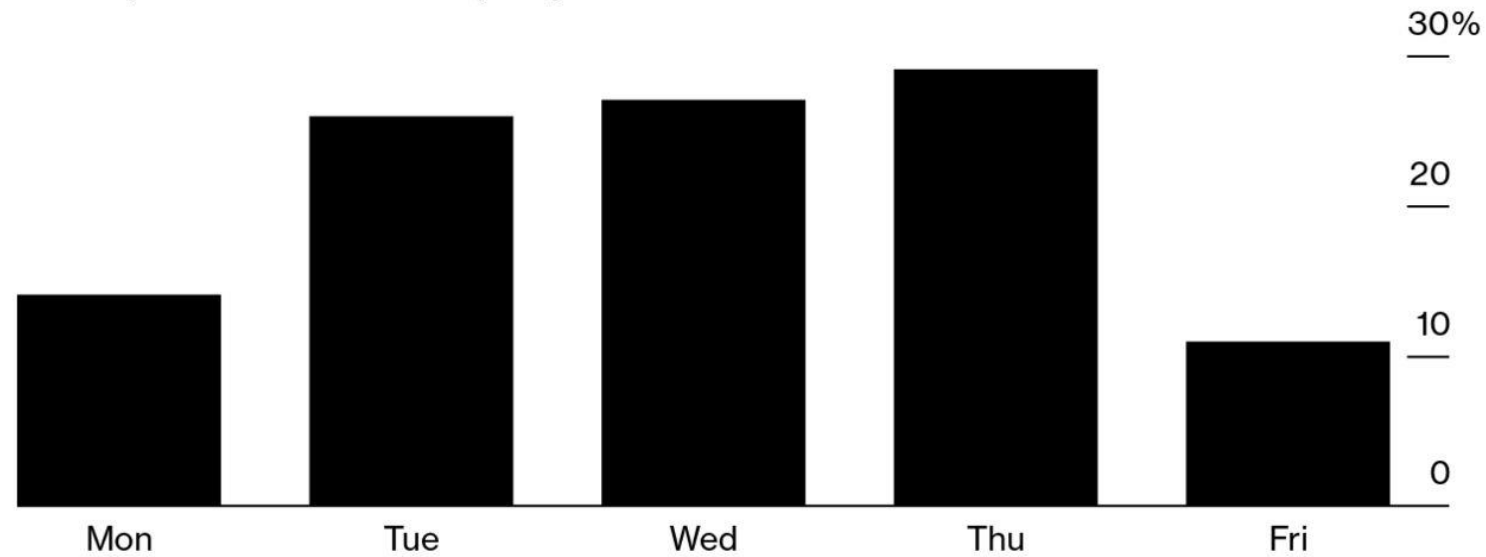
© FT

Lying flat long...

Long Weekends

Office workers in Europe are coming to the office mid-week

■ Europe & Africa office occupancy



Source: Freespace

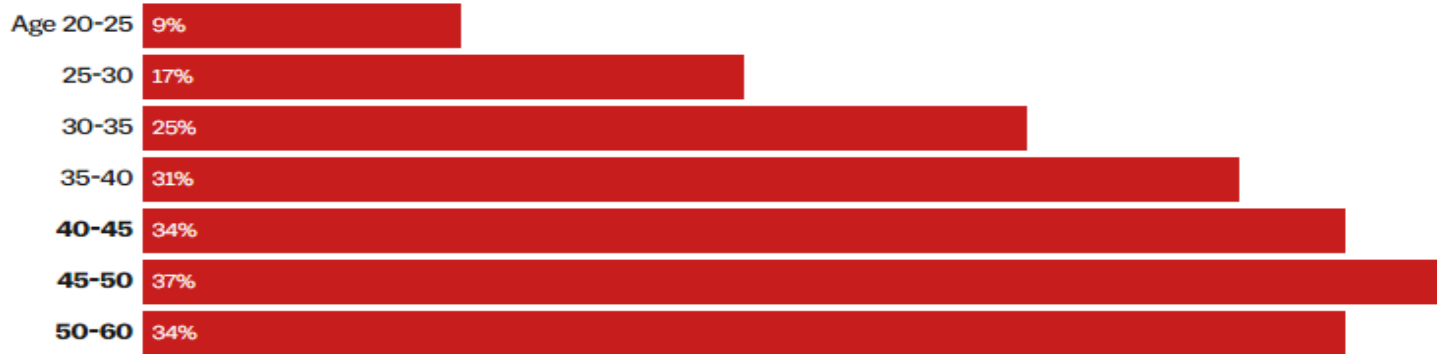
Note: Occupancy levels are the average for September 2021

