LIVERPOOL INVESTMENT LETTER

August 2022

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Julian Hodge Institute of Applied Macroeconomics

LIVERPOOL RESEARCH GROUP IN MACROECONOMICS

LIVERPOOL RESEARCH GROUP IN MACROECONOMICS

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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

ISSN 0951-9262

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THE EFFECTS OF FAILING TO INDEX INCOME TAX THRESHOLDS ON GOVERNMENT REVENUE

When inflation is low the failure to index the income tax system to inflation has little impact. This is why when Rishi Sunak proposed in his 2021 budget to do this for the 2022/23 year, not a lot was made of it. However, inflation in 2022/23 is turning out to be high, at 7.7% on our forecast over the year on average. We assume that tax credit thresholds are being uprated as usual, and that the associated benefits are also uprated with inflation. VAT is automatically uprated with inflation since it goes up with prices so that its real value is unchanged.

To estimate the effect on income tax, we can note that income tax (£225 billion in 2021/22) was about 10% of GDP (£2300 billion that year) almost entirely paid by the top 50% of taxpayers. The marginal income tax rate of these taxpayers is a mixture of the standard rate, the 40% rate and rates up to 60%. We estimate the average marginal income tax rate to be about 30%. We get to this by noting the shares of total income tax liabilities (source HMRC for 2019) by marginal rate: standard rate 67%, top rate, 29%, and higher rates 3%. It is likely that shares of marginal income are higher than this for the higher rates. So we use weights of 60%, 35%, and 5%. Inflation of 7.7% will create extra nominal income of £177 billion on which extra income tax of £53 billion would be paid, about 2% of GDP.

Table 1: Summary of Forecast

	2018	2019	2020	2021	2022	2023	2024
GDP Growth[1]	1.3	1.4	-9.4	7.5	5.5	2.1	2.8
Inflation CPI	2.4	1.7	1.0	2.5	7.7	4.9	3.2
Wage Growth	3.0	3.5	1.6	5.8	7.3	5.0	4.1
Survey Unemployment	4.1	3.8	4.5	4.5	3.9	3.6	2.8
Exchange Rate[2]	78.6	78.3	78.2	81.5	80.4	78.5	78.1
3 Month Interest Rate	0.4	0.8	0.2	0.1	1.5	2.4	2.9
5 Year Interest Rate	1.0	0.6	0.1	0.4	2.3	3.5	3.0
Current Balance (£bn)	-82.9	-89.1	-57.6	-63.8	-37.2	-24.9	-17.6
PSBR (£bn)	39.3	49.1	315.1	146.2	56.8	33.6	25.4

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

The Effects of Currently Scheduled Tax Increases on Growth and the Public Finance

To this indexation tax increase must be added the rise in NICs and the planned rise in Corporation Tax. The NIC rises bring in extra revenue of about £25 billion while the Corporation tax change (from a planned 17% to 25%) brings in £20 billion. Hence the scheduled tax increases are around £100 billion, about 4.4% of GDP.

According to our recently published model of UK growth this lowers growth by about 2.5% a year. With our baseline growth projection at 2% p.a. essentially this produces zero UK growth prospectively — or strictly a decline of 0.5% pa. in the following Table we show the consequences for the economy of zero growth and a rise in the net tax GDP share of 5%.

Table 2: Long term Forecast under current policies

	Nom PSBR (£bn)	Nom GDP (£bn)	Nom Pub Spend (£bn)	PSBR/GDP %[1]	Spend/GDP %	Nom Debt (£bn)	Debt Interest (£bn)	Debt/GDP %	Net Taxes (£bn)	Net Tax Rate%
2019/20	49.1	2196.3	472.2	2.2	21.5	1621.0	48.1	73.8	471.2	21.5
2020/21	315.1	2007.9	479.2	15.7	23.9	1936.1	39.8	96.4	203.9	10.2
2021/22	146.2	2311.1	494.1	6.3	21.4	2082.3	42.6	90.1	390.5	16.9
2022/23	-68.2	2574.0	570.3	-2.6	22.2	2014.1	41.1	78.2	679.5	26.4
2023/24	-78.0	2742.9	603.2	-2.8	22.0	1936.2	42.9	70.6	724.1	26.4
2024/25	-55.0	2867.2	658.3	-1.9	23.0	1881.2	43.7	65.6	756.9	26.4
2025/26	-35.2	2915.9	690.2	-1.2	23.7	1846.0	44.3	63.3	769.8	26.4
2026/27	7.7	2965.5	745.7	0.3	25.1	1853.7	44.9	62.5	782.9	26.4
2027/28	58.5	3015.9	809.3	1.9	26.8	1912.2	45.4	63.4	796.2	26.4
2028/29	114.3	3067.2	878.0	3.7	28.6	2026.5	46.0	66.1	809.7	26.4
2029/30	175.9	3119.3	952.7	5.6	30.5	2202.4	46.8	70.6	823.5	26.4
2030/31	243.8	3172.4	1033.6	7.7	32.6	2446.2	47.7	77.1	837.5	26.4
2031/32	318.4	3226.3	1121.2	9.9	34.8	2764.7	49.0	85.7	851.7	26.4
2032/33	400.5	3281.1	1216.0	12.2	37.1	3165.2	50.7	96.5	866.2	26.4
2033/34	490.7	3336.9	1318.7	14.7	39.5	3655.9	52.9	109.6	880.9	26.4
2034/35	589.7	3393.7	1429.9	17.4	42.1	4245.6	55.8	125.1	895.9	26.4

[1]GDP at market prices (Financial Year)

It can be seen that it gives rise to a spiralling debt/GDP ratio; were the Treasury to respond by raising tax more, in line with its current philosophy, a 'doom loop' of falling growth, worsening finances, and higher tax would be created.

The first step in rectifying this dreadful prospect is to eliminate these scheduled tax rises, restoring the prospect of 2% baseline growth. This also restores the finances, with the debt ratio falling to 50%.

Table 3 : Baseline Forecast

	Nom PSBR (£bn)	Nom GDP (£bn)	Nom Pub Spend (£bn)	PSBR/GDP %[1]	Spend/GDP %	Nom Debt (£bn)	Debt Interest (£bn)	Debt/GDP %	Net Taxes (£bn)	Net Tax Rate%
2019/20	49.1	2196.3	472.2	2.2	21.5	1621.0	48.1	73.8	471.2	21.5
2020/21	315.1	2007.9	479.2	15.7	23.9	1936.1	39.8	96.4	203.9	10.2
2021/22	146.2	2311.1	494.1	6.3	21.4	2082.3	42.6	90.1	390.5	16.9
2022/23	59.9	2574	565.8	2.3	22.0	2142.2	41.1	83.2	547.0	21.3
2023/24	34.1	2742.9	597.4	1.2	21.8	2176.3	42.9	79.3	606.3	22.1
2024/25	26.6	2867.2	641.6	0.9	22.4	2202.9	44.1	76.8	659.0	23.0
2025/26	3.8	2981.9	670.9	0.1	22.5	2206.7	45.2	74.0	712.2	23.9
2026/27	0.2	3101.2	724.7	0.0	23.4	2206.9	46.2	71.2	770.7	24.9
2027/28	0.2	3225.2	786.6	0.0	24.4	2207.1	47.2	68.4	833.6	25.9
2028/29	0.0	3354.2	853.5	0.0	25.4	2207.1	48.2	65.8	901.6	26.9
2029/30	0.0	3488.4	926.2	0.0	26.5	2207.1	49.1	63.3	975.2	28.0
2030/31	0.0	3627.9	1004.9	0.0	27.7	2207.1	49.9	60.8	1054.8	29.1
2031/32	0.0	3773.0	1090.1	0.0	28.9	2207.1	50.7	58.5	1140.9	30.3
2032/33	0.0	3924.0	1182.5	0.0	30.1	2207.1	51.5	56.2	1234.0	31.5
2033/34	0.0	4080.9	1282.4	0.0	31.4	2207.1	52.2	54.1	1334.7	32.7
2034/35	0.0	4244.2	1390.6	0.0	32.8	2207.1	52.9	52.0	1443.6	34.0

Time for a forward-looking tax cutting strategy to underpin higher growth

We have repeatedly argued for a renewed supply-side reform agenda in tax to accompany the agenda for free trade and liberalising regulation. This has been foolishly rejected by a Chancellor and Treasury locked in outdated thinking that limiting borrowing in the short term is the key objective instead of using borrowing as a major instrument of optimal policy.

For completeness we repeat here our proposals for this supply side tax/spending agenda.

The policy package we propose below will, according to the Cardiff model, raise growth by 2.4% per annum, that is to 4.4% against the 2% baseline assumption. It will also raise growth in the North faster than that in the South, so achieving levelling-up in a way that raises all boats.

Table 4: A fiscal stimulus package costing £100 billion p.a.

Tax Cuts	Amount
Cut corporation tax by 10%	£32 bn
Abolish the very top additional 5% rate	£1bn
Cut the top rate of income tax to 30%	£15bn
Cut the standard rate of income tax by 5%	£28bn
Total Tax Cuts[1]	£76bn
Public Spending[2]	£24bn
Total Package	£100 bn

[1] Representing a weighted average tax cut across all income of about 15%

[2] On public services and infrastructure

Table 5: effects on growth in Regional Model (% of GDP over next decade) from full policy package of £100 billion p.a.

