LIVERPOOL INVESTMENT LETTER

September 2023

Cardiff Business School
Ysgol Busnes Caerdydd

Julian Hodge Institute of Applied Macroeconomics

LIVERPOOL RESEARCH GROUP IN MACROECONOMICS

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The Julian Hodge Institute was launched in autumn 1999 in a new collaboration between the Cardiff Business School of Cardiff University and Hodge. The aim of the Institute is to carry out research into the behaviour of the UK economy, and to study in particular its relationship with the other economies of Europe. The research has been particularly germane in recent years and has proved to be of significant social and political relevance as Europe has navigated the difficulties of the global financial crash, the Eurozone crisis and most recently the UK referendum on EU membership. The Liverpool Investment Letter is written by Patrick Minford, with the assistance of other members of the Group; in particular the emerging markets section is written by Anupam Rastogi, and the focus on Japan is written by Francesco Perugini. The Investment Letter is published monthly.

The Liverpool Research Group in Economics is pursuing a research programme involving the estimation and use of macroeconomic models for forecasting and policy analysis. The Group is now mainly based in Cardiff Business School, Cardiff University, and is indebted to the School and to the Hodge Foundation for their support. The Group's activities contribute to the programmes being pursued by the Julian Hodge Institute of Applied Macroeconomics. This Liverpool Investment Letter is typeset by David Meenagh and published on behalf of the group by Liverpool Macroeconomic Research Limited, which holds the copyright

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PROPER FISCAL ACCOUNTING

The usual way the UK's public finances are reported is in money terms. This includes debt interest which also contains the inflation element on index-linked debt.

However, the true cost of public debt is the resource cost to taxpayers. This is the money cost of taxes divided by the consumer price index. The latter measures the money cost of one unit of consumption; this in turn is what the consumer sacrifices in utility by giving up this unit. So when we measure public spending and taxes, we should convert them into resource costs to taxpaying households by dividing their money costs by the consumer price index, the CPIH published by the ONS.

This resource cost of the public finances tells us what these finances imply for the amount of resources that need to be taken from households by the government now or in the future by paying off future debt. Expressed in this way the public accounts budget constraint can be written:

$$\Delta b_t = g_t - \tau_t + (R_t - \pi_t)b_{t-1} + \Delta ValB_t$$

where b_t is the real stock of debt, deflated by p_t, the CPIH, and π_t is the proportionate change in the CPIH over the period. R_t is the nominal interest rate charge on the debt, including any inflation compensation on index-linked debt. g_t and τ_t are real spending and taxes as deflated by CPIH. The final term, $\Delta ValB_t$, measures the change in market value due to the change in market yields.

By contrast the traditional money accounts are written:

$$\Delta B_t = G_t - T_t + R_t B_{t-1}$$

where the upper-case values are all nominal. i.e in money terms.

Table 1: Summary of Forecast

	2019	2020	2021	2022	2023	2024	2025
GDP Growth[1]	1.6	-10.4	8.7	4.2	0.4	1.9	2.0
Inflation CPI	1.7	0.9	2.5	9.1	7.5	3.5	2.0
Wage Growth	3.5	1.6	5.9	6.0	6.1	3.7	2.0
Survey Unemployment	3.8	4.5	4.5	3.7	3.8	2.9	2.8
Exchange Rate[2]	78.3	78.2	81.4	79.1	79.4	79.1	79.0
3 Month Interest Rate	0.8	0.2	0.1	2.0	5.0	4.3	3.0
5 Year Interest Rate	0.6	0.1	0.8	2.5	4.3	4.2	3.0
Current Balance (£bn)	-63.3	-67.5	-34.3	-93.9	-25.4	-14.7	1.5
PSBR (£bn)	64.3	312.9	121.1	130.5	95.6	38.3	23.5

[1]Expenditure estimate at factor cost
[2]Sterling effective exchange rate, Bank of England Index (2005 = 100)

The latter accounts are then usually expressed as a percent of money GDP, whereas the former real resource quantities are expressed as a percent of real GDP, the real resources available, i.e. money GDP deflated by the GDP expenditure deflator, which is the cost of spending UK income, roughly equal to the CPIH. Money GDP is real GDP times the GDP deflator which is the home cost of production, a totally different deflator.

We can illustrate what this all means in practice by doing the accounts in the two different ways. We do this below, first showing the traditional accounts in the OBR's presentation, and then redoing them in real resource terms, for 2022/23 and 2023/24, current and next financial years.

In the Table below we show the traditional accounts in money terms and then in resource terms in 2022 prices. We begin by repeating our Table showing the cash accounting of the public finances in our current baseline forecast, where taxes are projected to stay high and growth consequently drops to nil over the long term. We then show how these cash accounts need to be adjusted to show real resource accounting and to take account of market movements in the value of debt.

Table 2: Public Finances Baseline Forecast with Actual Tax Rises

	Nom PSBR[1] (£bn)	Nom GDP (£bn)	REDL Spend[2] (£bn)	Pension Spend[3] (£bn)	Welfare Spend[4] (£bn)	Other Non-debt[5] (£bn)	Total Non-debt[6] (£bn)	PSBR /GDP %[1]	Spend /GDP %	Nom Debt (£bn)	Debt Interest[7] (£bn)	Debt /GDP %	Gross Taxes[8] (£bn)	Tax Rate %
2019/20	64.3	2316.4	320.8	41.0	227.0	254.5	843.3	2.8	36.4	1835.2	49.6	79.2	828.6	35.8
2020/21	312.7	2068.0	434.5	41.9	245.4	342.9	1064.7	15.6	51.5	2147.9	41.0	103.9	793.0	38.3
2021/22	122.3	2412.6	413.8	42.8	244.3	266.6	967.5	5.2	40.1	2270.2	72.5	94.1	917.7	38.0
2022/23	152.0	2695.1	415.5	46.3	259.9	335.6	1057.3	5.6	39.2	2422.2	114.7	89.9	1020.0	37.8
2023/24	45.9	2831.6	424.7	49.1	291.3	351.9	1117.1	1.6	39.5	2468.1	114.2	87.2	1185.4	41.9
2024/25	38.8	2982.6	447.4	50.6	306.9	376.9	1181.9	1.3	39.6	2506.9	113.4	84.1	1256.5	42.1
2025/26	19.6	3133.2	470.0	51.7	322.4	396.0	1240.0	0.6	39.6	2526.5	111.5	80.6	1331.9	42.5
2026/27	39.8	3195.9	488.8	52.7	335.3	411.8	1288.5	1.2	40.3	2566.2	109.7	80.3	1358.5	42.5
2027/28	61.4	3259.8	508.3	53.7	348.7	428.3	1339.0	1.9	41.1	2627.7	108.1	80.6	1385.7	42.5
2028/29	84.7	3325.0	528.7	54.8	362.6	445.4	1391.5	2.5	41.9	2712.4	106.6	81.6	1413.4	42.5
2029/30	109.8	3391.5	549.8	55.9	377.1	463.2	1446.1	3.2	42.6	2822.2	105.3	83.2	1441.7	42.5
2030/31	136.6	3459.3	571.8	57.0	392.2	481.8	1502.8	3.9	43.4	2958.8	104.3	85.5	1470.5	42.5
2031/32	165.4	3528.5	594.7	58.2	407.9	501.0	1561.8	4.7	44.3	3124.3	103.5	88.5	1499.9	42.5
2032/33	196.2	3599.1	618.5	59.3	424.2	521.1	1623.1	5.5	45.1	3320.5	103.0	92.3	1529.9	42.5
2033/34	229.2	3671.0	643.2	60.5	441.2	541.9	1686.8	6.2	45.9	3549.7	102.9	96.7	1560.5	42.5
2034/35	264.4	3744.5	668.9	61.7	458.8	563.6	1753.1	7.1	46.8	3814.2	103.1	101.9	1591.7	42.5

Money	**2022/23**	**2023/24**	**2024/25**
G	1057.3	1117.1	1181.9
T	1020.0	1185.4	1256.5
D int	114.7	114.2	114.2
ΔD	152.0	45.9	38.8
D (incl. BOE)	2580	2626	2664
D/NOMGDP (%)	95.7	92.7	89.3
Real 22/23 prices (Assumes CPIH inflation 9.1% 22/23; 6.4% 23/24; 3.2% 24/25)			
g	1057.3	1049.9	1145.3
t	1020.0	1114.1	1217.0
Real D int	-105.7	-109.1	35.2
Δ Real D	-68.4	-173.0	-36.5
Real D	2580	2407	2370
Adj Mkt Value/Par*	0.93	0.93	0.93
Adjusted Real D	2399	2226	2189
Real D/Real GDP	84.7	87.6	75.8

*market value/Par value — source ONS: series RYXY/BKPM on gilt values (respectively market value and nominal, Par, value). BoE bank reserve debt (about 800) stays at Par.

What these figures show is that real debt interest at recent inflation rates has been negative. This reflects the fact that inflation has exceeded nominal interest on non-indexed debt and on indexed debt has roughly equalled the ‘inflation interest’ (not exactly because indexing is to the RPI which differs from CPIH). From 2024/25 real debt interest rises somewhat as inflation falls, while nominal interest rates remain quite high; nevertheless the real interest rate remains subdued at around 2%.