Bloomberg

The great churning

Growth in resignation rate by age

Annualized change from Q1 2021 to Q1 2022



Source: Visier

recode BY Vox

Growth in resignation rate by tenure

Annualized change from Q1 2021 to Q1 2022



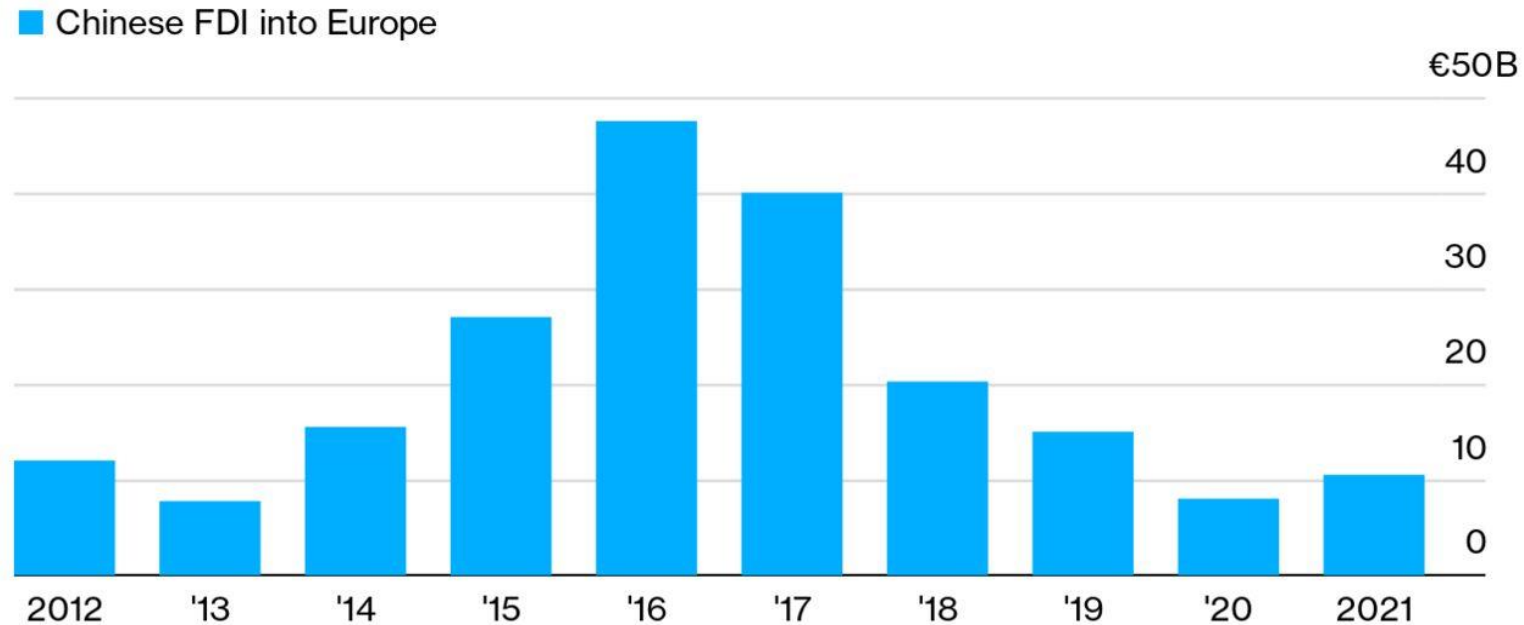
Source: Visier

recode BY Vox

5. Deglobalization?

Pick Up

Chinese investment in Europe expanded in 2021 but was below 2016 peak



Source: Rhodium Group and the Mercator Institute for China Studies (MERICS)

Bloomberg

China exodus

International Exodus

Foreign outflows from Chinese markets hit a record in March



Source: SAFE, Bloomberg

Bloomberg

Global trade openness index: sum of imports and exports as a share of GDP (%)

Series labels indicate the data source used for each period



Graphic based on a chart by Our World In Data

Sources in order of appearance: Klasing and Millionis (2014), Penn World Tables 9.1, World Bank
© FT

Trade? Toward a fragmented globalization?

- **Global trade in April is expected to have increased 2.1 per cent** compared with the previous month despite Russia's invasion of Ukraine and the impact of China's Covid-19 movement restrictions, Kiel Trade Indicator data shows.
- The last time there was a comparable increase in global trade was in January, before the outbreak of the war, figures compiled by the Kiel I
- Institute for the World Economy showed. However, congestion in container shipping remained at a high level in April. "The initial shockwaves of the Russian invasion of Ukraine to global trade in goods appear to have been digested and trade data in April is stabilising," said Vincent Stamer, head of Kiel Trade Indicator.
- "Almost all major economies can expect growth or at least a sideways movement."
- The Covid-19 crisis highlighted significant challenges in the logistics sector, with many cargo customers struggling to find shipping containers and overcome labour disruption. The acute supply chain bottlenecks have led to congestion and delays at ports, a shortage in containers and a sharp rise in the cost of shipping goods.
- The World Trade Organisation projects that the Russia-Ukraine crisis could lower global gross domestic product growth by 0.7 to 1.3 percentage points, bringing it to between 3.1 per cent and 3.7 per cent for 2022, it said in an April report.
- The organisation revised down its forecast for global trade growth this year to 3 per cent from 4.7 per cent earlier, due to the Russia-Ukraine war. Global trade growth in 2023 is expected to be 3.4 per cent.