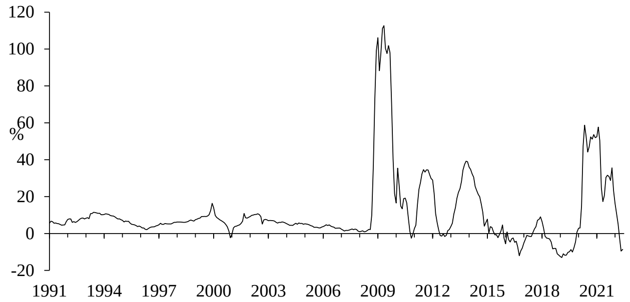
Percentage change in	GDP_N	GDP_S	GDP
Cut standard rate of income tax or VAT or other general income/consumption tax	3.3	1.5	
Cut corporation tax rate	2.4	1.2	
Cut marginal tax rate and regulative burden on entrepreneurs/SMEs	20	17	
Increase infrastructure spending in North	3.8	-	
Total	29.5	19.2	24.4

In Table 6 we show our projections for the public finances under this scenario. It can be seen that, with this growth trajectory (we assume growth rises by 2% p.a. more in round terms), tax revenues surge, pushing the debt ratio down rapidly, so that with spending constant it actually goes negative by 2035. This of course means in practice there is room for further tax cuts or higher spending to support growth, creating a virtuous circle, in a mirror image of the doom loop on current policies.

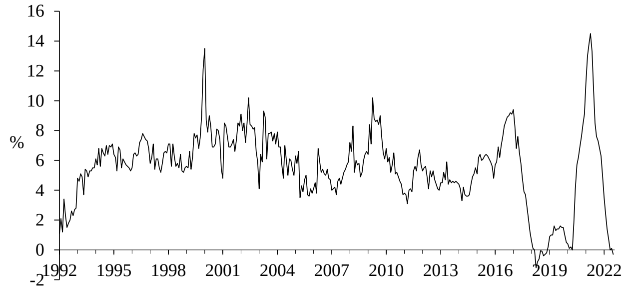
Table 6: Long term Forecast with stimulus package

	Nom PSBR (£bn)	Nom GDP (£bn)	Nom Pub Spend (£bn)	PSBR/GDP %[1]	Spend/GDP %	Nom Debt (£bn)	Debt Interest (£bn)	Debt/GDP %	Net Taxes (£bn)	Net Tax Rate%
2019/20	49.1	2196.3	472.2	2.2	21.5	1621.0	48.1	73.8	471.2	21.5
2020/21	315.1	2007.9	479.2	15.7	23.9	1936.1	39.8	96.4	203.9	10.2
2021/22	146.2	2311.1	494.1	6.3	21.4	2082.3	42.6	90.1	390.5	16.9
2022/23	59.9	2574	565.8	2.3	22.0	2142.2	41.1	83.2	547.0	21.3
2023/24	34.1	2742.9	597.4	1.2	21.8	2176.3	42.9	79.3	606.3	22.1
2024/25	26.6	2867.2	641.6	0.9	22.4	2202.9	44.1	76.8	659.0	23.0
2025/26	59.4	3047.8	695.9	2.0	22.8	2262.3	45.2	74.2	681.6	22.4
2026/27	2.4	3239.8	749.7	0.1	23.1	2264.8	46.3	69.9	793.6	24.5
2027/28	-63.2	3444.0	811.6	-1.8	23.6	2201.6	47.4	63.9	922.2	26.8
2028/29	-143.0	3660.9	878.5	-3.9	24.0	2058.5	48.3	56.2	1069.8	29.2
2029/30	-239.2	3891.6	951.2	-6.1	24.4	1819.4	49.0	46.8	1239.3	31.8
2030/31	-354.7	4136.7	1029.9	-8.6	24.9	1464.7	49.3	35.4	1433.9	34.7
2031/32	-493.1	4397.3	1115.1	-11.2	25.4	971.6	49.0	22.1	1657.2	37.7
2032/33	-658.2	4674.4	1207.5	-14.1	25.8	313.3	48.0	6.7	1913.7	40.9
2033/34	-854.6	4968.9	1307.4	-17.2	26.3	-541.2	46.1	-10.9	2208.1	44.4
2034/35	-1087.5	5281.9	1415.6	-20.6	26.8	-1628.7	43.0	-30.8	2546.1	48.2

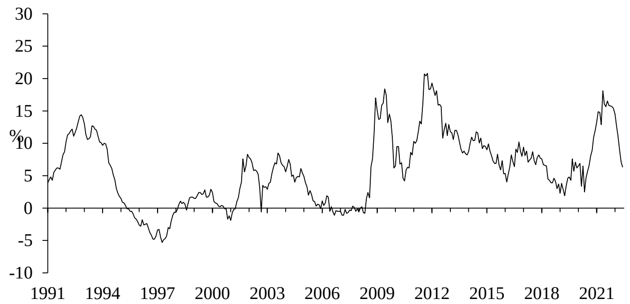
U.S.: Growth in M0 (Yr - on - Yr)



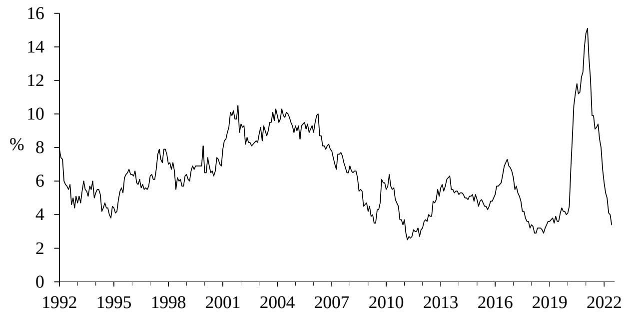
UK: Notes and Coins in Circulation Growth



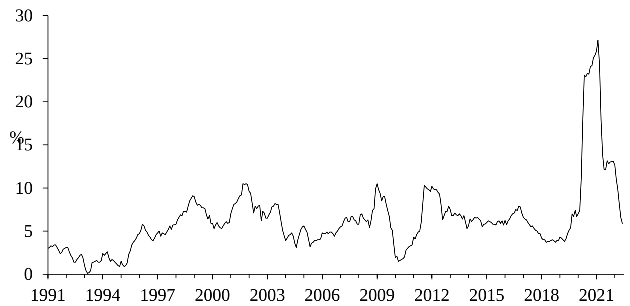
U.S.: Growth in M1 (Yr - on - Yr)



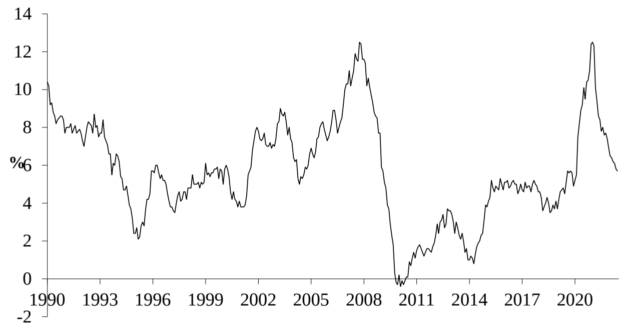
UK: M4 Growth



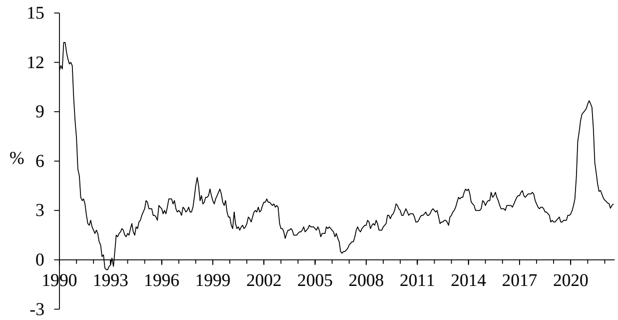
U.S.: Growth in M2 (Yr - on - Yr)



Eurozone M3 Growth



Japan: Growth of M2+CD's



FOCUS ON JAPAN

Francesco Perugini

The Japanese economy is slowing

Japan's government cut its economic growth forecast for this fiscal year largely due to slowing overseas demand, highlighting the impact of Russia's war in Ukraine, China's strict COVID-19 lockdowns and a weakening global economy. Accordingly, Japan real GDP is now expected to expand about 2.0% in the fiscal year ending in March 2023, marking a sharp downgrade from the government's January forecast of 3.2%. The cut largely stemmed from weaker exports, which the government expects to expand 2.5% compared to 5.5% in the previous assessment. The government has also projected 1.1% growth for the following fiscal year starting April 2023.

The government also projected overall consumer inflation, which includes volatile fresh food and energy costs, at 2.6% for this fiscal year compared to 0.9% expected in the previous assessment in January. Wholesale inflation was estimated at 9.8% for this fiscal year, much higher than 2.0% projected in January, as higher oil and food prices and a weaker yen pushed up raw material costs. The higher consumer inflation was not expected to weigh greatly on private consumption as stronger spending on services such as travel was seen boosting this fiscal year's economic growth, a Cabinet Office official said.