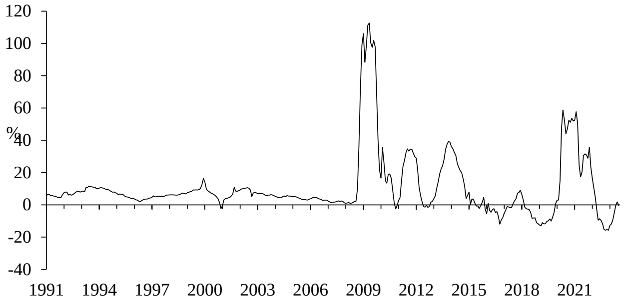
Furthermore, the market value of government debt has fallen by nearly 40% since 2020, due to rising gilt yields — see chart below. This has lowered the debt/GDP ratio in current market value. Essentially, this arises because the DMO/Treasury managed to sell most of existing gilts at low interest rates prevailing during Covid; hence the market currently values these about 10% lower than face value.

Consequently, measured correctly debt/GDP will have fallen sharply in 2023/24 even though real GDP will barely change. In 2024/25 it falls further, with GDP set to grow 2% in real terms with recovery from the tight-money spell.

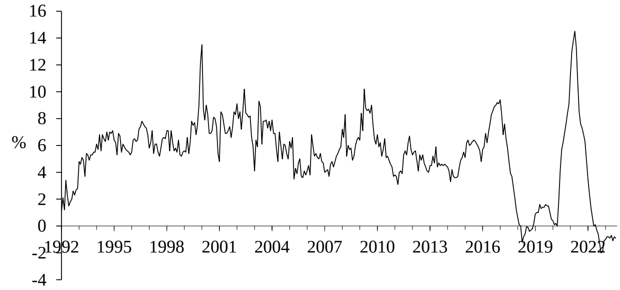
The main lesson from this exercise is that accurate measuring of real resources used in the public finances is important in getting a correct view of the fiscal situation. Unreasonable panic has been generated by loose statements about the 'spiralling cost' of interest on the debt. In real terms debt interest has been negative in recent years and will only become modestly positive from 2024/25.Furthermore, because most gilts were issued at low interest rates, their market value is currently low. Properly measured, the debt/GDP ratio is set to fall from the 20/21 level of about 90% to about 76% by end 24/25.

This total includes the BoE's debts to the banking system. But it should be noted that the BoE debt to the banks is a matter of public policy, in that it has been agreed to pay interest to the banks on these reserves, thus allowing the banks to enjoy 'seigniorage'. Under pre-crisis monetary regimes limited interest was paid on reserves as these were small; this continued de facto after the crisis as reserves ballooned because interest rates were close to zero. It has only been since the sharp recent money tightening episode that significant interest payments have been made to banks under the monetary operating system — currently they total about £40 billion per year. The UK operates a bank windfall tax which retrieves part of the seigniorage and could in principle retrieve it all, bank reserve interest being in the nature of a windfall subsidy to the banks. Alternatively, the central bank operating system could be changed to mandating a reserve ratio and only paying interest on excess reserves above this. This would save the taxpayer the large amount of interest currently being paid to banks.

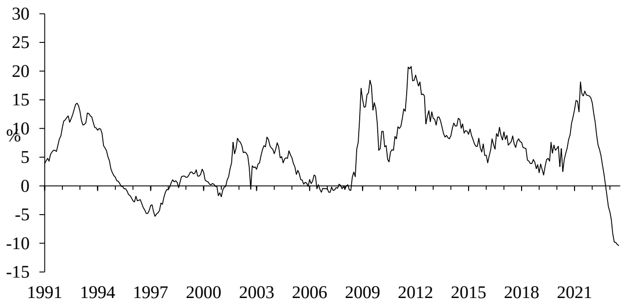
U.S.: Growth in M0 (Yr - on - Yr)



UK: Notes and Coins in Circulation Growth

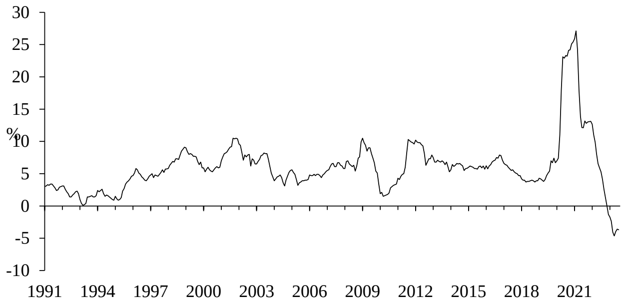


U.S.: Growth in M1 (Yr - on - Yr)

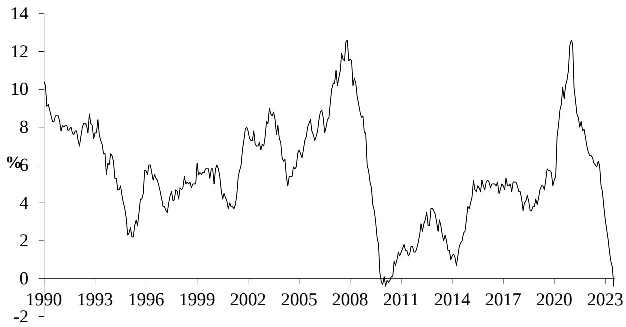


UK: M4 Growth

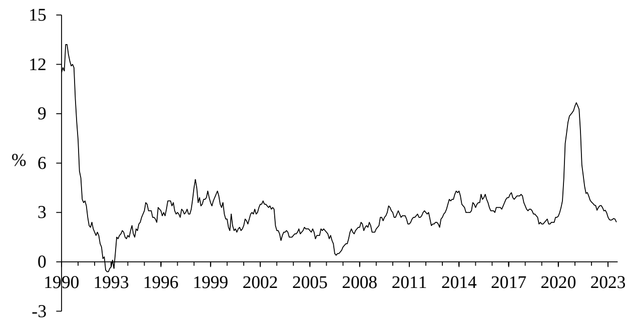
U.S.: Growth in M2 (Yr - on - Yr)



Eurozone M3 Growth



Japan: Growth of M2+CD's



FOCUS ON JAPAN

Francesco Perugini

Japan's Q2 GDP beats forecasts.

The Japanese economy grew at 2% year-on-year in the April–June period and 6% from the previous quarter (q-o-q), marking the third consecutive quarter of expansion, according to preliminary figures recently released by the government. It is about twice the rate of growth forecast by economists surveyed by Reuters and marks the biggest rise in almost three years.

Exports expanded 3.2% q-o-q in the second quarter led by car exports and inbound tourism, while capital expenditure was flat. Japanese automakers have benefited from a weaker yen, which has helped prop up profits amid declining sales in China and an increasingly tough shift to electric vehicles. Strong US and European demand has also supported exports while the post-COVID boom in foreign tourists has given the economy a much-needed tailwind. That boost in external demand, or net exports, added 1.8 percentage points to second quarter growth. That net contribution was also boosted by a decline in imports for a third straight quarter, partly due to yen weakness but also partly to weak demand. “The biggest factor was a decline in imports that pushed up GDP. It doesn't mean a strong recovery in Japanese economy,” said Takumi Tsunoda, senior economist at Shinkin Central Bank Research Institute.

Private consumption, the biggest factor in overall GDP, declined 0.5% from the previous quarter, marking the first contraction in three quarters, with consumption by households also declining 0.5%. Economists have said that although spending on restaurants and travel rose after the government downgraded COVID-19's threat status in May, the ongoing inflation weighed on consumers' spending on nondurable goods such as food and daily necessities. Meanwhile, corporate investment in the second quarter was flat from the previous quarter, at 0.0% growth.

Looking ahead, economists say the second quarter's high pace of growth is not likely to continue. “Japan's economy expanded at an extremely rapid pace last quarter, but we expect a renewed slowdown across the second half of the year,” Marcel Thieliant of Capital Economics wrote in a note. Yoshiki Shinke, chief economist at Dai-ichi Life Research Institute expects growth to slow down and remain low in the second half of the year amid a mix of positive and negative factors. One positive factor, he pointed out, is the further expansion of inbound tourism demand after China lifted the ban on group travel to Japan last week, possibly bringing a significant increase in the number of Chinese tourists. “Inbound demand is likely to accelerate again in the July–September period and beyond, and this will likely be a factor supporting the economy,” he said.

Indeed, Japan's economic growth, which relies on external demand, is affected by trends in overseas economies, such as China, which has increasingly shown signs of economic slowdown, and the US, where the tightening of monetary policy has continued. The International Monetary Fund expects global growth for the next five years to stand at around 3%, the lowest level since 1990. The US economy remains strong, but adverse effects of monetary tightening could emerge as interest rates continue to rise. “The effects of monetary tightening in the United States will emerge strongly in the future, and the downside risks will be significant,” said Takahide Kiuchi of Nomura Research Institute. With the trade surplus rarely more than a few percent of GDP, it cannot lift the economy by itself for more than a short burst. Plus, it remains to be seen what will happen to the surplus in the coming quarters. Moreover, internal demand growth is anaemic because consumption is flat. Worse yet, real employee compensation is still below the level it reached prior to Covid and just 0.8% higher than it was six years ago back in 2017, even though the number of employees is 4.2% higher than it was back in 2017. In other words, real (price-adjusted) compensation per employee is down 3.4% from then.

Other details beyond the rosy headline GDP growth figure suggest the Bank of Japan (BOJ) is likely to withdraw from its ultra-easy monetary posture. Inflation has exceeded the BOJ's 2% target for 15 consecutive months. In July, the Japanese central bank loosened its yield curve control over the 10-year Japanese government bond in a modification it says was intended to make its ultra-easy monetary position more sustainable, while in the last monetary policy meeting the BOJ allow long-term interest rates to rise more, a move seen by analysts as the beginning of a gradual shift away from massive monetary stimulus. However, there is no market consensus on how soon the BOJ could ditch or tweak its monetary policy. Analysts polled by Reuters expect the BOJ to start scaling back stimulus only in a year's time. What BOJ Governor Kazuo Ueda said is that the BOJ will keep ultra-loose policy until inflation is driven more by robust domestic demand accompanied by sustained wage growth. Probably, the challenges faced by the BOJ have only just begun.