6. The Shortage economy NOT ENOUGH CARS

Jonathan Levin reports predictions by auto analysts that [new car supply is likely to lag demand](#) until 2024



Migrants one option to calm labor markets

Migrant Workers

Foreigners in Germany are helping to smooth out labor shortages

■ Share of migrants among total workers ■ ...in occupations with labor shortages



Source: Cologne Institute for Economic Research, Federal Labor Agency, Institute for Employment Research

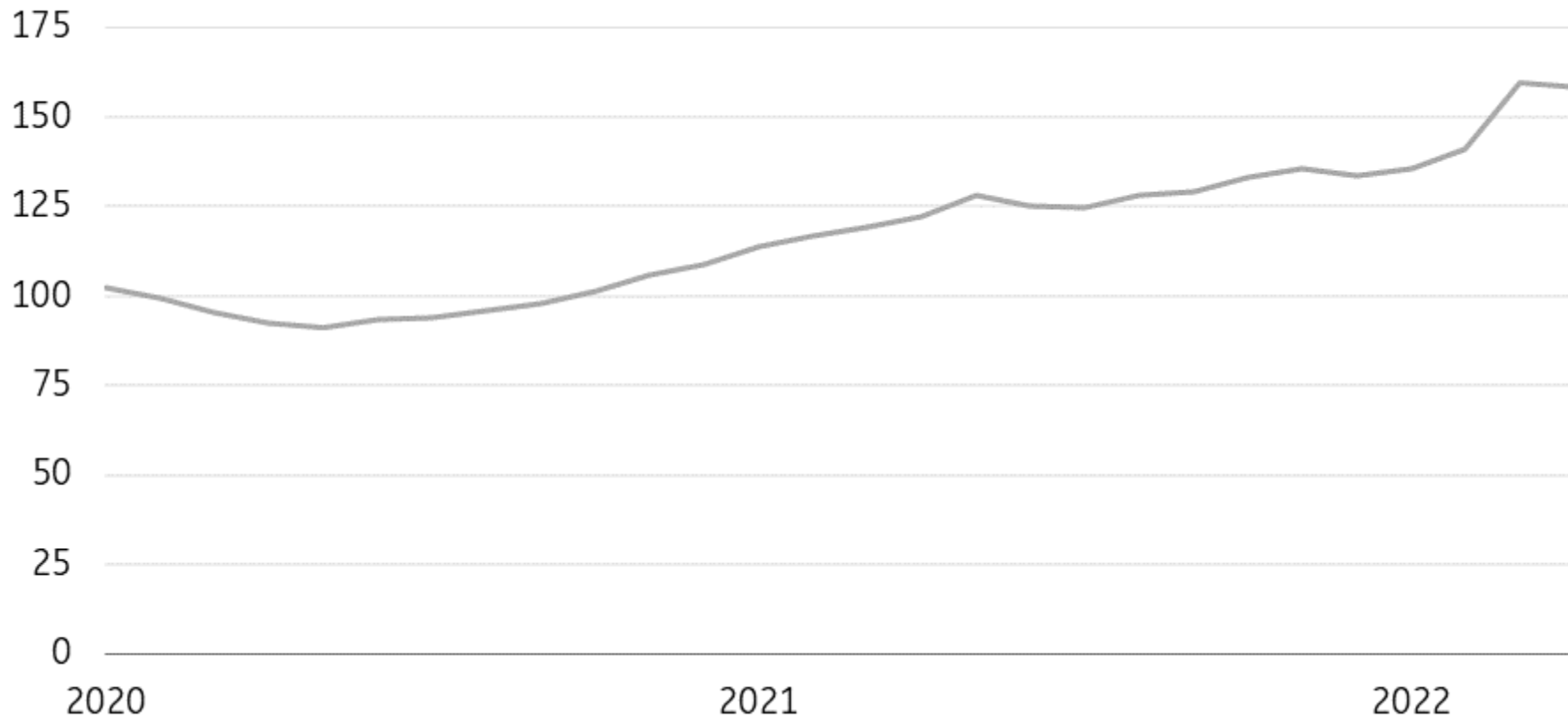
Note: Data shows average share in 2020; grey bars mark occupations that saw fewer than 100 applicants per 100 jobs in 2019