The projections were released days after the Bank of Japan (BOJ) downgraded expectations for growth for this fiscal year to March 2023 to 2.4% from 2.9% three months ago and underscored the central bank's stance of maintaining massive stimulus even while several other economies have started to raise rates to curb inflation. Indeed, Japan's core consumer inflation remained above the central bank's 2% target for a third straight month in June as the economy faced pressure from high global raw material prices that have pushed up the cost of the country's imports — the nationwide core consumer price index (CPI), which excludes volatile fresh food costs but includes those of energy, rose 2.2% in June from a year earlier. The rise in consumer prices challenges the BOJ's view that recent price increases in Japan will remain somewhat temporary, even as households worry about higher living costs.

Rising fuel and food prices, blamed partly on Russia's invasion of Ukraine and a sharply weakening yen that is swelling import costs, are expected to keep Japan's core consumer inflation above the BOJ's target for most of this year, analysts say. But that still leaves the overall pace of price increases in Japan well below much sharper rises in the US and European economies, as sluggish wage growth and a slow recovery of consumption discourages Japanese firms from raising prices.

Meanwhile, the government appointed Hajime Takata, an economist who has warned of the side effects of bold monetary easing, and Naoki Tamura, a veteran banker, as board members at the Bank of Japan. The BOJ's decision-making Policy Board comprises nine members — the governor, two deputy governors and six other members. Takata and Tamura will serve five-year terms.

Tamura, 61, is a senior adviser to Sumitomo Mitsui Banking Corp., one of Japan's megabanks, replacing incumbent Hitoshi Suzuki. Takata, 63, will replace Goshi Kataoka, an economist known as a reflationist who has pushed for more monetary easing to spur economic growth. Takata, chairman of the Global Research Center at Okasan Securities Co., started his career at the predecessor bank of Mizuho Bank and is also an economist who worked for the Mizuho Research Institute, currently Mizuho Research & Technologies. He took the current post at the think tank in January 2020.

Takata has raised questions about the adverse effects of years of monetary easing and has written a book on how to exit the accommodative policy. So, some market participants see the choice of Takata as foreshadowing a potential shift from its pursuit of powerful monetary easing that has continued in recent years before Prime Minister Fumio Kishida chooses a successor to Governor Haruhiko Kuroda, whose term ends next April.

Under Kuroda, who became BOJ chief in 2013, the Japanese central bank embarked on bold monetary easing, a key feature of then Prime Minister Shinzo Abe's "Abenomics" policy mix. The governor had strong support from Abe, who was gunned down in early July on the campaign trail. The BOJ has been buying massive amounts of Japanese government bonds as part of its "yield curve control" program to keep long-term interest rates depressed to support companies and households. However, the central bank has drawn criticism for distorting the bond market, and concern has grown about its ever-expanding balance sheet.

The BOJ has not wavered in its easing stance even as cost-push inflation has led the core consumer price index, excluding volatile fresh food items, to surpass its 2% target. In stark contrast with its major peers overseas, its dovish stance has sharply weakened the yen and exacerbated the pain for resource-scarce Japan.

MARKET DEVELOPMENTS

On the assumption that the policy agenda set out in our first chapter will occur — due to Liz Truss gaining the Conservative leadership, which is currently the most probably outcome — UK equity investment looks a good prospect.

Table 1: Market Developments

	Market Levels		Prediction for Jul/Aug 2023	
	Jul 06	Aug 08	Previous Letter	Current View
Share Indices				
UK (FT 100)	7108	7440	10697	11174
US (S&P 500)	3820	4117	5405	5825
Germany (DAX 30)	12595	13574	20945	22573
Japan (Tokyo New)	1856	1947	2496	2619
Bond Yields (government				
UK	2.18	1.96	3.50	3.50
US	2.97	2.77	2.80	2.80
Germany	1.29	0.91	0.80	0.80
Japan	0.24	0.17	0.20	0.20
UK Index Linked	–0.86	–1.04	1.00	1.00
Exchange Rates				
UK ($ per £)	1.19	1.21	1.36	1.28
UK (trade weighted)	78.44	79.58	78.7	78.4
US (trade weighted)	107.60	107.83	100.5	100.5
Euro per $	0.98	0.98	0.88	0.95
Euro per £	1.17	1.19	1.20	1.22
Japan (Yen per $)	135.67	135.35	110.5	120.5
Short Term Interest Rates				
UK	0.63	0.63	2.20	2.50
US	1.60	2.70	2.40	2.40
Euro	–0.23	0.17	0.20	0.20
Japan	–0.05	–0.05	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	2.2	4.0	44.00		52.30
US	2.00	2.3	3.2	36.00	–6.14	37.63
Germany	2.10	2.5	2.8	61.00	–2.50	65.90
Japan	1.90	1.8	0.7	32.00	5.51	41.91
UK indexed[2]	–1.04		4.0	16.00		18.97
Hong Kong[3]	2.60	4.0	3.2	–7.00	–6.14	–3.34
Malaysia	3.30	5.4	3.2	73.00	–6.14	78.76
Singapore	3.50	3.0	3.2	37.00	–6.14	40.56
India	1.40	6.4	3.2	32.00	–6.14	36.96
Korea	1.10	2.3	3.2	–2.00	–6.14	–1.44
Indonesia	2.20	5.3	3.2	49.00	–6.14	53.56
Taiwan	2.80	3.0	3.2	42.00	–6.14	44.86
Thailand	3.20	4.0	3.2	53.00	–6.14	57.26

Bonds: Contribution to £ yield of: –

	Redemption Yield	Changing Nominal Rates	Currency	Total
UK	1.96	–15.42		–13.46
US	2.77	–0.30	–6.14	–3.67
Germany	0.91	1.09	–2.50	–0.50
Japan	0.17	–0.30	5.51	5.38

Deposits: Contribution to £ yield of:

	Deposit Yield	Currency	Total
UK	0.63		0.63
US	2.70	–6.14	–3.44
Euro	0.17	–2.50	–2.33
Japan	–0.05	5.51	5.46

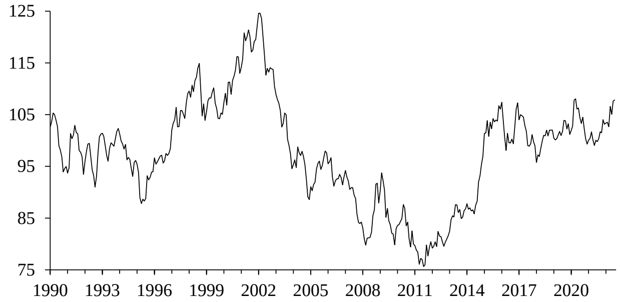
[1] Yields in terms of €s or $s can be computed by adjusting the £-based yields for the expected currency change.
[2] UK index linked bonds All Stocks
[3] Output based on China.

Table 3: Portfolio(%)

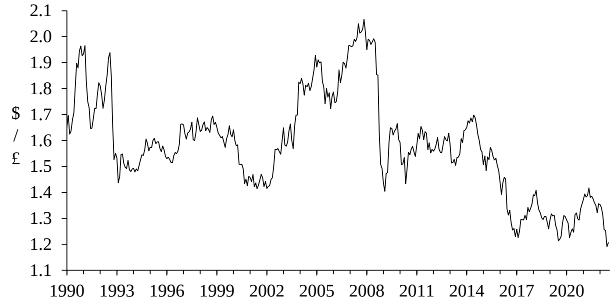
	Sterling Based Investor		Dollar Based Investor		Euro Based Investor	
	July Letter	Current View	July Letter	Current View	July Letter	Current View
UK Deposits (Cash)	5	5	5	5	1	1
US Deposits	-	-	-	-	-	-
Euro Deposits	-	-	-	-	-	-
Japanese Deposits	-	-	-	-	-	-
UK Bonds	-	-	-	-	-	-
US Bonds	-	-	-	-	-	-
German 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

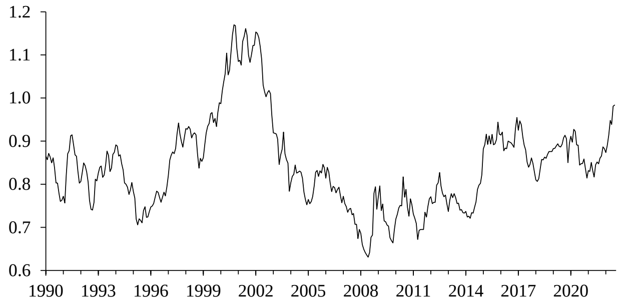
US : Trade Weighted Index
(Bank of England 1990 = 100)