MARKET DEVELOPMENTS

With interest rates now much higher, the returns on bonds are beginning to compete with equities. The monetary squeeze is likely to ease off as inflation continues to fall and this will also boost bond market values.

Table 1: Market Developments

	Market Levels		Prediction for Aug/Sep 2024	
	Jul 31	**Sep 10**	**Previous Letter**	**Current View**
Share Indices				
UK (FT 100)	7699	7478	7861	7635
US (S&P 500)	4582	4465	4912	4786
Germany (DAX 30)	16447	15740	20920	20022
Japan (Tokyo New)	2323	2359	3180	3229
Bond Yields (government				
UK	4.33	4.43	4.00	4.00
US	3.96	4.26	3.50	3.40
Germany	2.47	2.60	2.20	2.20
Japan	0.61	0.65	0.50	0.50
UK Index Linked	0.93	1.06	1.00	1.00
Exchange Rates				
UK ($ per £)	1.29	1.25	1.20	1.20
UK (trade weighted)	82.47	81.92	77.9	77.3
US (trade weighted)	107.43	109.13	113.2	113.2
Euro per $	0.91	0.93	0.98	0.98
Euro per £	1.17	1.17	1.18	1.18
Japan (Yen per $)	142.08	147.67	140.0	140.0
Short Term Interest Rates				
UK	5.50	5.56	4.00	4.00
US	5.63	5.67	4.30	4.30
Euro	3.73	3.80	3.00	3.00
Japan	–0.03	–0.03	0.10	0.10

Table 2: Prospective Yields [1]

Equities: Contribution to £ yield of:

	Dividend Yield	Real Growth	Inflation	Changing Dividend Yield	Currency	Total
UK	2.10	1.1	3.0	–2.00		4.20
US	2.00	1.2	3.0	3.00	3.88	13.08
Germany	2.10	1.2	3.0	23.00	–0.92	28.38
Japan	1.90	1.1	1.8	34.00	8.87	47.67
UK indexed[2]	0.66		3.0	16.00		20.06
Hong Kong[3]	2.60	3.0	3.0	–39.00	3.88	–26.52
Malaysia	3.30	5.4	3.0	51.00	3.88	66.58
Singapore	3.50	3.0	3.0	15.00	3.88	28.38
India	1.40	6.5	3.0	10.00	3.88	24.78
Korea	1.10	0.0	3.0	–48.00	3.88	–40.02
Indonesia	2.20	4.5	3.0	19.00	3.88	32.58
Taiwan	2.80	3.0	3.0	20.00	3.88	32.68
Thailand	3.20	2.5	3.0	16.00	3.88	28.58

Bonds: Contribution to £ yield of:

	Redemption Yield	Changing Nominal Rates	Currency	Total
UK	4.43	4.27		8.70
US	4.26	8.64	3.88	16.79
Germany	2.60	3.98	–0.92	5.65
Japan	0.65	1.47	8.87	10.99

Deposits: Contribution to £ yield of:

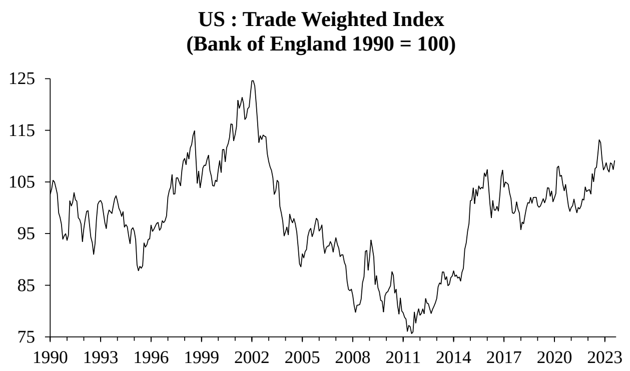
	Deposit Yield	Currency	Total
UK	5.56		5.56
US	5.67	3.88	9.56
Euro	3.80	–0.92	2.87
Japan	–0.03	8.87	8.85

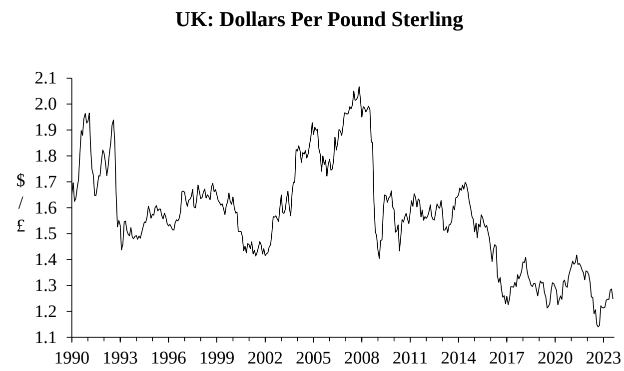
[1] Yields in terms of €s or $s can be computed by adjusting the £-based yields for the expected currency change.
[2] UK index linked bonds All Stocks
[3] Output based on China.

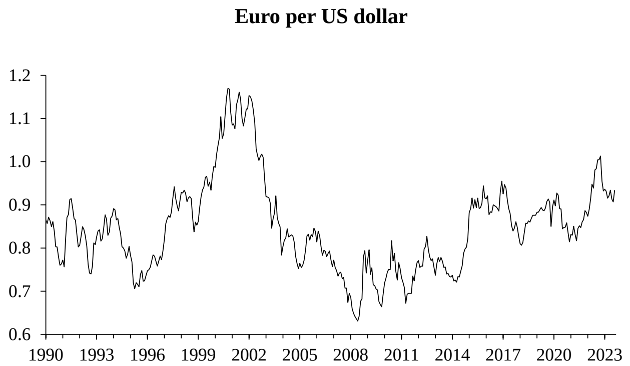
Table 3: Portfolio(%)

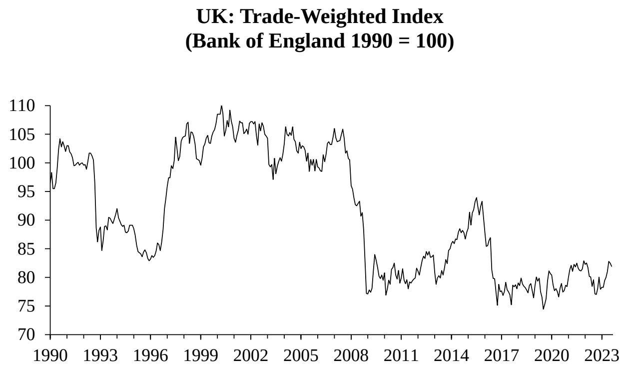
	Sterling Based Investor		Dollar Based Investor		Euro Based Investor	
	August Letter	Current View	August Letter	Current View	August Letter	Current View
UK Deposits (Cash)	5	5	5	5	1	1
US Deposits	-	-	-	-	-	-
Euro Deposits	-	-	-	-	-	-
Japanese Deposits	-	-	-	-	-	-
UK Bonds	-	-	-	-	-	-
US Bonds	-	-	-	-	-	-
German Bonds	-	-	-	-	-	-
Japanese Bonds	-	-	-	-	-	-
UK Shares	19	19	14	14	17	17
US Shares	14	14	19	19	16	16
German Shares	14	14	14	14	21	21
Japanese Shares	9	9	9	9	11	11
Hong Kong/Chinese Shares	4	4	4	4	4	4
Singaporean Shares	4	4	4	4	4	4
Indian Shares	4	4	4	4	4	4
Thai Shares	3	3	3	3	3	3
South Korean Shares	4	4	4	4	4	4
Taiwanese Shares	4	4	4	4	3	3
Brazilian Shares	4	4	4	4	3	3
Chilean Shares	4	4	4	4	3	3
Mexican Shares	4	4	4	4	3	3
Peruvian shares	4	4	4	4	3	3
Other:						
Index-linked bonds (UK)	-	-	-	-	-	-