Bloomberg

NOT ENOUGH FOOD

Food commodity prices stand at a very high level

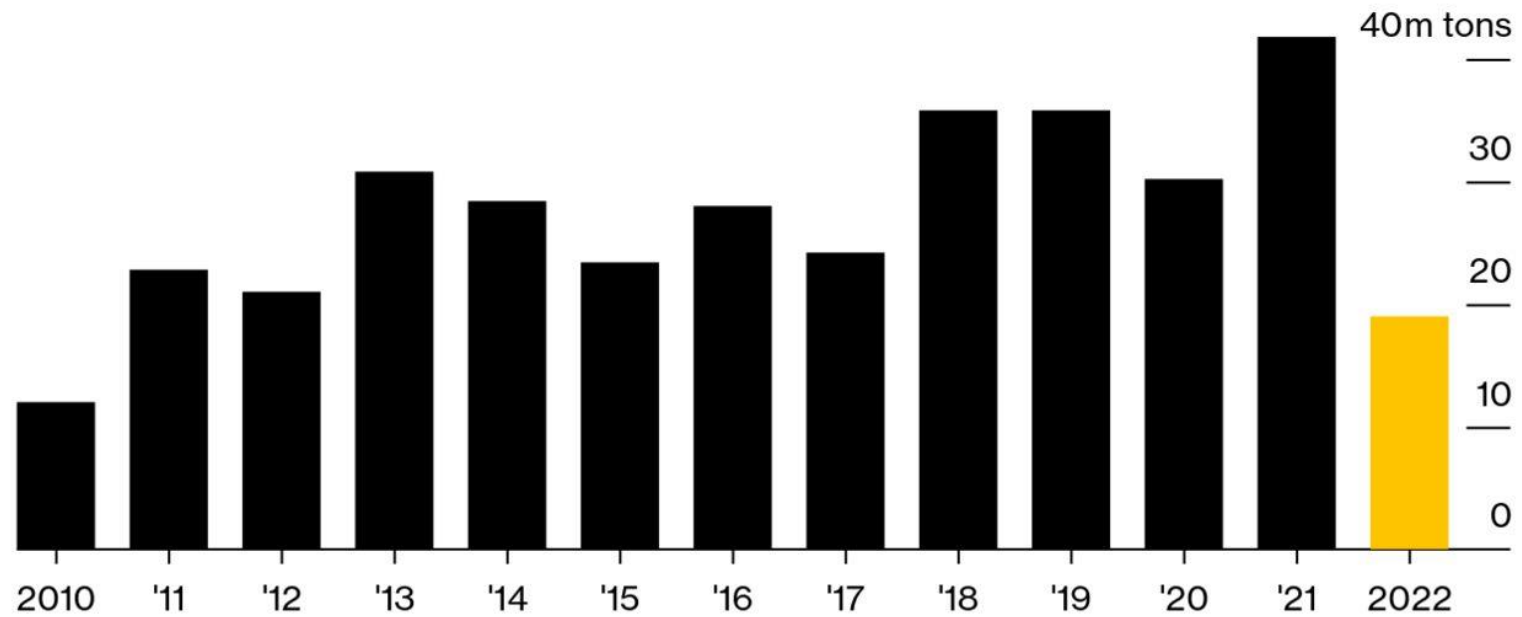
FAO Food price index, 2014-2016=100



Agro shortage

Ukraine Corn Crop

This year's harvest could fall to a decade low as war hampers planting



Source: USDA, UkrAgroConsult estimate for '22

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Rising food costs

Rising energy and fuel bills are a major contributor to higher costs in agriculture

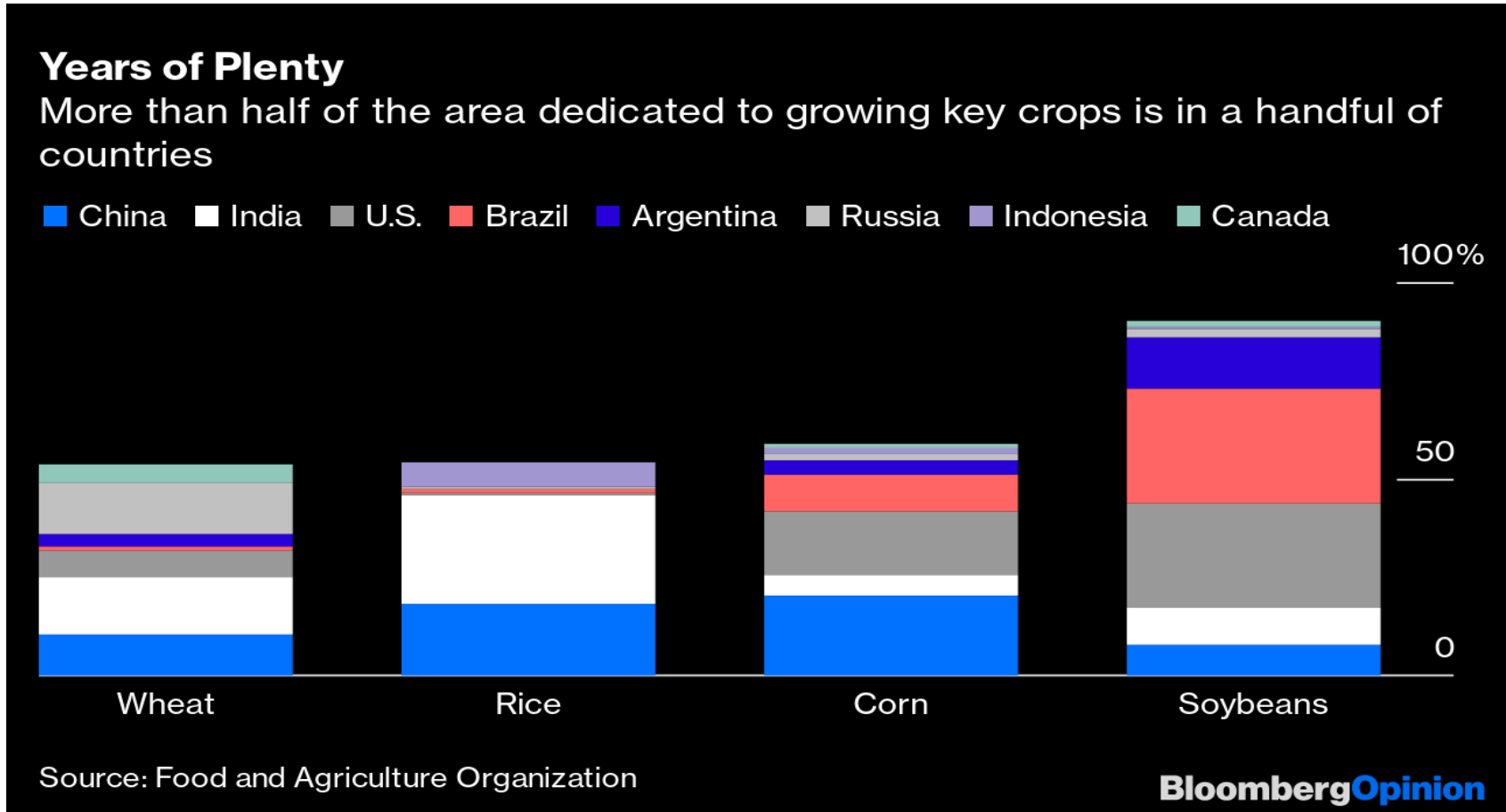
Based on total costs for the agricultural sector in the Netherlands