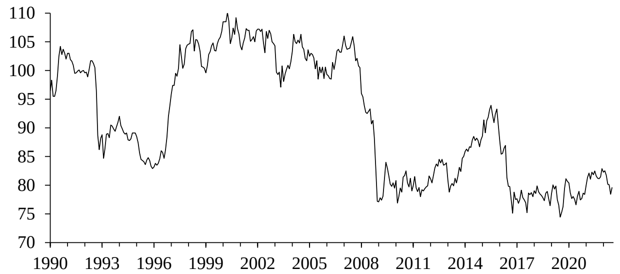
UK: Dollars Per Pound Sterling



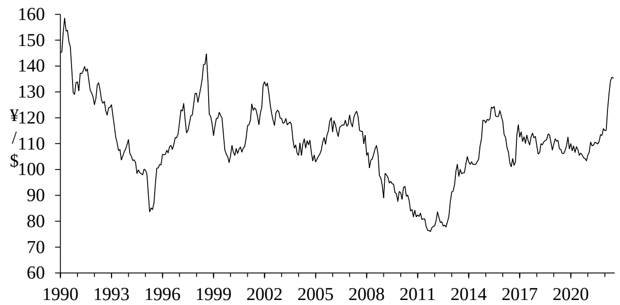
Euro per US dollar



UK: Trade-Weighted Index
(Bank of England 1990 = 100)



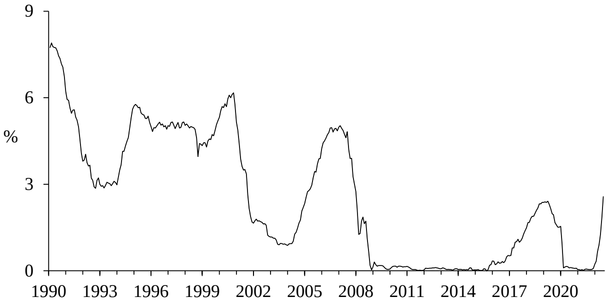
Japan : Yen Per U.S. Dollar



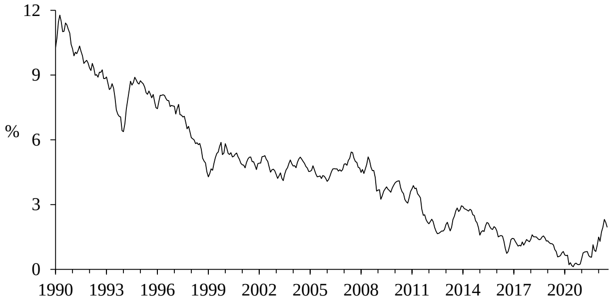
GOVERNMENT BOND MARKETS

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

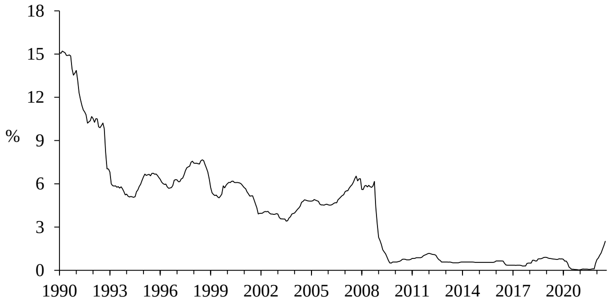
U.S. : 3-Month Treasury Bill



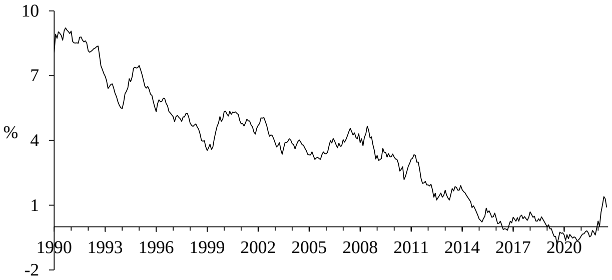
U.K.: Yield on Long-Term Government Bonds



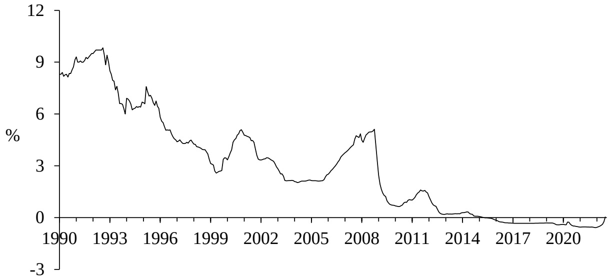
U.K. : 3-Month Certificate LIBOR Rate



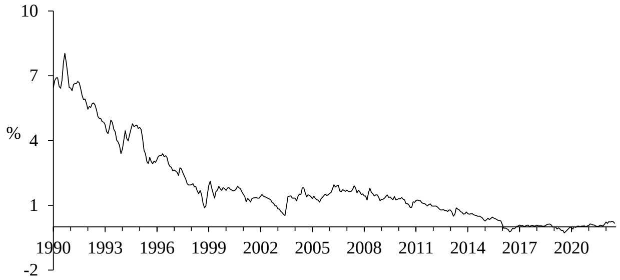
Germany: Yield on Public Authority Bonds



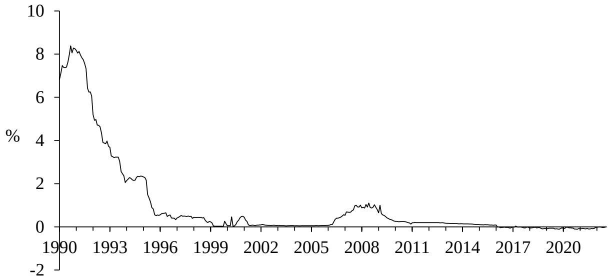
Germany : 3-Month Interbank Deposit Rate



Japan: Yield on Long-Term Government Bonds

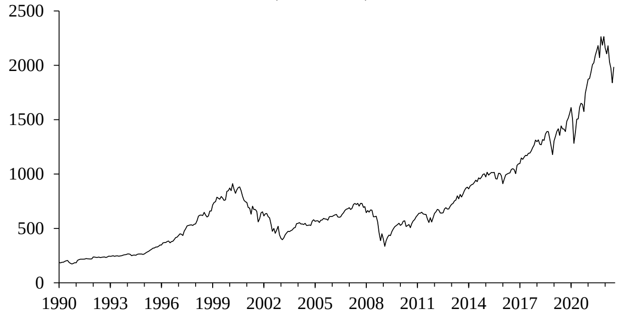


Japan : 3-Month Money Market Rate

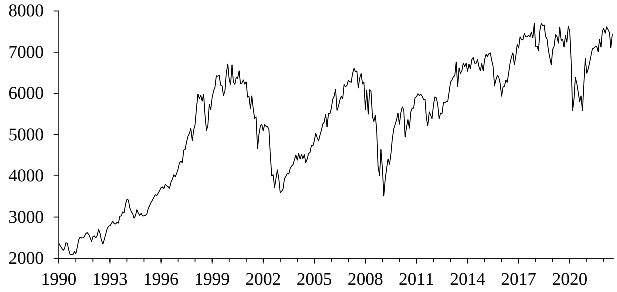


MAJOR EQUITY MARKETS

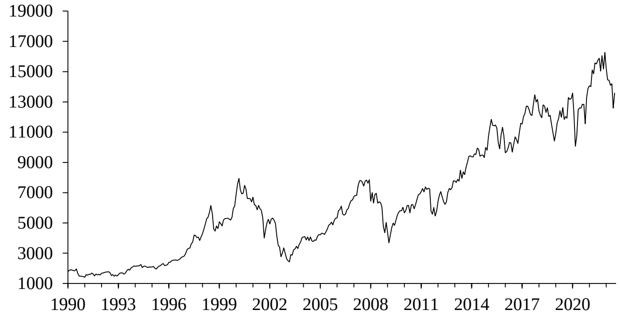
U.S. : S & P 400 Industrial (1985=100)



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



Germany : DAX 30



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

EMERGING MARKETS

Anupam Rastogi

India

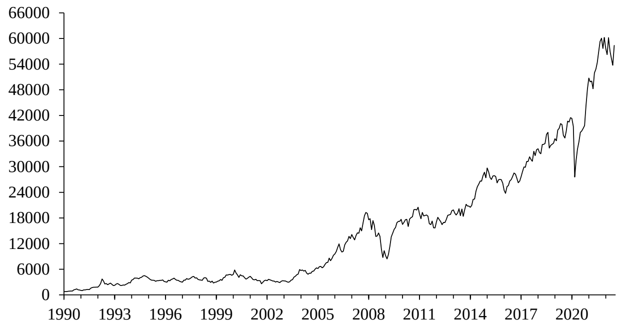
India is reaping benefits from introducing the Good and Services Tax (GST), implementing financial infrastructure such as the Unified Payment Interface (UPI), and going paperless in almost all government transactions with citizens. Most people believe that the economic growth India will achieve is a post-pandemic recovery. No doubt that after lifting the Covid-19 restrictions, there was going to be a rebound in consumption and trade, but they ignored that the Covid-19 lockdown strengthened the financial infrastructure implemented in 2018 and 2019. India has moved decidedly right of centre and introduced a rudimentary safety net for people below the poverty line (BPL). The poverty line is defined as the per capita consumption expenditure level to meet the average daily calorie requirement of 2,400 kcal per day in rural areas and 2,100 kcal per capita per day in urban areas. In monetary terms, a family having an annual income below ₹180,000 (US$ 2,400) is considered BPL from April 1st, 2021. From 2004-13, India's contribution to world GDP was 78th which rose to 35th in 2014-19. It is projected to grow to 3rd rank in 2022-27. A new growth pattern is visible and is unlike anything we have seen before.