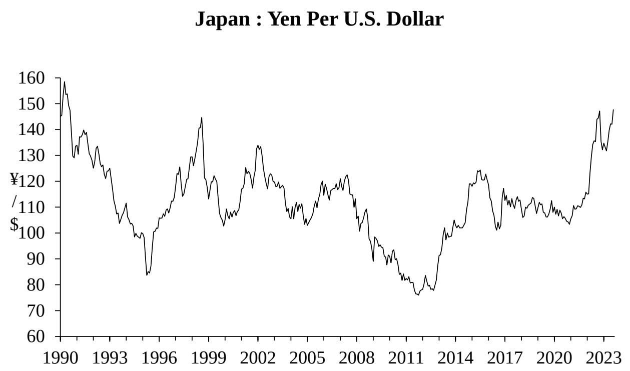
INDICATORS AND MARKET ANALYSIS
FOREIGN EXCHANGE MARKETS







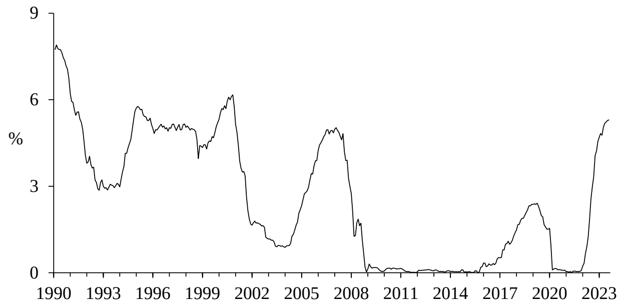




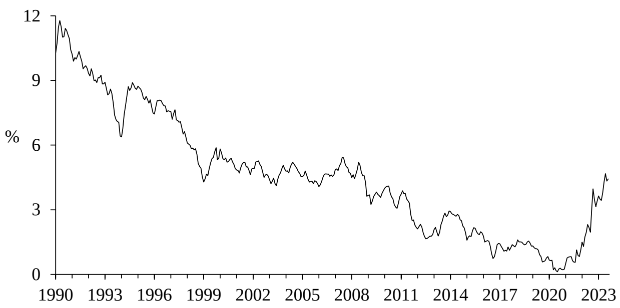
GOVERNMENT BOND MARKETS

U.S.: Yield on Long-Term Government Bonds

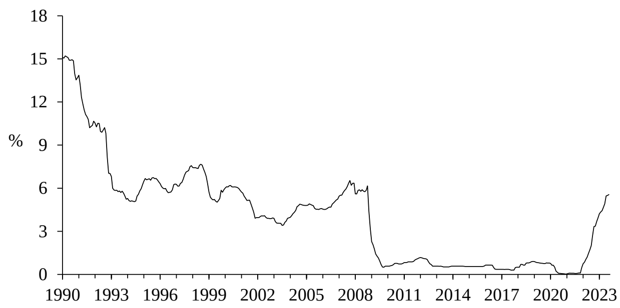
U.S. : 3-Month Treasury Bill



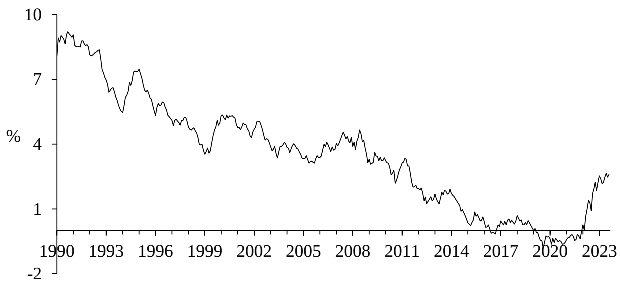
U.K.: Yield on Long-Term Government Bonds



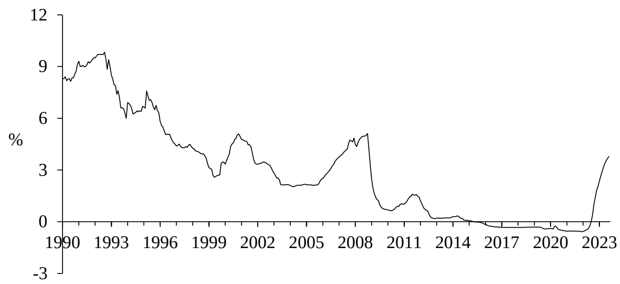
U.K. : 3-Month Certificate LIBOR Rate



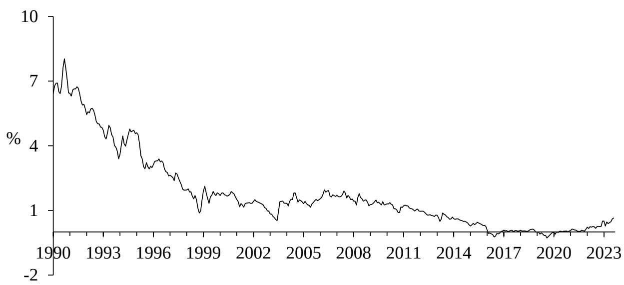
Germany: Yield on Public Authority Bonds



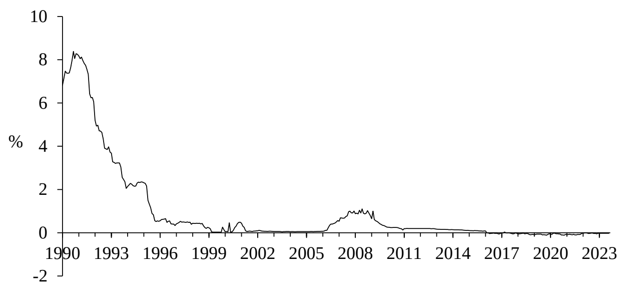
Germany : 3-Month Interbank Deposit Rate



Japan: Yield on Long-Term Government Bonds

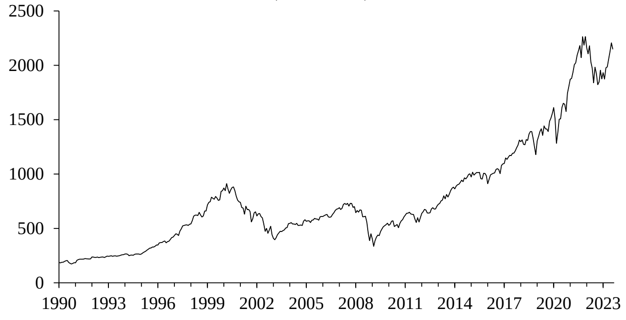


Japan : 3-Month Money Market Rate

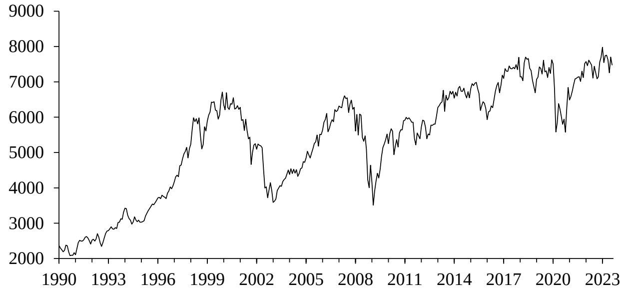


MAJOR EQUITY MARKETS

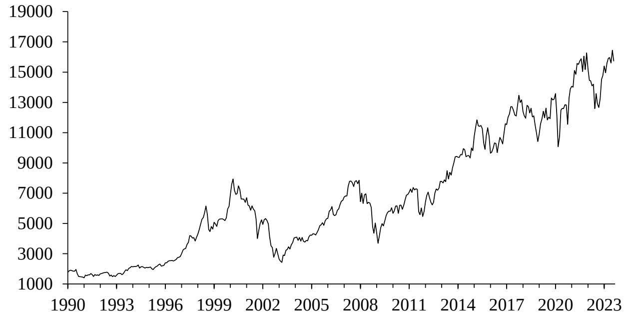
U.S. : S & P 400 Industrial
(1985=100)



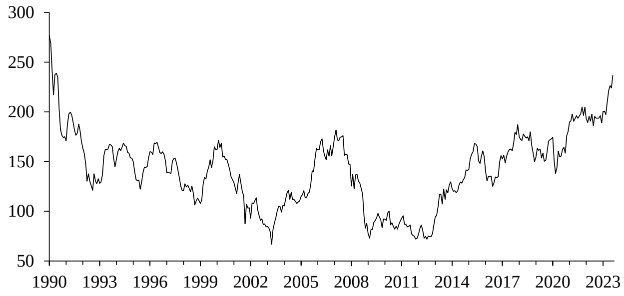
U.K. : FTSE-100 Index
(10 April 1962=100)



Germany : DAX 30



Japan : Tokyo S.E. New
(1985=100)



EMERGING MARKETS

Anupam Rastogi

India

India's recent achievements in sports and space programs appear to have extended to its economy. The country finds itself in a favourable position regarding economic growth potential and the geopolitical landscape. In the April–June quarter, real GDP surged by an impressive 7.8%, a testament to the rising services sector, increased domestic demand, and a revival in private investments that have kept the economy on a growth trajectory.

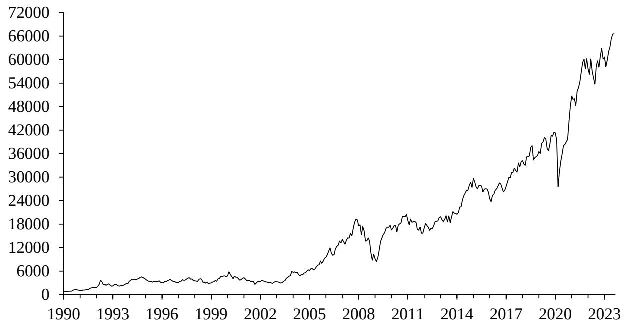
Notably, India's manufacturing sector demonstrated robust performance, reaching a three-month high in August. The manufacturing PMI for August reached 58.6, up from 57.7 in July, marking 26 consecutive months of expansion, the longest streak since March 2020. Furthermore, rising capacity utilization and the healthy financial positions of corporations and banks create an environment conducive to sustained growth in private capital expenditure. The upcoming festive season is expected to maintain steady domestic demand in the coming months.

However, some marginal downside risks to India's growth outlook are worth noting. These include weak external demand due to the global economic slowdown, disruptions caused by weather-related issues following a dry spell in August, elevated inflation rates, and the delayed impact of past rate hikes. The agriculture sector maintained a growth rate of 3.5% in Q1 FY24, with expectations of better performance in Q2, driven by improved outcomes in the winter harvest. The government's emphasis on infrastructure spending is further bolstering economic development.

The Reserve Bank of India's monetary policy committee maintained the benchmark repo rate unchanged for the third consecutive meeting in August. The country faces an estimated 9% rainfall deficiency, which is expected to increase food prices. Inflation surged to 7.44% in July, marking the highest monthly increase in 15 months, with food inflation reaching 11.51%. It is anticipated that India's inflation rate will remain above the Reserve Bank of India's upper tolerance band of 6%, at least until October.

As long as domestic demand in India remains robust and core inflation remains relatively stable, it is unlikely that the Reserve Bank of India will implement rate hikes. The monetary policy committee expressed concerns about rising food-induced inflation but indicated that a rate cut is not on the immediate horizon. Projections for retail price inflation rates were raised, but those for economic growth were retained.