(%)	Share in total cost	Increase in cost in 2021
Inputs	43	+10
Animal feed	20	+10
Seeds	8	+10
Fertiliser and crop protection	4	+17
Other inputs	11	+7
Assets (buildings, machinery)	21	+7
Energy & fuel	9	+39
Labour costs (inc. subcontractors)	17	+10
Financing cost	3	+4
General costs	5	+3

Input costs make up the majority of costs for food manufacturing and retailersBased on data for the Netherlands, 2020

(%)	Food manufacturing	Drink manufacturing	Food retail
Input costs	70	51	75
Assets	6	10	7
Energy use	1	1	1
Labour costs	16	16	14
Marketing costs	1	5	1
Financing costs	3	3	1
Other costs (royalties, excise duties)	3	13	2

True monopolies...high risks

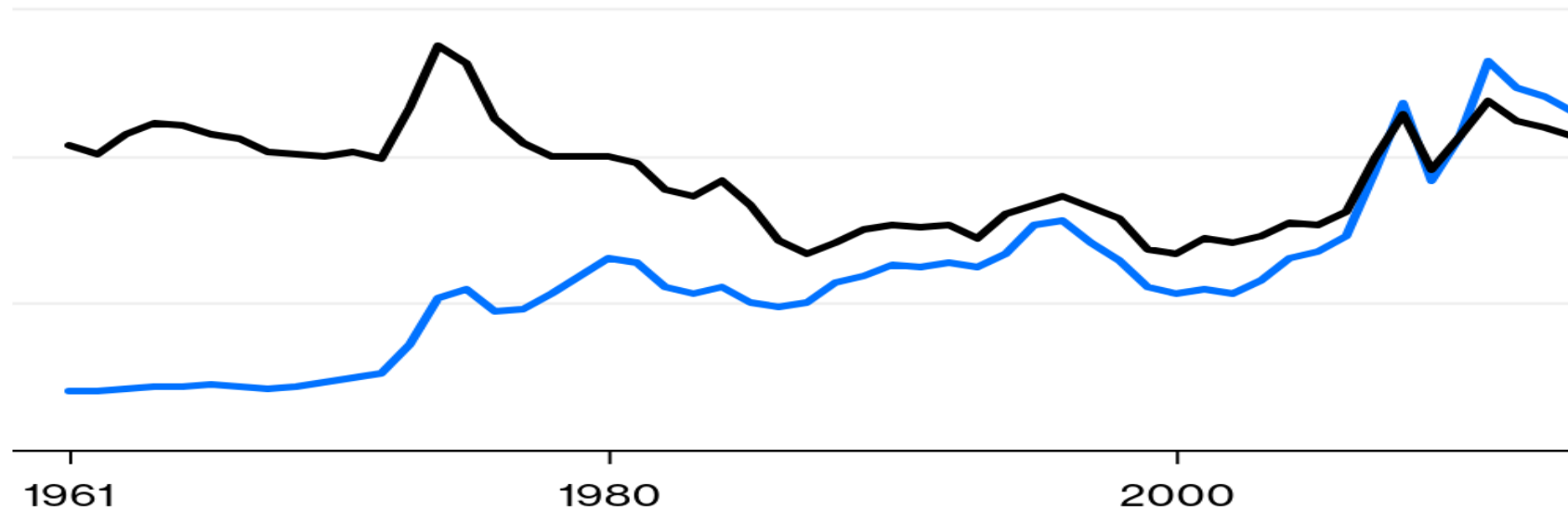


The new luxury goods?