The International Monetary Fund (IMF) has cut its gross domestic product (GDP) growth forecast for India for the current financial year (FY23) to 7.4% and 6.1% in FY24. We are maintaining our GDP growth forecast of 6.5% in FY23, FY24 and FY25. In our view, when world trade is at its ebb, India cannot grow more than 6.5% based on domestic consumption and investment in infrastructure. The S&P Global India Manufacturing Purchasing Managers' Index rose from 53.9 in June to 56.4 in July. It was the most significant improvement in the PMI in the last eight months.

An above-normal monsoon will ensure that domestic demand remains robust for the rest of the year. The government's goods and service tax collection was the second-highest since its rollout in July. It is a 28% increase year-on-year in tax revenue. The collections remained above ₹1.4 trillion for the fifth straight month. The government is reasonably confident of meeting its fiscal deficit of 6.4% of GDP. The government has announced a $26 billion package, which includes tax cuts on fuel, to help the RBI keep a lid on inflation.

CPI inflation at 7% remained above the 6% tolerance bounds for the sixth month in a row but has likely peaked out. Wholesale inflation fell to a three-month low of 15.2%, while the CPI-WPI gap widened. Inflation remained above the RBI's upper tolerance limit of 4%, with 2% on either side. The six-member Monetary Policy Committee (MPC) of the RBI raised the repo rate by 50 basis points following an off-cycle rate hike of 40 basis points in May, making it a 90 bps rate hike in just over a month. Another 50 basis points rate hike was announced on August 5th to tackle elevated inflation.

India: BSE Sensex



India's central bank has relaxed debt-market rules for foreign portfolio investors and allowed commercial banks to raise interest rates on nonresidents' foreign-currency deposits to support the rupee and boost forex reserves.

India's trade deficit — the gap between exports and imports — tripled to $31 billion in July compared to a year-ago. The widening deficit is likely to exert pressure on the rupee, which has been appreciating against the dollar in the past few days after touching a lifetime low of 80.16 in the last week of July. However, cooling commodity and energy prices on fears of a recession may temper any sharp depreciation of the rupee. India's exports are on course to touch $470-480 billion in the current fiscal and may reach $500 billion with a further push.

India's foreign-exchange reserves have fallen by around $62 billion this year to $571 billion as of July 22nd. India's central bank has been selling dollars to keep the rupee from sliding sharply. The RBI has said it isn't targeting a specific level for the rupee but is focused on reducing volatility.

The Reserve Bank of India (RBI) released guidelines to settle international trade in Indian rupees. Under the new mechanism, Indian exporters and importers can invoice, pay and settle transactions in the local currency. The latest step seems to be aimed at achieving two objectives.

One, it will facilitate trade with sanction-hit countries such as Russia. Russia's exclusion from traditional payment channels prompts local importers to use other currencies to settle their payments. If the counterparty agrees, Indian firms can pay their dues in the rupee. There will be less pressure on India's forex reserves to this extent. Second, it can help internationalize the rupee. The latest RBI approval can pave the way for bilateral agreements with India's trading partners. But a large-scale shift to such treaties is unlikely.

India's benchmark index, the Sensex, achieved its most significant monthly gains since August 2021. The Sensex finished the month of July with an 8.6% gain. The optimism that the pace of tightening by the US Fed may slow down going ahead has buoyed market sentiment. The revival in foreign portfolio investor (FPI) flows, easing commodity prices, attractive valuations, and strong corporate earnings changed global investors' sentiments.

Concerns have been expressed in the US about India's buying of Russian crude oil. India maintains good diplomatic relations with the US, Europe, and Russia. On July 14th, there was an online summit of the quadrilateral I2U2 Group: Israel's Prime Minister Yair Lapid and India's Prime Minister Narendra Modi (the I's) and United Arab Emirates president Mohamed bin Zayed and Mr Biden (the U's). The I2U2 differs from the Quad (the US, Australia, Japan, and India). It seems that there are high hopes in the West's fight with China from India.

	20–21	**21–22**	**22–23**	**23-24**	**24-25**
GDP (%p.a.)	-6.6	8.7	6.5	6.5	6.5
WPI (%p.a.)	5.5	6.0	6.5	5.3	5.0
Current A/c(US$ bill.)	35.0	-42.0	-100.0	-90.0	-80.0
Rs./$(nom.)	75.0	74.5	78.5	79.0	80.0

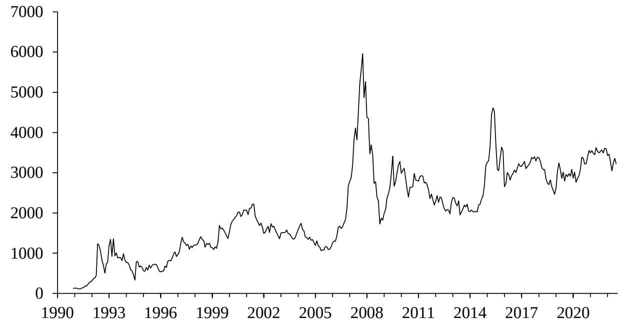
China

China's zero Covid policy is taking a toll on domestic growth and main trading partners such as Taiwan, Korea and Japan. Property sales from China's top 100 developers fell 28.6% from June, completely erasing an early summer sales bounce. Cash-strapped property developers are struggling to build apartments, and owners with mortgages are threatening to stop payment. Fear of Japan-style economic stagnation has forced the authorities not to order banks to roll out the property developers. China's banks face mortgage losses of $350 billion in a worst-case scenario as confidence plunges in the nation's property market and authorities struggle to contain deepening turmoil. A spiralling crisis of stalled projects has dented the trust of hundreds of thousands of homebuyers, triggering a mortgage boycott across more than 90 cities.

Soaring youth unemployment in China is threatening the nation's economy. The tech crackdown, hardline Covid-19 policies and longer-term trends in education and migration have led to a skills mismatch and a disillusioned young workforce that's losing faith in private companies and is willing to accept lower pay in the state sector.

China's official manufacturing purchasing managers index fell back into negative growth territory in July, just a month after recovering above the 50-point mark separating expansion from contraction. China's manufacturing PMI dropped to 49 from 50.2 as lockdowns weighed on growth. The non-manufacturing index also weakened but stayed above the 50 mark. China has already announced that a GDP target of 5.5% in 2022 is a proposal, not a goal. It is interpreted as China's acknowledgement that 5.5% GDP

China: SSE Composite Index



growth will be missed this year. We maintain our growth forecast of 4% for 2022 and 2023. GDP grew only 2.5% in the first half from a year earlier. Amid fears of a global recession, uncertainties from the Ukraine war and worries of frequent COVID lockdowns, China has relaxed many restrictions on manufacturing hubs which remain in place in large cities. The authorities have deepened tax credit rebates, accelerated local government special bond issuances to buoy infrastructure investments, and lowered car purchase taxes to stabilize the economy.

The producer price index (PPI) rose 6.1% year-on-year, compared to a 6.4% rise in May and the consumer price index (CPI) increased 2.5% from a year earlier. The consumer inflation rate increased by the highest in nearly two years though it remained within the country's target of around a 3% rise. The pickup in consumer inflation follows a surge in fuel prices. CPI is expected to rise moderately and very likely to surpass 3% in the second half of the year, but the whole year average level will still be within the annual target. The People's Bank of China (PBOC) Governor Yi Gang has pledged to keep monetary policy accommodative to support an economic recovery.

Exports rose 17.9% to $331.2 billion, up from May's 16.9% and imports rose just 1% to $233.3 billion due to weak domestic demand. With almost no growth in imports, China's global trade surplus swelled by 90% compared with a year ago. China's trade is on track to post a record trade surplus this year.

China has introduced the Renminbi Liquidity Arrangement, which could be used in periods of market volatility in the future. Its members are the People's Bank of China (PBOC), the Bank of Indonesia, the Central Bank of Malaysia, the Hong Kong Monetary Authority, the Monetary Authority of Singapore and the Central Bank of Chile. Each participant will contribute a minimum of 15 billion yuan (US$2.2 billion) or the equivalent in US dollars, creating a reserve pool at the BIS. The plan comes amid heightened worry in Beijing about US dollar hegemony and as global investors search for safe harbours while the US embarks on monetary normalization to tame high inflation.

The liquidity arrangement is another attempt by Beijing to make the renminbi a reserve currency. However, despite the increased interest in the yuan, the currency is far from challenging the dollar as a reserve currency mainly because Beijing's autocratic leadership makes any Chinese assets risky. Further, doubts have grown about the economy over the last year as the property sector has faltered and President Xi Jinping's zero-COVID policy has impeded growth.