India: BSE Sensex



Regarding trade, India experienced a year-on-year contraction of 8% in exports during Q1, FY24, the first decline in 10 quarters, influenced mainly by a slowing global economy. Conversely, imports, which serve as a proxy for domestic demand, remained stable. Financial, Real Estate, and Business Services in the services sector recorded a robust YoY growth rate of 12.2%, the highest in seven years.

The narrowing trade deficit is expected to reduce India's current account deficit to approximately $10 billion, less than 1% of GDP, in the April–June quarter of the current fiscal year, compared to 2.1% in the same period of the previous fiscal year. However, the current account deficit is projected to rise in the second quarter of the current fiscal year as merchandise exports dip below $100 billion for the first time in eight quarters. Increased crude oil prices since July are expected to push imports to around $163 billion. The rupee's exchange rate, hovering between 82.50 and 83 to the US dollar, suggests that the current account deficit will remain below 1.5% of GDP.

In conclusion, there is little doubt about India's accelerated economic growth and its favourable future positioning. However, there is a sense that the celebration may have begun a bit prematurely.

	22–23	**23-24**	**24-25**	**25-26**	**26-27**
GDP (%p.a.)	7.0	6.5	6.6	6.7	6.8
WPI (%p.a.)	6.5	5.3	5.0	4.2	4.0
Current A/c(US$ bill.)	-67.0	-60.0	-40.0	0.0	0.0
Rs./$(nom.)	81.0	82.0	83.5	85.0	85.0

China

The current state of the Chinese economy is fragile, with recent economic data painting a largely bleak picture. China's $18 trillion economy is experiencing a slowdown characterized by downbeat consumer sentiment, struggling exports, falling prices, and a significant portion of the young population facing unemployment.

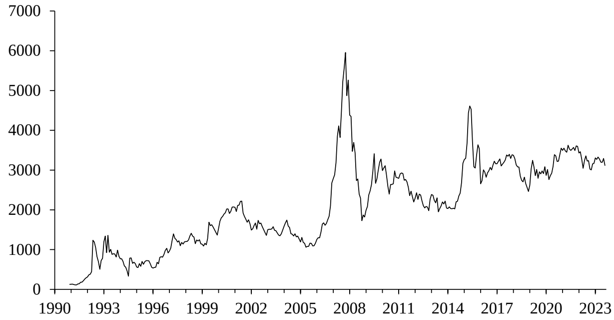
Economists and investors have been urging Beijing to take more assertive measures to boost output, mainly by stimulating consumer spending, even if it involves providing cash handouts, a strategy employed by the US during the pandemic. Many economists argue that accelerating China's shift toward a more consumer-driven economy, akin to that of the US, would establish more sustainable long-term growth prospects. However, China has responded to these challenges in a manner typical of autocratic regimes, including the cessation of data publication and interest rate cuts.

Looking at the broader perspective, under President Xi's leadership, Beijing has prioritized communist ideals over free enterprise. The government's allocation of resources without considering market dynamics has resulted in economic dysfunction. The Chinese economy has been heavily reliant on real estate development, driven by local authorities borrowing against the expected appreciation of real estate, which constitutes 40% of GDP. Addressing China's overdependence on real estate and its debt burden will take years, especially as homebuyers grapple with debt payments. Notably, around 90% of homes sold in China in 2021 were "presold," implying that developers sold rights to apartments yet to be built.

China's fiscal policy is predominantly managed by local governments, following directives from Beijing. These local governments have traditionally met their growth targets by relying heavily on land sales to real estate developers, construction, and substantial bond issuances that supported economic stimulus. However, this approach has led to a significant accumulation of debt, and now consumers are cautious about buying overpriced homes amid job uncertainties. Hopes for a quick recovery are challenged by the realities of a shrinking labour force and slowing productivity growth. The consequences of China's economic deceleration are reverberating globally.

In the second quarter of 2023, China's economic growth was a mere 0.8% compared to the previous quarter. To support entrepreneurs and stimulate home purchases and consumer spending, the ruling party in China has further reduced interest rates. However, the government has refrained from announcing large-scale stimulus spending or tax cuts. China's manufacturing activity remained weak in August, contracting for the fifth consecutive month, signifying the challenges in reigniting economic growth. While the purchasing managers' index (PMI) slightly increased to 49.7 from 49.3 in July, it remained below the

China: SSE Composite Index



critical 50-point threshold, indicating contraction. The services sector also experienced a slowdown as consumers continued to cut back on spending.

We must emphasize that the Chinese economy is not undergoing a crash, and we maintain our cautious GDP growth forecast. We anticipate GDP to grow at a rate of 5% this year, followed by 4.8% next year and 4% in 2025. Our forecast considers the slowdown, driven by weak consumer prices, consumption, services-sector investment, and property investment. Challenges are also emerging in China's vast and opaque shadow banking sector. While shadow banking investment products are not expected to collapse, restructuring efforts will likely span several years.

China's consumer inflation rate dwindled to zero in June. It decreased by 0.3% year-on-year in July, while factory-gate prices continued to decline, underscoring persistent demand weakness and raising concerns about potential deflation. In response, the People's Bank of China cut several interest rates when the country released discouraging July economic data. While lowering interest rates is intended to boost the economy, it also exerts pressure on the currency.

Chinese imports saw a steeper-than-expected decline in July, falling by 12.4% year-on-year, compared to June's 6.8% drop, marking the most substantial month-on-month decline since January. The decline in imports, including intermediate goods used in Chinese manufacturing, reflects broader weaknesses throughout the global manufacturing chain. Furthermore, this trend extends to previous months, with imports down 12.4% to $201.2 billion in July, signalling weak domestic demand. Consequently, China's global trade surplus narrowed by 20.4% compared to a year ago, at $80.6 billion. China's current account surplus for the first half of the year amounted to $146.8 billion, with the current account surplus to GDP reaching 1.7%.

The Chinese yuan has depreciated by over 5.6% against the US dollar this year and may face further downward pressure due to capital outflows resulting from the weakening economy. The widening gap between US and Chinese interest rates has also led to rates in the currency forwards market that offer little incentive for exporters to lock forward rates for selling dollars. For instance, the one-year yuan is quoted at 7.02 per dollar, compared to the spot rate 7.29. China's central bank has increased efforts to defend the yuan by setting firmer-than-expected mid-point benchmarks for several months and requesting some domestic banks to reduce outward investments.

The US has imposed new restrictions on NVIDIA AI chips, prohibiting their export to the Middle East, as it believes that China may attempt to bypass sanctions by acquiring AI GPUs through other cooperating countries.

Notably, President Xi Jinping has declined to attend the Group of 20 summit in India, a departure from his previous participation. China's tensions with multiple members, including Japan regarding the Fukushima nuclear plant's treated wastewater release and the US over issues ranging from access to core technologies to the status of Taiwan, have contributed to this decision. China and India are also embroiled in a territorial dispute along their shared border, further complicating diplomatic relations. While the G20 meeting in New Delhi may proceed more smoothly without China, it is evident that the world is entering a more turbulent period marked by geopolitical tensions and economic challenges.

	22	**23**	**24**	**25**	**26**
GDP (%p.a.)	3.0	5.0	4.8	4.0	3.5
Inflation (%p.a.)	2.0	2.2	1.5	2.0	2.2
Trade Balance(US$ bill.)	420.0	255.0	150.0	100.0	50.0
Rmb/$(nom.)	6.8	7.2	7.4	7.6	7.8

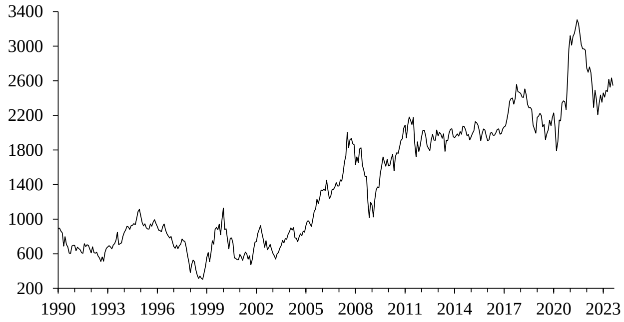
South Korea

The country's economic forecast for 2023 remains at a 1% expansion, consistent with our May projection, following the 2.6% growth observed the previous year. This short-term economic challenge is temporary as the country gears up to meet the surging global demand for semiconductors and other electronic products. The Bank of Korea (BOK) holds a slightly more optimistic outlook, projecting a 1.6% GDP growth in 2023 and a modest 2.2% growth in 2024. We maintain an even more optimistic perspective on GDP growth in 2024.

According to the BOK, inflation expectations for 2023 hover around 3.5%, which is higher than our unchanged forecast of 3%, consistent with the position held in August. In late August, the BOK maintained its benchmark interest rate at 3.5% for the fifth consecutive meeting, underscoring its commitment to combat inflation and manage household debt. BOK Governor Rhee Chang-yong emphasized the need to avoid premature policy easing, suggesting that rate cuts would only be considered once inflation is on a clear path toward the bank's 2% annual target.

Korea's debt-to-GDP ratio is anticipated to edge up to 51% in the upcoming year, compared to 50.4% this year, pending budget proposal approval. The government envisions this ratio reaching around 53% by 2027. South Korean authorities are pursuing the smallest increase in government spending in nearly two decades for the next year as President Yoon Suk Yeol exercises fiscal restraint

Korea: Composite Index



following years of pandemic-driven stimulus. The rationale behind this approach is to prevent pressure on Korea's sovereign credit ratings and mitigate the debt burden on future generations. President Yoon, who assumed office last year, has vowed to tighten fiscal policies and expressed willingness to reduce expenditures, even if it risks losing votes. South Korea is preparing for parliamentary elections next year.