More Expensive Than Ever

In the past year, the Food and Agriculture Organization's index prices has spiked to record levels

■ Nominal ■ Real



Source: FAO

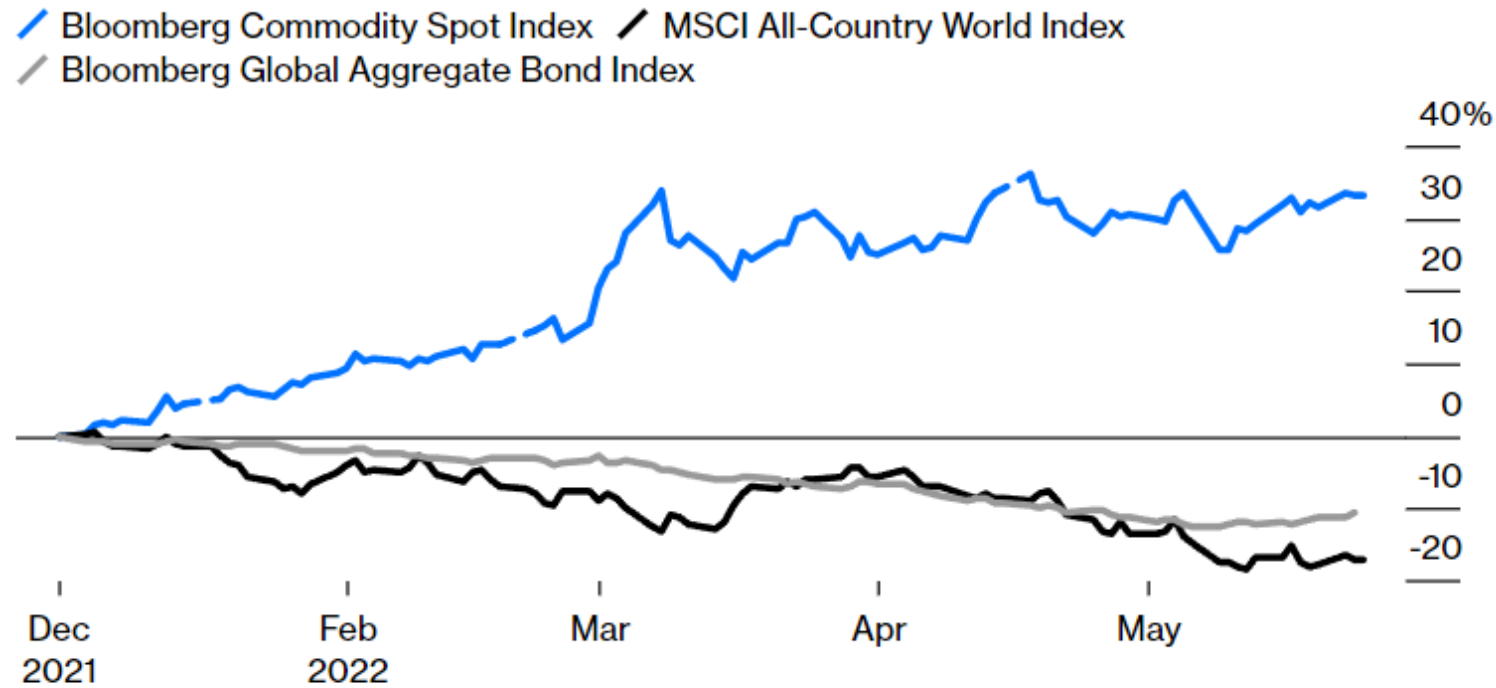
A global index of world trade volumes from the CPB Netherlands Bureau for Economic Policy Analysis declined by 0.2 per cent in March but is off by only 1 per cent from its record high in December. It remains 2.5 per cent higher than a year earlier and 11 per cent above its pre-pandemic level.

Still, it could emerge in the near future as companies shift some production closer to target markets to guard against single-source dependency in their supply chain.

Source: Reuters (Additional reporting by Balazs Koranyi; Editing by Alexander Smith)