	20	21	22	23	24
GDP (%p.a.)	2.2	8.1	4.0	4.0	4.0
Inflation (%p.a.)	2.5	1.8	2.0	2.0	1.5
Trade Balance(US$ bill.)	60.0	80.0	100.0	62.0	60.0
Rmb/$(nom.)	6.7	6.4	6.7	6.7	6.6

South Korea

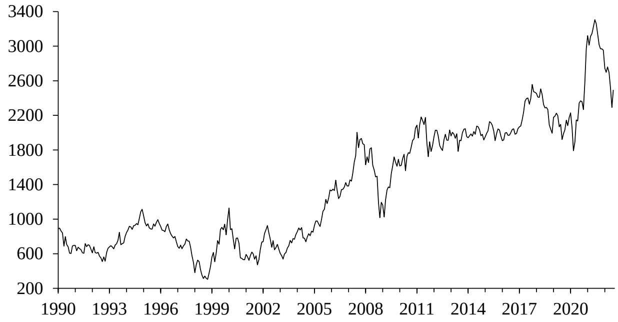
In the second quarter of 2022, South Korea's GDP expanded by 0.7% on quarter and 2.9% year-on-year, helped by household and government spending. We maintain our growth forecast of 2.4% in 2022 and 2023 as Russia's war on Ukraine made energy prices soar, and China's lockdowns disrupted supply chains. After President Yoon Suk-yeol took office in early May, the parliament approved a 62 trillion won ($47.33 billion) supplementary budget. It will aid small businesses while keeping Covid regulations relaxed. South Korea's new conservative government plans to cut corporate taxes to boost business investment, create jobs and spur economic growth. According to the Ministry of Economy and Finance, the maximum corporate tax rate will be lowered to 22% from 25% under a new bill.

South Korea's annual inflation rate hit 6.3% in July, its highest in the last 24 years. South Korean inflation is likely to peak by September or October unless the prices of oil and grains surge again. Good economic results encouraged policymakers to hike interest rates further to tackle inflation. The BOK raised its first-ever 50 basis-point hike on July 13th to keep inflation expectations anchored. The BOK has raised the policy interest rate by a combined 1.75 percentage points to 2.25% from a record-low 0.5% since August last year. We expect the policy interest rate to touch 2.75% by the end of this year. The bank will hold its next policy meeting on August 25th and may raise the policy rate by 25 basis points.

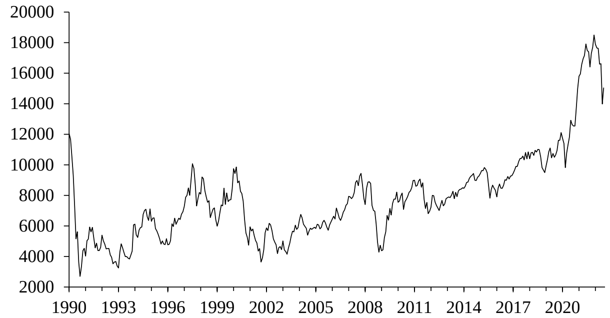
Exports in real terms declined as the trade-reliant economy came under pressure from rising energy and commodity prices fuelled by Russia's war on Ukraine. Exporters also face the risk of global demand waning in response to the Federal Reserve and other central banks' rapidly tightening policy. Exports declined 3.1%, with demand for chemical and metal products easing. Imports dropped 0.8%, with crude and natural gas leading to the decline. Facilities investment fell by 1%. South Korea saw the first single-month trade deficit with China, its largest trading partner, in May. A sharp 40.9-per cent increase in Chinese-made semiconductors was believed to be behind the reverse.

The won looks set to extend declines from its 13-year low as South Korea's trade balance worsens and foreign investors pull money out of the nation's stock market. The won has dropped about 9% this year as global investors shift into dollar assets. It's among Asia's worst performers as investors increasingly focus on the trade deficit.

Korea: Composite Index



Taiwan: Weighted TAIEX Price Index



Overseas investors have sold a net $11.5 billion of stocks in the benchmark Kospi Index this year, adding to sell-downs in 2021 and 2020. The National Pension Service plans to increase the allocation of overseas stocks next year by 2.5 percentage points to 30.3%, while domestic equities slip by 0.4 percentage point to 15.9%.

	20	21	22	23	24
GDP (%p.a.)	-0.9	4.1	2.4	2.4	2.3
Inflation (%p.a.)	0.5	2.5	5.0	3.5	3.0
Current A/c(US$ bill.)	70.0	91.0	50.0	40.0	35.0
Won/$(nom.)	1070	1150	1300	1350	1400

Taiwan

The Covid-19 lockdowns in China and a surge in domestic infections are dragging demand down in the chip sector and related services industries. Demand for chips is also decreasing as the US and other developed countries are sliding towards low growth and drawing down inventories by companies. We will maintain our forecast of GDP growth of 3.5% in 2022 and 3% in 2023 as we had factored in the demand compression resulting from China's zero covid policy. From 2025 onwards, Taiwan will see a structural shift in demand for semiconductor products as new chip-making facilities in the US, Japan and China come on stream. By 2025, we expect worldwide oversupply and intense competition in the semiconductor sector. In the second quarter, gross domestic product (GDP) grew 3.1%, according to the Directorate-General of Budget, Accounting and Statistics. The Taiwan Institute of Economic Research

(TIER), a leading think tank in the country, has lowered its forecast for Taiwan's 2022 GDP to below 4% to 3.8%, citing weaker private consumption.

Taiwan's 2022 consumer price inflation of 2.7% takes into account an increase in energy and grain prices due to the Russia-Ukraine war, and the costs of imported goods will continue to increase because of a weakening Taiwan dollar.

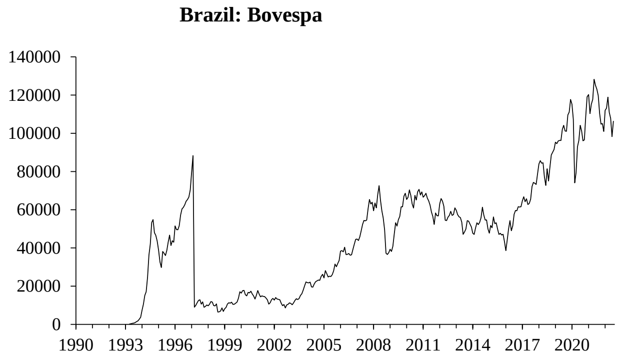
Exports increased in the second quarter by 15.4% to US$125.8 billion, while imports grew 8.8% from a year earlier. For the first six months, exports gained 19.2% to US$246.7 billion, while imports climbed 24.8% to US$219 billion.

The Taiwan dollar has remained remarkably stable amid many political uncertainties. We expect the Taiwan dollar to average NT$29 against the US dollar in 2022.

US House Speaker Nancy Pelosi led a congressional delegation to Singapore, Malaysia, South Korea and Japan to discuss trade, the COVID-19 pandemic, climate change, security and "democratic governance." The delegation visited Taiwan on August 2nd, 2022, as the US Congress did not want to cow down due to the Chinese pressure as China has vowed to take a "resolute and strong" response. China has ramped up military activities near Taiwan, including incursions into the island's air defence identification zone and flights across the median line that divides the Taiwan Strait. President Xi Jinping can't afford to look weak as he seeks a third term in office at a congress of the Chinese Communist Party in October-November this year.

The US has maintained a 'strategic ambiguity' towards supporting Taiwanese independence and its struggle to become an independent democratic country. In an online meeting between US President Joe Biden and Chinese President Xi Jinping, Xi warned that "Those who play with fire will perish by it" over Taiwan. The US did not blink in an eyeball-to-eyeball confrontation with China over Pelosi's visit to East Asia. Her trip reaffirmed that Washington would not abandon the island, and a trade deal may be near. President Tsai Ing-wen said Taipei would "hold the line of defence for democracy" and uphold its sovereignty. The investors' anxiety over fraught US-China ties eased because China's response was mild. Chinese Ministry of Foreign Affairs declared that the Pelosi visit was an attempt "by the Taiwan authorities and the United States to change the status quo" over the island. For the world, the Taiwan crisis is simmering.

	20	**21**	**22**	**23**	**24**
GDP (%p.a.)	3.1	6.5	3.5	3.0	2.8
Inflation (%p.a.)	-1.0	2.0	2.7	2.0	1.6
Current A/c(US$ bill.)	71.0	90.0	90.0	65.0	60.0
NT$/$(nom.)	29.0	27.5	29.0	29.0	29.0



Brazil

Brazil's economy is doing well and could show some surprise on the upside. We expect the economy to grow 1.6% in 2022 and 1.5% in 2023. The government-led spending package with increased cash transfers to the poorest and specific groups such as taxi and truck drivers are raising consumption. The investment will remain subdued due to the elevated level of the interest rate.

In July, consumer prices rose 11.4% from a year ago. Brazil's inflation is declining slowly. We expect consumer price rise to come down to 5% at the end of next year. Therefore, the average consumer inflation rate will be 8% in 2022 and tapering off to 5.5% in 2023. The central bank's annual inflation targets 3.5% for 2022 and 3.25% for 2023.

The central bank is likely to increase the bank rate by another 50 basis points in response to tightening monetary conditions worldwide. Interest rates will reach 13.75% this year, from the current 13.25%. However, as inflation cools, the interest rate will end next year at 10.5%.