South Korea's exports experienced their 11th consecutive year-on-year decline in August, primarily due to sluggish global demand. However, the pace of decline notably moderated, and the government anticipates exports to return to growth starting in October. Despite the summer vacation season, the trade balance remained in surplus thanks to strong exports of major products, including automobiles and machinery, and an uptick in semiconductor exports. In August, exports contracted 8.4% compared to the same period the previous year, totalling $51.9 billion, following a revised 16.4% drop in July. Imports declined by 22.8% year-on-year to $51 billion, resulting in a trade surplus of $0.9 billion. While South Korea's exports provided firmer-than-expected data, serving as a barometer for global trade health, it is evident that the recovery in global commerce activity remains sluggish.

The volatility in the South Korean won continues, and the outflow of the currency may potentially depreciate it to as low as 1,350 per US dollar. As prospects for GDP improvement in 2024 emerge, we anticipate the won to appreciate during the remainder of 2023.

President Biden hosted South Korean President Yoon Suk Yeol and Japanese Prime Minister Fumio Kishida at Camp David, marking the first visit by foreign leaders to the presidential retreat since 2015. During this meeting, the three leaders committed to consult on security threats, collaborate on ballistic missile defence, conduct annual joint military exercises, and hold yearly summits to maintain their collective momentum. It represents a significant step toward forming a united front against common threats from China and North Korea, strengthening a three-way alliance to enhance security.

South Korea is grappling with the world's lowest birthrate, which has continued to decline despite cash incentives provided to parents. The government is considering additional incentives to encourage young people to have children. The country's population started declining in 2020, with deaths surpassing total births. Over the past 18 years, total student enrolment in South Korea has steadily decreased, leading to the characterization of struggling colleges as "zombie universities" by local media. Since 2006, the South Korean government has allocated more than $210 billion to incentivize young people to marry and start families.

	22	**23**	**24**	**25**	**26**
GDP (%p.a.)	2.6	1.0	2.5	2.5	2.4
Inflation (%p.a.)	5.1	3.0	2.5	2.5	2.5
Current A/c(US$ bill.)	50.0	40.0	35.0	30.0	30.0
Won/$(nom.)	1450	1300	1300	1350	1400

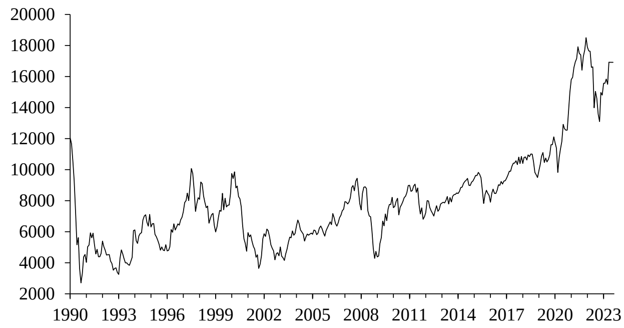
Taiwan

Taiwan's economy remained in a state of contraction for the ninth consecutive month in July. The nation's heavy reliance on exports and its interconnectedness with China left its economic fate closely tied to global trade dynamics. Across various sectors, including industrial production, non-farm payrolls, merchandise exports, machinery and electrical equipment imports, manufacturing sector sales, retail and wholesale revenue, and business sentiment among manufacturers, all signalled negative trends in July, mirroring the conditions observed in June. Moreover, leading indicators also registered declines for the fourth straight month in July.

Taiwan has revised its 2023 GDP growth projection to 1.6% in response to weak exports. We remain cautious about Taiwan's growth prospects in 2023. We expect its GDP to grow by 1% only.

In July, Taiwan's consumer price index (CPI) recorded a year-over-year growth rate of 1.88%, marking the second consecutive month of inflation below the local central bank's target of 2%. Notably, the Core Consumer Price Index (CPI), which excludes fruit, vegetables, and energy, saw a 2.73% year-over-year increase in July, primarily driven by a rise in service prices. We continue to hold our forecast of 1.6% consumer price inflation for the entire year. It is worth noting that the impact of adverse weather conditions has not been factored in, as any increase in food prices has been offset by weakness in the producer price index (PPI). In July, the PPI declined by 3.19% year-on-year due to reduced costs for oil, coal, chemical materials, base metals, and pharmaceuticals. Over the first seven months of 2023, Taiwan's PPI decreased by 0.78% year-on-year.

Taiwan: Weighted TAIEX Price Index



Taiwan has experienced declining exports amid global interest rate hikes driven by rising inflation and escalating US-China trade tensions. In July, Taiwan's exports recorded their 11th consecutive month of decline, with subdued demand from the US and China counterbalanced by increasing momentum in artificial intelligence applications. The government anticipates a potential export rebound from September, although a more likely recovery timeframe is projected from November. Exports in August are expected to contract from 5% to 10%.

The Taiwanese currency depreciated by more than 4.3% against the US dollar since June 1, marking the most significant regional decline. It occurred as local investors shifted towards exchange-traded funds while overseas investors divested from stocks. Taiwan's 10-year notes currently yield 1.18%, with the spread compared to similarly-dated US Treasuries reaching its widest difference since 2006.

Terry Gou, the founder of iPhone assembler Foxconn, has announced his independent bid for Taiwan's presidency, further intensifying the competition for the January 2024 election. The 72-year-old tech billionaire joins a crowded field, competing against Vice President Lai Ching-te of the ruling Democratic Progressive Party (DPP), Taiwan People's Party Chairman Ko Wen-je, and New Taipei Mayor Hou Yu-ih of the China-friendly Kuomintang (KMT).

	22	**23**	**24**	**25**	**26**
GDP (%p.a.)	2.5	1.0	1.5	2.0	2.3
Inflation (%p.a.)	2.9	2.2	1.6	1.4	1.2
Current A/c(US$ bill.)	90.0	65.0	60.0	60.0	60.0
NT$/$(nom.)	32.0	31.0	30.5	30.5	30.5

Brazil

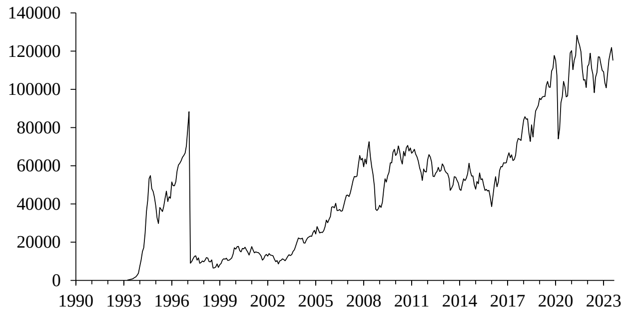
Finally, despite facing political opposition, Brazil's central bank's relentless battle against inflation is yielding positive results. The economy displays accelerated growth, inflation is effectively managed, and unemployment rates are declining. This favourable confluence of lower interest rates, increased investments, and lower-than-anticipated unemployment bodes well for Brazil's economic expansion. We are maintaining our cautious GDP growth forecast for the current year, with expectations of gradually rising growth in 2024 and 2025.

The unexpectedly robust growth in the first quarter and the declining interest rates have prompted some analysts to consider a 3.0% growth rate for this year while maintaining a slightly above 2% projection for 2024. Brazil's unemployment rate has dropped to its lowest level since 2015, with the jobless rate reaching 7.9% in the three months ending in July, down from 9.1% in the same period last year.

Under President Lula's leadership, Brazil is actively pursuing much-needed structural reforms to stimulate faster economic growth. The Brazilian government is set to unveil its 2024 budget proposal to Congress on September 7, targeting a zero primary deficit for the central government. It marks the initial step toward achieving long-term control over the country's money supply. Finance Minister Fernando Haddad is advocating for revenue-increasing measures to balance the budget in 2024. However, there is private acknowledgement within his team that he may need to deviate from this goal due to President Lula's preference for running a deficit to fund public investments. If Congress does not concur, Haddad is considering expenditure freezes, potentially limiting public investment and social spending to adhere to fiscal targets.

In August, Brazil's central bank initiated a more substantial-than-expected interest rate reduction of 50 basis points, bringing the rate down to 13.25%. This decision followed nearly a year of rate stability aimed at taming inflation. Central Bank governor Roberto Campos Neto emphasized the bank's reliance on comprehensive economic indicators rather than singular index readings to guide its policy decisions. Inflation reached 4.24% over the 12 months ending in mid-August, marking the third

Brazil: Bovespa



consecutive fortnight of acceleration. Meanwhile, Brazil's producer price index decreased by 0.82% month-on-month in July, following a 2.72% decline in June.

Brazil recorded a current account deficit of $51.1 billion in July over the past 12 months, equivalent to 2.52% of gross domestic product, compared to a revised 2.64% of GDP for the previous month. Net foreign direct investment (FDI) surged to $4.2 billion in July, up from $1.9 billion in June, bringing the total FDI for the 12 months through July to $71.7 billion, compared to $80 billion for the 12 months ending in June.

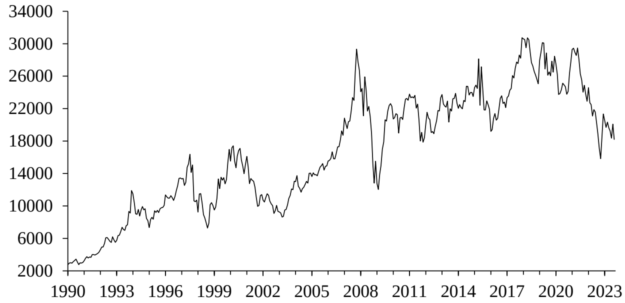
The Brazilian real displayed signs of strengthening in mid-August but lost momentum as hopes of the Federal Reserve ceasing interest rate hikes faded. Consequently, the Brazilian real is once again nearing the five-real-to-a-dollar mark.