Flying High

Commodities have managed to soar even as stocks and bonds have tumbled

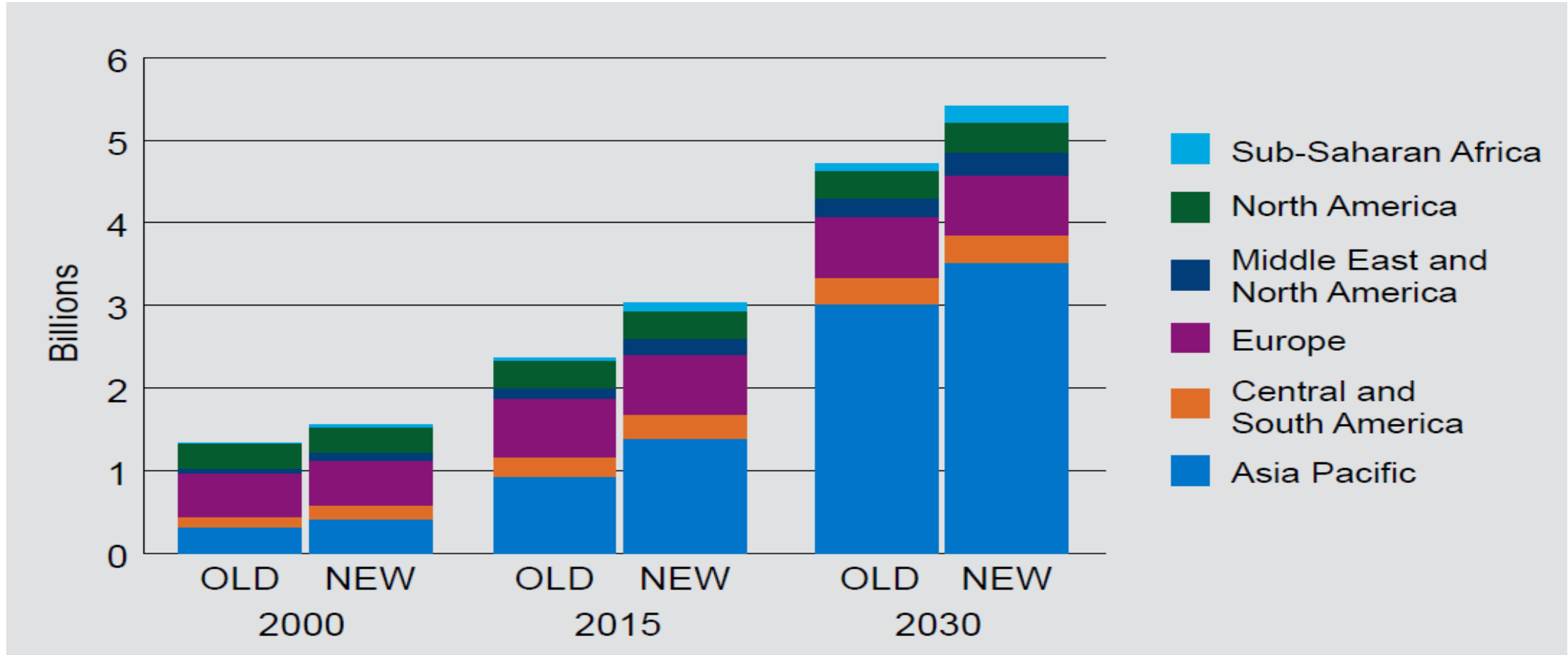


Source: Bloomberg

BloombergOpinion

7. Demand from Asia: Learning to live with inflation?

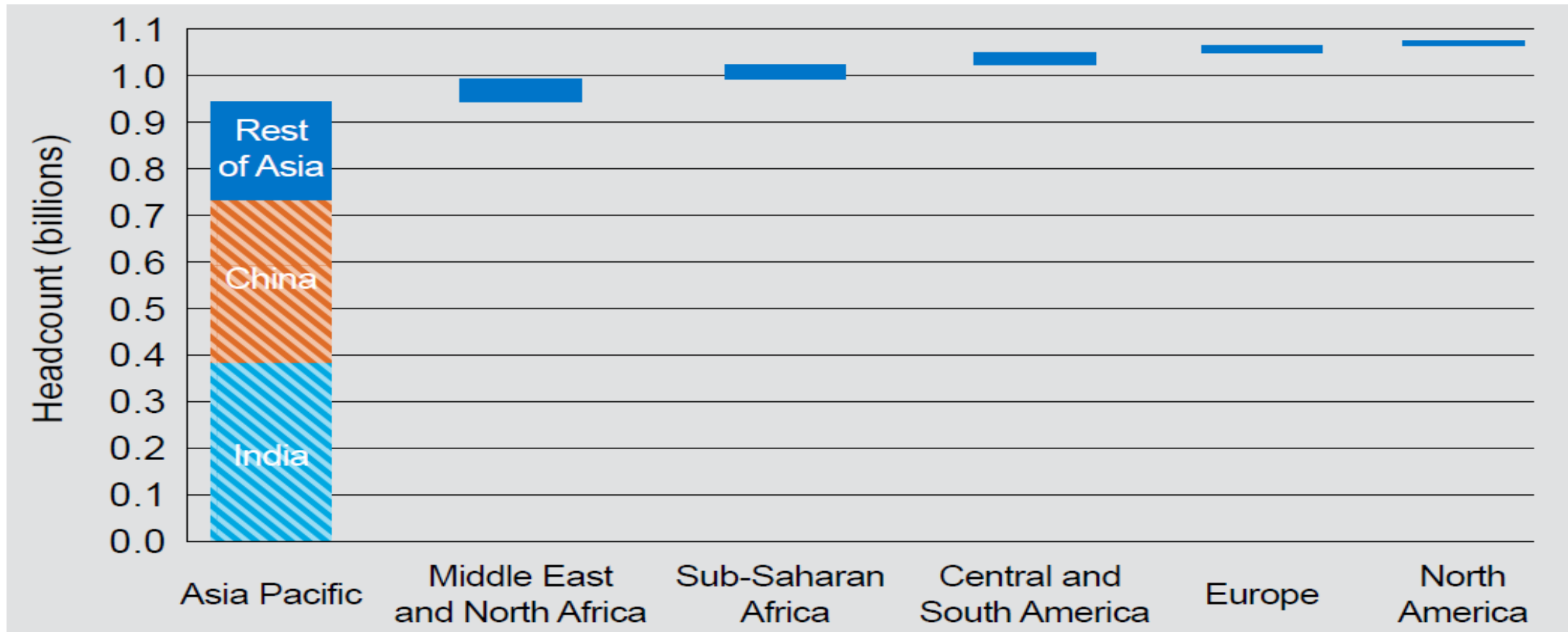
The unprecedented expansion of the global middle class mainly due Asia Pacific



Will inflation remain high?