Brazil recorded a current account deficit of $2.8 billion in March, the lowest shortfall for the period in five years, amid a solid performance in foreign direct investment, which totalled $7.6 billion in March and reached 3.08% of GDP in the last 12 months. But investors made a net redemption of $5.5 billion from Brazilian portfolio markets in March. A net inflow of $1.1 billion in stocks and outflows in bonds totalled $6.6 billion.

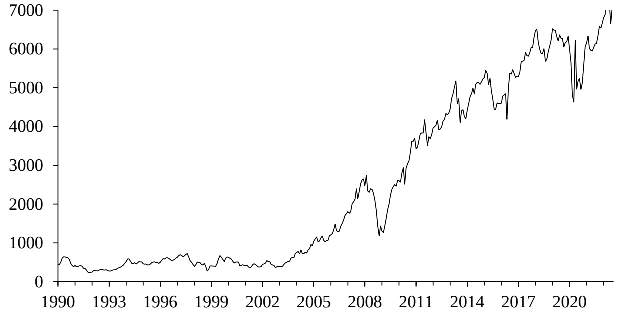
As inflation comes under control, the Brazilian real is gradually recovering losses against the dollar. Fitch Ratings raised its outlook on Brazil to stable from negative and affirmed the country's long-term foreign-currency issuer default rating at BB–.

	20	**21**	**22**	**23**	**24**
GDP (%p.a.)	-3.9	4.6	1.6	1.5	2.0
Inflation (%p.a.)	4.5	8.5	8.0	5.5	4.0
Current A/c(US$ bill.)	-7.6	-10.0	-10.0	-12.0	-20.0
Real/$(nom.)	5.5	5.3	5.2	5.0	5.0

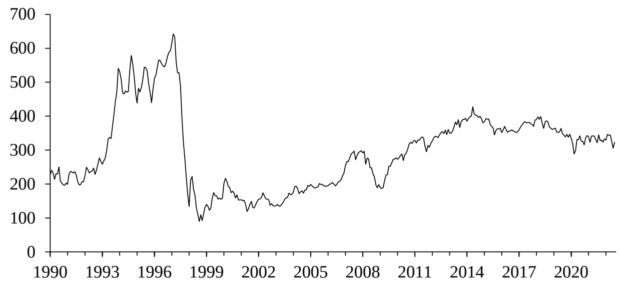
Other Emerging Markets

Hong Kong: FT-Actuaries

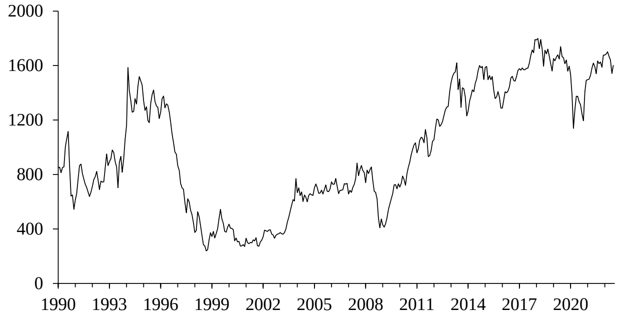
Indonesia: Jakarta Composite



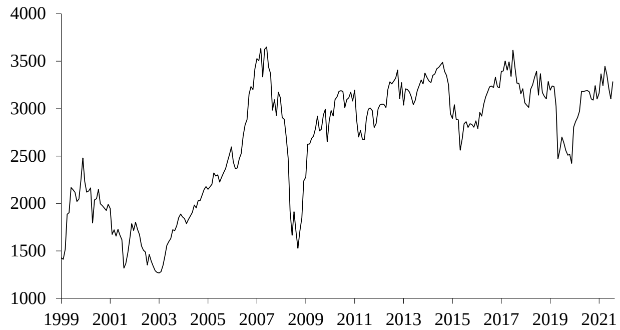
Malaysia: FT-Actuaries
(US$ Index)



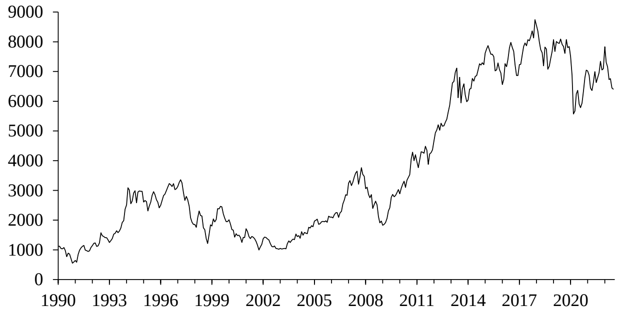
Thailand: Composite Index



Singapore: Straits Times Index

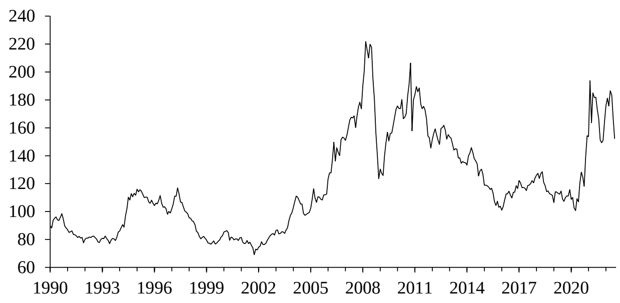


Philippines: Manila Composite

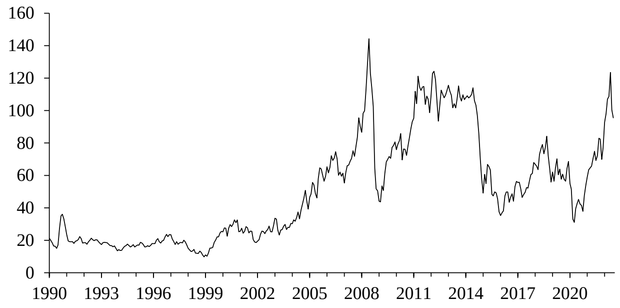


COMMODITY MARKETS

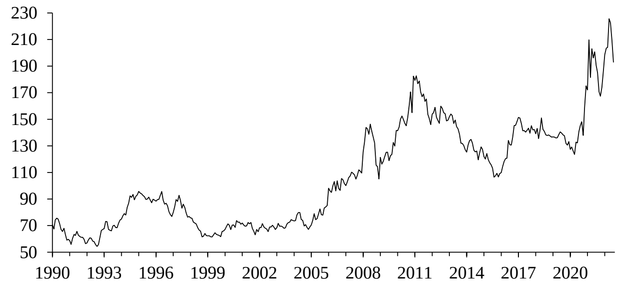
Commodity Price Index (Dollar)
(Economist, 2015 = 100)



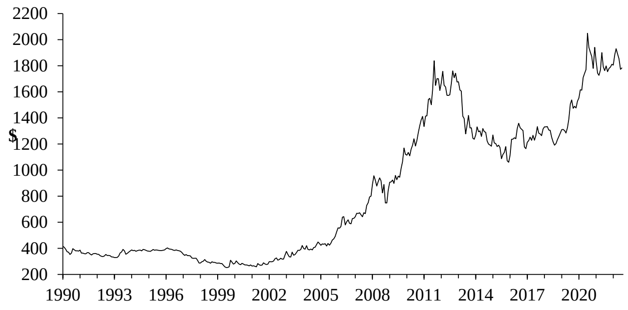
Oil Price: North Sea Brent (in Dollars)



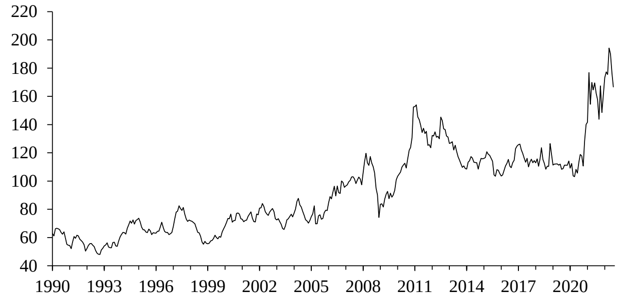
Commodity Price Index (Sterling)
(Economist, 2015 = 100)



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]
2019	1.7	0.6	0.8	78.3	73.8	-0.7	2.6	-0.5
2020	1.0	0.1	0.2	78.2	72.9	-1.3	1.5	-1.4
2021	2.5	0.4	0.1	81.5	78.2	-5.6	4.0	-5.3
2022	7.0	1.9	1.5	77.3	77.6	-4.0	8.7	-3.5
2023	4.3	3.5	2.4	76.7	78.9	-1.1	5.7	0.0
2024	3.2	3.0	2.9	76.3	80.0	0.5	4.3	0.6
2020:1	1.7	0.4	0.6	79.5	74.9	-0.2	2.6	-0.4
2020:2	0.8	0.0	0.1	77.6	71.9	-1.0	1.2	-1.1
2020:3	0.8	-0.1	0.1	77.6	72.2	-1.5	1.1	-1.7
2020:4	0.8	0.0	0.1	78.0	72.6	-2.7	1.1	-2.7
2021:1	0.9	0.2	0.1	80.6	76.2	-3.9	1.4	-3.8
2021:2	2.1	0.4	0.1	81.7	77.6	-5.2	3.4	-4.9
2021:3	2.7	0.3	0.1	81.7	78.7	-6.3	4.5	-6.1
2021:4	4.4	0.6	0.1	81.9	80.2	-6.9	6.7	-6.4
2022:1	6.9	0.7	0.3	77.8	77.4	-6.2	9.0	-5.8
2022:2	7.1	1.7	1.7	77.7	77.3	-4.2	8.7	-4.2
2022:3	7.0	2.2	1.8	76.9	77.3	-3.3	8.5	-2.9
2022:4	7.0	3.0	2.0	76.9	78.4	-2.3	8.5	-1.3