President Luiz Inacio Lula da Silva of Brazil aims to foster unity among rainforest nations involved in international climate negotiations, as witnessed in mid-August. While Amazon nations have agreed on environmental policies and collaborative measures, they have yet to reach a consensus on a shared objective for ending deforestation. The Amazon Cooperation Treaty Organization (ACTO) hopes that a unified stance will grant them significant influence in global discussions to preserve the rainforest.

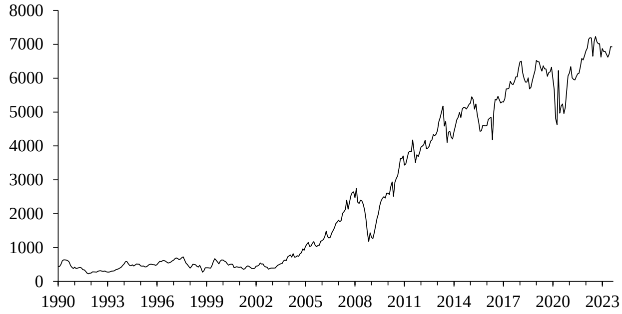
	22	**23**	**24**	**25**	**26**
GDP (%p.a.)	2.9	2.0	2.0	2.5	3.0
Inflation (%p.a.)	8.0	4.0	4.0	4.2	4.2
Current A/c(US$ bill.)	-10.0	-12.0	-20.0	-10.0	-10.0
Real/$(nom.)	5.2	5.0	5.0	5.1	5.2

Other Emerging Markets

Hong Kong: FT-Actuaries

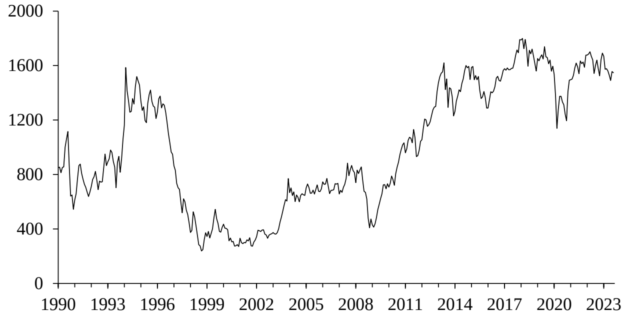


Indonesia: Jakarta Composite

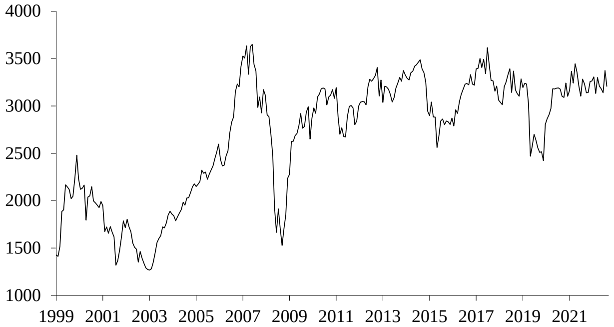


Malaysia: FT-Actuaries (US$ Index)

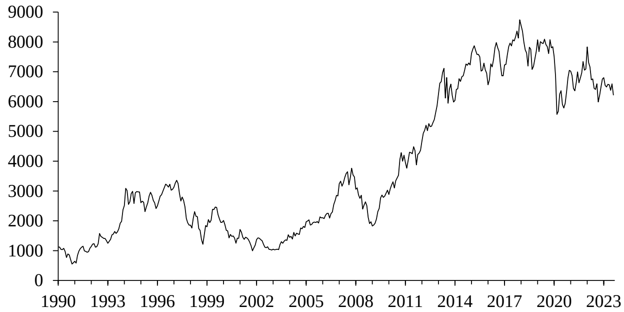
Thailand: Composite Index



Singapore: Straits Times Index

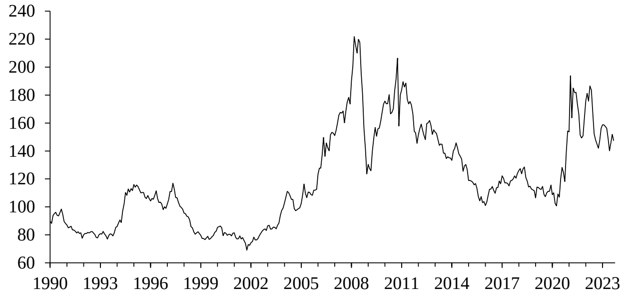


Philippines: Manila Composite

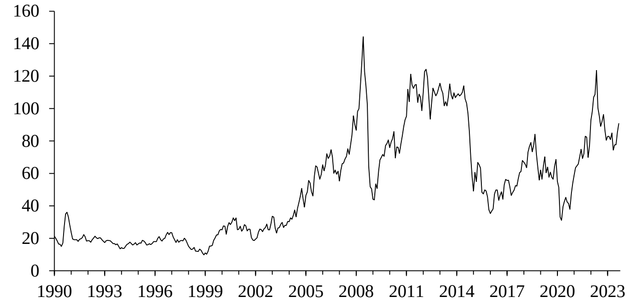


COMMODITY MARKETS

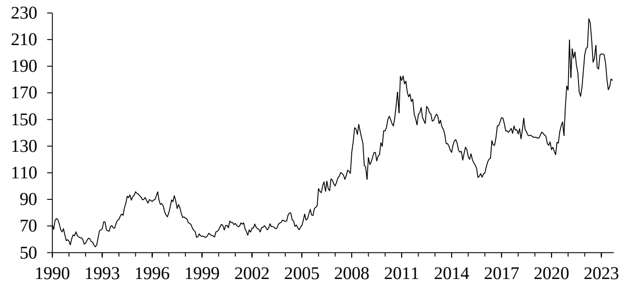
Commodity Price Index (Dollar)
(Economist, 2015 = 100)



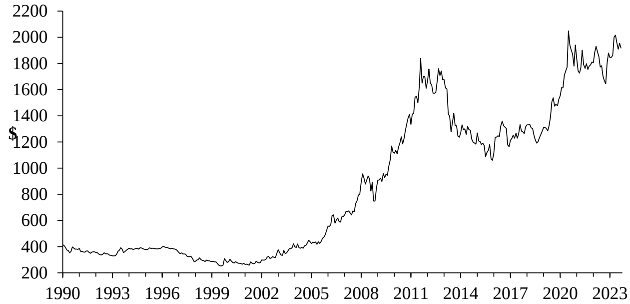
Oil Price: North Sea Brent (in Dollars)



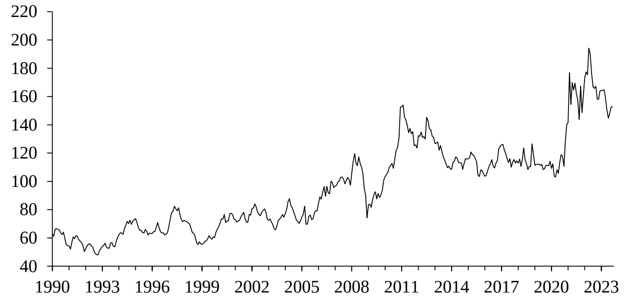
Commodity Price Index (Sterling)
(Economist, 2015 = 100)



Gold Price (in Dollars)



Commodity Price Index (Euro)
(Economist, 2015 = 100)



UK FORECAST DETAIL

Prices, Wages, Interest Rates and Exchange Rate Forecast (Seasonally Adjusted)

	Inflation %[1] (CPI)	Short Dated (5 Year) Interest Rates	3 Month Int. Rates	Nominal Exchange Rate (2005=100)[2]	Real Exchange Rate[3]	Real 3 Month Int. Rates %[4]	Inflation (RPIX)	Real Short Dated Rate of Interest[5]
2020	0.9	0.1	0.2	78.2	72.9	-1.3	1.5	-1.4
2021	2.5	0.8	0.1	81.4	78.0	-6.4	4.1	-5.8
2022	9.1	2.5	2.0	79.1	82.4	-7.1	11.6	-6.7
2023	7.5	4.3	5.0	79.4	88.2	0.4	10.8	-0.3
2024	3.5	4.2	4.3	79.1	89.6	1.8	5.5	1.7
2025	2.0	3.0	3.0	79.0	89.9	1.0	2.8	1.0
2022:1	6.2	1.4	0.8	81.7	81.9	-9.4	8.4	-8.8
2022:2	9.2	2.1	1.4	79.2	81.8	-8.6	11.5	-7.9
2022:3	10.2	2.8	2.3	77.6	81.7	-6.7	12.4	-6.2
2022:4	10.9	3.6	3.6	77.9	84.1	-3.9	13.9	-3.9
2023:1	10.3	4.0	4.2	78.1	85.4	-1.8	13.6	-2.0
2023:2	8.5	4.1	5.2	80.2	89.4	0.4	11.2	-0.7
2023:3	6.1	4.5	5.2	80.3	89.1	1.2	10.1	0.5
2023:4	5.0	4.5	5.2	79.3	89.0	1.7	8.2	1.0
2024:1	4.5	4.3	5.0	79.0	89.5	2.1	7.3	1.4
2024:2	3.5	4.2	4.0	79.2	90.0	1.5	5.4	1.7
2024:3	3.0	4.1	4.0	79.2	89.1	1.8	4.6	1.9
2024:4	3.0	4.0	4.0	78.9	89.9	2.0	4.6	2.0

1 Consumer's Expenditure Deflator
2 Sterling Effective Exchange Rate Bank of England
3 Ratio of UK to other OECD consumer prices adjusted for nominal exchange rate
4 Treasury Bill Rate less one year forecast of inflation
5 Short Dated 5 Year Interest Rate less average of predicted 5 year ahead inflation rate

Labour Market and Supply Factors (Seasonally Adjusted)