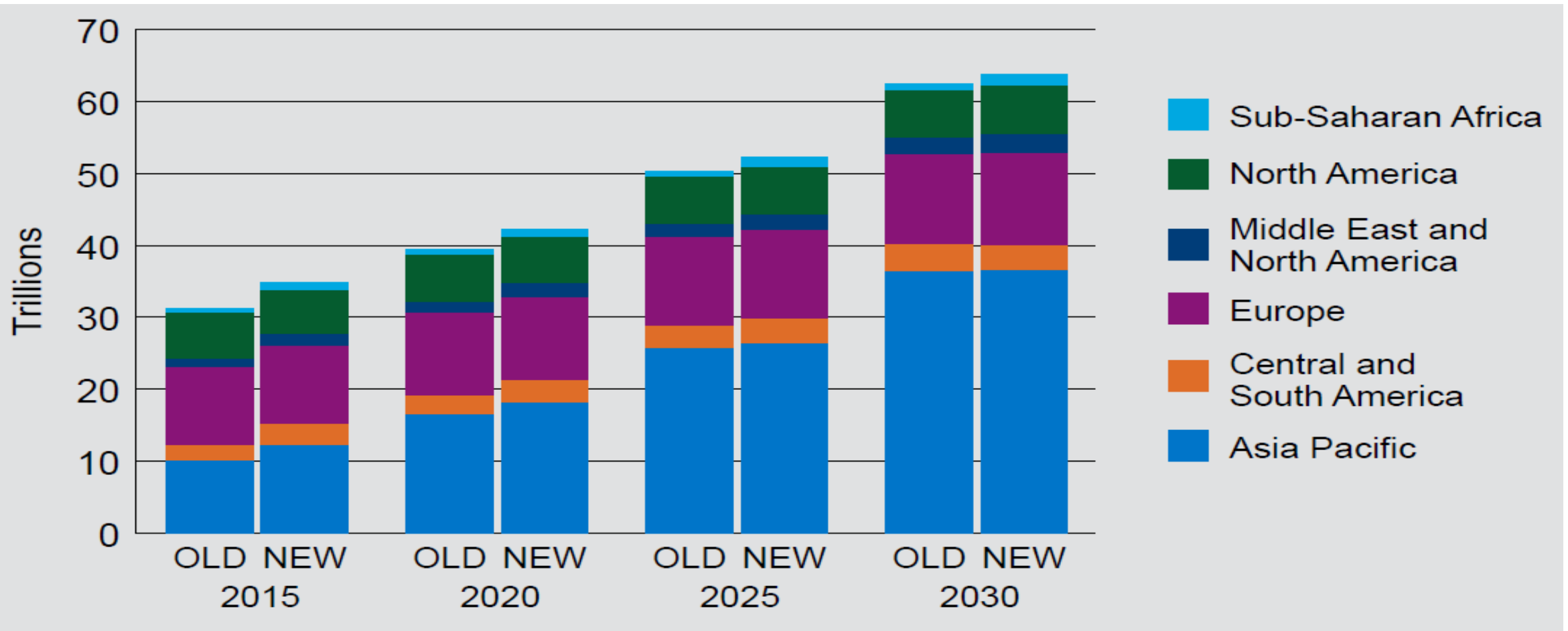
The unprecedented expansion of the global middle class mainly due Asia Pacific

Regional contribution to next middle class billion, 2015-2022



Will inflation remain high?

Middle class consumption expenditures (PPP, constant 2011 trillion \$)



Will inflation remain high?

The Asia Pacific middle class could spend \$10 trillion more by 2030 (PPP, constant 2011 trillion \$)

	2015		2020		2025		2030	
	#	%	#	%	#	%	#	%
North America	6,174	18	6,381	15	6,558	13	6,681	10
Europe	10,920	31	11,613	27	12,159	23	12,573	20
Central and South America	2,931	8	3,137	8	3,397	8	3,630	6
Asia Pacific	12,332	36	18,174	43	26,519	51	36,631	57
Sub-Saharan Africa	915	3	1,042	2	1,295	2	1,661	3
Middle East and North Africa	1,541	4	1,933	5	2,306	4	2,679	4
World	34,814	100	42,279	100	52,234	100	63,854	100

Will inflation remain high?

Middle class consumption - top 10 countries, 2015, 2020, and 2030 (PPP, constant 2011 trillion \$)

Country	2015	Share (%)	Country	2020	Share (%)	Country	2030	Shares (%)
U.S.	4.7	13	China	6.8	16	China	14.3	22
China	4.2	12	U.S.	4.7	11	India	10.7	17
Japan	2.1	6	India	3.7	9	U.S.	4.7	7
India	1.9	5	Japan	2.1	5	Indonesia	2.4	4
Russia	1.5	4	Russia	1.6	4	Japan	2.1	3
Germany	1.5	4	Germany	1.5	4	Russia	1.6	3
Brazil	1.2	3	Indonesia	1.3	3	Germany	1.5	2
U.K.	1.1	3	Brazil	1.2	3	Mexico	1.3	2
France	1.1	3	U.K.	1.2	3	Brazil	1.3	2
Italy	0.9	3	France	1.1	3	U.K.	1.2	2



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So, what's ahead?
Jamie Dimon and the Sandy
superstorm or a soft landing?
Einstein and the vainness of
economic forecast



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**Bank of Greece First Deputy Governor
Theodore Pelagidis**