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]	Unemployment (New Basis) Percent[3]	Millions	Real Wage Rate[4] (1990=100)
2019	275.7	3.5	3.8	1.0	148.8
2020	279.1	1.6	4.5	1.3	149.7
2021	296.1	5.8	4.5	1.3	154.5
2022	314.8	6.7	4.1	1.1	154.0
2023	328.4	4.3	3.6	1.0	154.0
2024	341.1	4.1	2.8	0.7	155.4
2020:1	279.7	2.7	4.0	1.1	150.0
2020:2	270.1	-0.2	4.1	1.2	145.9
2020:3	278.6	0.2	4.8	1.4	149.0
2020:4	288.2	3.7	5.2	1.6	154.0
2021:1	292.1	4.5	4.9	1.4	155.3
2021:2	289.7	7.3	4.7	1.3	153.4
2021:3	298.4	7.1	4.3	1.3	155.5
2021:4	301.1	4.5	4.1	1.2	153.6
2022:1	311.7	6.7	4.0	1.1	155.0
2022:2	309.3	6.8	4.1	1.1	152.9
2022:3	318.3	6.7	4.1	1.1	155.0
2022:4	319.9	6.7	4.1	1.1	153.1

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
2019	167.8	803514.3	475369.3	308458.5	209136.4	-70959.7	118490.2
2020	152.0	728097.3	427575.8	258732.0	199232.3	-33095.4	124347.4
2021	163.3	782161.7	452309.6	292118.7	208538.0	-36908.1	133896.5
2022	172.3	825357.2	479861.8	289024.0	218557.2	-23886.6	138199.2
2023	176.1	843295.7	494513.6	282408.2	225319.4	-18612.0	140333.5
2024	181.0	866882.8	509517.7	285194.7	232155.8	-15890.3	144095.1
2019/18	1.4		0.3	3.1	3.0		-0.1
2020/19	-9.4		-10.1	-16.2	-4.8		4.9
2021/20	7.5		6.8	15.8	5.2		7.7
2022/21	5.6		6.2	-0.3	4.8		3.2
2023/22	2.2		3.1	1.2	3.1		1.5
2024/23	2.8		3.0	1.7	3.0		2.7
2020:1	163.4	195632.5	118032.8	72147.1	51656.8	-11632.2	34572.0
2020:2	131.6	157502.4	91565.8	47009.3	43743.5	429.6	25245.8
2020:3	155.3	185971.2	109964.7	64749.1	50846.1	-8204.0	31384.7
2020:4	157.9	188991.2	108012.5	74826.5	52985.9	-13688.8	33144.9
2021:1	155.5	186205.9	106678.2	68183.6	51087.4	-7838.9	31904.4
2021:2	163.9	196217.8	112089.9	66707.0	51382.2	-672.0	33289.3
2021:3	166.4	199176.5	116084.7	78828.1	52892.3	-14394.2	34234.4
2021:4	167.5	200561.5	117456.8	78400.1	53176.1	-14003.1	34468.4
2022:1	169.2	202535.5	118569.8	73860.3	53932.3	-9285.7	34541.2
2022:2	172.2	206121.1	119522.6	69230.1	54465.4	-2829.4	34267.6
2022:3	173.5	207696.3	120433.1	73370.9	54873.9	-6098.3	34883.3
2022:4	174.6	209004.2	121336.4	72562.6	55285.5	-5673.1	34507.2

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)
2019	2.2	2196.3	49.1	-89.1
2020	15.8	2006.2	317.2	-57.6
2021	7.4	2311.2	169.9	-63.8
2022	2.1	2579.1	55.0	-37.9
2023	1.2	2732.3	31.9	-25.5
2024	0.8	2903.4	23.5	-18.1
2020:1	-0.9	549.4	-5.0	-18.7
2020:2	30.6	437.6	133.8	-11.9
2020:3	14.6	519.2	76.0	-12.3
2020:4	12.2	525.7	64.3	-14.8
2021:1	8.2	523.6	43.0	-11.3
2021:2	11.1	554.9	61.6	-13.9
2021:3	7.1	568.4	40.1	-24.0
2021:4	5.8	582.1	33.9	-14.6
2022:1	5.7	605.7	34.2	-15.0
2022:2	2.1	625.2	13.2	-19.3
2022:3	2.3	638.1	14.5	-6.9
2022:4	2.1	654.1	13.7	3.3

1 GDP at market prices (Financial Year)

WORLD FORECAST DETAIL

Growth Of Real GNP

	2018	2019	2020	2021	2022	2023
U.S.A.	3.0	2.2	–3.5	5.7	3.2	2.2
U.K.	1.3	1.4	–9.4	7.5	5.6	2.2
Japan	0.6	0.0	–4.7	1.7	2.1	1.8
Germany	1.3	0.6	–4.6	2.7	2.2	2.5
France	1.8	1.8	–8.0	7.0	3.8	1.1
Italy	0.9	0.3	–9.0	6.7	4.1	1.3

Growth Of Consumer Prices

	2018	2019	2020	2021	2022	2023
U.S.A.	2.4	1.8	1.2	4.7	7.0	3.2
U.K.	2.5	1.8	1.0	2.5	7.0	4.3
Japan	1.0	0.5	0.0	–0.2	1.6	1.0
Germany	1.8	1.4	0.5	3.1	6.3	2.7
France	1.9	1.3	0.5	1.7	4.6	1.5
Italy	1.2	0.6	-0.1	1.9	4.6	1.3

Real Short-Term Interest Rates

	2018	2019	2020	2021	2022	2023
U.S.A.	0.6	0.3	–4.6	–7.1	-1.6	0.2
U.K.	–1.4	–0.2	–2.3	–6.9	–2.8	–1.9
Japan	–0.4	0.1	0.3	–2.9	–0.9	–0.6
Germany	–1.7	–0.9	–3.6	–6.0	–2.6	–2.3
France	–1.6	–0.9	–2.2	–5.1	–1.4	–1.6
Italy	–0.9	–0.3	–2.4	–5.2	–1.2	–1.4

Nominal Short-Term Interest Rates

	2018	2019	2020	2021	2022	2023
U.S.A.	2.4	1.5	0.4	0.1	1.6	2.6
U.K.	0.4	0.8	0.2	0.1	1.5	2.4
Japan	0.1	0.1	0.1	0.1	0.1	0.1
Germany	–0.3	–0.4	–0.5	–0.6	0.1	0.4
France	–0.3	–0.4	–0.5	–0.6	0.1	0.4
Italy	–0.3	–0.4	–0.5	–0.6	0.1	0.4

Real Long-Term Interest Rates

	2018	2019	2020	2021	2022	2023
U.S.A.	–0.9	–1.8	-3.1	-1.9	0.0	0.4
U.K.	–0.8	–0.4	–2.4	–6.6	–2.4	–0.8
Japan	–0.6	–0.6	–0.8	–0.9	–0.6	–0.6
Germany	–2.6	–3.1	–3.8	–3.2	–1.7	–1.4
France	–1.8	–2.2	–1.9	–1.8	–0.4	0.0
Italy	1.1	–0.4	–1.5	–1.0	1.2	1.6

Nominal Long-Term Interest Rates

	2018	2019	2020	2021	2022	2023
U.S.A.	2.7	1.9	0.9	1.6	2.6	2.8
U.K.	1.0	0.6	0.1	0.4	1.9	3.5
Japan	0.0	0.0	0.0	0.1	0.2	0.2
Germany	0.2	–0.2	–0.6	–0.2	0.5	0.7
France	0.1	–0.3	0.2	0.3	1.0	1.4
Italy	2.8	1.4	0.5	0.9	2.4	2.8

Index Of Real Exchange Rate (2000=100)[1]

	2018	2019	2020	2021	2022	2023
U.S.A.	93.5	96.3	97.6	95.5	98.5	97.0
U.K.	77.4	78.6	78.3	78.2	77.6	78.9
Japan	57.8	59.4	60.6	54.8	52.1	51.5
Germany	96.5	94.8	95.8	96.6	94.3	93.8
France	97.4	95.6	96.4	95.7	93.2	93.1
Italy	102.8	100.4	100.9	100.5	100.0	99.5

[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)

	2018	2019	2020	2021	2022	2023
U.S.A.[1]	112.01	115.73	117.78	113.13	111.49	112.10
U.K.	1.34	1.28	1.28	1.38	1.35	1.28
Japan	112.10	110.40	109.02	106.78	115.10	120.50
Eurozone	0.85	0.89	0.88	0.85	0.88	0.95

[1] The series for the USA is a nominal broad U.S dollar index (2006=100); the series for the UK is $ per £

* Forecasts based on the Liverpool World Model