	Average Earnings (1990=100)[1]	Wage Growth[2]	Survey Unemployment Percent	Millions	Real Wage Rate[3] (1990=100)
2020	279.1	1.6	4.5	1.3	149.7
2021	295.6	5.9	4.5	1.3	154.5
2022	313.3	6.0	3.7	1.0	151.0
2023	332.5	6.1	3.8	1.1	149.6
2024	344.7	3.7	2.9	0.7	150.0
2025	351.7	2.0	2.8	0.7	158.1
2022:1	308.8	5.7	3.7	1.0	154.6
2022:2	307.5	6.0	3.8	1.1	148.7
2022:3	316.3	5.9	3.6	1.0	149.0
2022:4	320.4	6.3	3.7	1.0	147.3
2023:1	327.0	5.9	3.8	1.0	147.8
2023:2	330.7	7.5	4.2	1.2	147.3
2023:3	334.3	5.7	3.8	1.1	148.4
2023:4	337.9	5.5	3.5	0.9	147.9
2024:1	342.5	4.7	3.0	0.8	148.2
2024:2	343.3	3.8	3.0	0.7	147.8
2024:3	345.0	3.2	2.8	0.7	148.7
2024:4	348.0	3.0	2.8	0.7	147.9

1 Whole Economy
2 Average Earnings
3 Wage rate deflated by CPI

Estimates and Projections of the Gross Domestic Product[1] (£ Million 1990 Prices)

	Expenditure Index	£ Million '90 prices	Non-Durable Consumption[2]	Private Sector Gross Investment Expenditure[3]	Public Authority Expenditure[4]	Net Exports[5]	AFC
2020	150.6	721243.1	427576.4	250934.6	199232.3	-33095.4	123404.8
2021	163.7	783781.6	453975.6	276335.2	224535.7	-36903.3	134161.6
2022	170.6	816950.6	473683.3	277328.7	228365.7	-23824.9	138602.2
2023	171.3	820238.8	475727.6	275870.9	225318.2	-18636.0	138041.9
2024	174.6	836028.5	489782.5	270125.3	232155.7	-15892.2	140142.8
2025	178.0	852456.7	505723.0	269227.9	239198.4	-18462.8	143229.8
2020/19	-10.4		-10.1	-18.8	-4.8		4.1%
2021/20	8.7		7.3	11.9	13.4		8.7%
2022/21	4.2		4.7	1.1	1.9		3.3%
2023/22	0.4		0.4	-0.6	-1.3		-0.4%
2024/23	1.9		3.0	-2.1	3.0		1.5%
2025/24	2.0		3.3	-0.4	3.0		2.2%
2022:1	170.9	204558.1	118589.6	73715.5	56345.4	-9205.0	34887.4
2022:2	170.8	204429.6	118224.7	66135.7	57461.4	-2851.4	34540.8
2022:3	170.3	203859.4	118034.1	69576.5	56974.6	-6094.7	34631.1
2022:4	170.5	204103.5	118834.9	67900.9	57584.2	-5673.8	34542.7
2023:1	170.9	204663.7	118824.7	75780.7	55700.4	-11224.9	34417.2
2023:2	171.3	205143.0	118812.9	67471.5	56116.4	-2756.3	34501.5
2023:3	171.4	205180.1	118801.0	66568.6	56538.7	-2249.1	34479.1
2023:4	171.4	205252.1	119289.0	66050.1	56962.7	-2405.7	34644.0
2024:1	173.5	207731.3	120214.6	74503.9	57390.1	-9648.0	34729.3
2024:2	174.3	208671.2	122256.6	66012.3	57820.4	-2454.9	34963.2
2024:3	175.2	209768.4	123117.0	65434.6	58254.1	-1824.1	35213.2
2024:4	175.3	209857.6	124194.4	64174.6	58691.1	-1965.2	35237.3

1 GDP at factor cost. Expenditure measure; seasonally adjusted
2 Consumers expenditure less expenditure on durables and housing
3 Private gross domestic capital formation plus household expenditure on durables and clothing plus private sector stock building
4 General government current and capital expenditure including stock building
5 Exports of goods and services less imports of goods and services

Financial Forecast

	PSBR/GDP %[1]	GDP[1] (£bn)	PSBR (£bn) Financial Year	Current Account (£ bn)
2020	15.5	2090.9	312.9	-67.5
2021	5.0	2464.4	121.1	-34.3
2022	4.7	2767.3	130.5	-93.9
2023	3.3	2960.9	95.6	-25.4
2024	1.2	3108.5	38.3	-14.7
2025	0.7	3235.8	23.5	1.5
2022:1	0.0	646.4	-0.2	-50.5
2022:2	6.3	668.4	42.1	-28.2
2022:3	3.6	682.4	24.9	-12.7
2022:4	6.0	701.1	42.3	-2.5
2023:1	3.0	715.4	21.2	-10.8
2023:2	7.2	729.2	52.3	-9.8
2023:3	2.4	730.0	17.3	-3.3
2023:4	2.1	741.9	15.5	-1.5
2024:1	1.4	759.8	10.5	-7.3
2024:2	1.3	768.3	9.9	-8.6
2024:3	1.2	769.1	9.6	0.1
2024:4	1.3	781.8	9.9	1.1

1 GDP at market prices (Financial Year)

WORLD FORECAST DETAIL

Growth Of Real GNP

	2019	2020	2021	2022	2023	2024
U.S.A.	2.2	–2.8	5.9	2.1	0.7	1.2
U.K.	1.6	–10.4	8.7	4.2	0.4	1.9
Japan	–0.4	–4.3	2.2	1.0	1.1	1.1
Germany	1.1	–3.7	2.6	1.9	–0.3	1.4
France	1.9	–7.9	6.8	2.5	0.3	0.6
Italy	0.5	–9.1	6.6	3.3	–0.1	0.3

Growth Of Consumer Prices

	2019	2020	2021	2022	2023	2024
U.S.A.	1.8	1.3	4.7	8.0	3.9	2.5
U.K.	1.7	0.9	2.5	9.1	7.5	3.5
Japan	0.5	0.0	–0.2	2.5	2.1	1.2
Germany	1.4	0.5	3.1	7.9	6.2	2.7
France	1.1	0.4	1.7	5.4	4.0	2.0
Italy	0.6	–0.1	1.9	7.6	5.0	2.4

Real Short-Term Interest Rates

	2019	2020	2021	2022	2023	2024
U.S.A.	0.2	–4.6	–7.1	–1.7	2.4	2.0
U.K.	–0.1	–2.3	–9.0	–5.5	2.5	2.3
Japan	0.1	0.3	–2.4	–2.1	–1.1	–1.4
Germany	–0.9	–3.6	–8.5	–5.9	0.4	0.5
France	–0.8	–2.2	–6.0	–3.7	1.1	0.8
Italy	–0.3	–2.4	–8.2	–4.7	0.7	0.7

Nominal Short-Term Interest Rates

	2019	2020	2021	2022	2023	2024
U.S.A.	1.5	0.1	0.1	2.2	4.9	4.0
U.K.	0.8	0.2	0.1	2.0	5.0	4.3
Japan	0.1	0.1	0.1	0.0	0.1	0.1
Germany	–0.4	–0.5	–0.6	0.3	3.1	2.8
France	–0.4	–0.5	–0.6	0.3	3.1	2.8
Italy	–0.4	–0.5	–0.6	0.3	3.1	2.8

Real Long-Term Interest Rates

	2019	2020	2021	2022	2023	2024
U.S.A.	–2.2	–3.3	–2.1	1.3	1.5	1.2
U.K.	–4.1	–4.8	–4.0	–0.9	2.0	2.2
Japan	–1.1	–1.3	–1.7	–1.5	–1.1	–1.3
Germany	–4.3	–5.0	–4.4	–0.9	0.1	0.0
France	–2.6	–3.3	–2.9	–0.6	0.9	0.7
Italy	–2.0	–3.3	–2.6	0.3	2.3	2.2

Nominal Long-Term Interest Rates

	2019	2020	2021	2022	2023	2024
U.S.A.	1.9	0.9	1.6	3.8	3.6	3.2
U.K.	0.6	0.1	0.8	2.5	4.3	4.2
Japan	0.0	0.0	0.1	0.2	0.5	0.5
Germany	–0.2	–0.6	–0.2	2.1	2.3	2.1
France	0.1	–0.3	0.2	1.8	2.9	2.7
Italy	1.4	0.5	1.2	3.0	4.4	4.2

Index Of Real Exchange Rate (2010=100)[1]

	2019	2020	2021	2022	2023	2024
U.S.A.	117.1	118.7	116.1	128.3	128.0	128.5
U.K.	99.5	99.6	103.7	100.7	101.1	100.7
Japan	77.0	77.8	71.0	59.9	59.2	59.3
Germany	96.0	97.1	97.9	95.0	95.1	95.4
France	93.9	94.7	94.0	89.6	89.5	89.0
Italy	95.0	95.4	95.1	91.6	91.3	89.9

[1] The real exchange rate is the domestic price level relative to the foreign price level converted into domestic currency. A rise in the index implies an appreciation in the real exchange rate.

Nominal Exchange Rate
(Number of Units of Local Currency To $1)

	2019	2020	2021	2022	2023	2024
U.S.A.[1]	122.52	124.77	119.77	127.34	126.90	127.40
U.K.	1.28	1.28	1.38	1.24	1.24	1.24
Japan	109.10	106.60	110.45	133.10	136.20	137.80
Eurozone	0.89	0.87	0.85	0.95	0.98	0.99

[1] The series for the USA is a nominal broad U.S dollar index (2010=100); the series for the UK is $ per £

* Forecasts based on the Liverpool World Model