

# LIVERPOOL INVESTMENT LETTER

July 2022



Cardiff Business School  

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Ysgol Busnes Caerdydd

**Julian Hodge Institute of Applied Macroeconomics**



**LIVERPOOL RESEARCH GROUP IN 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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<p>There has been a flurry of commentary claiming that Brexit has ‘hit’ trade and GDP. However, when subjected to statistical analysis which allows for the many shocks, especially Covid, hitting the UK and other economies in recent years, no such hit turns out to be statistically significant.</p>	
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# WHAT HAS BREXIT DONE TO TRADE AND GDP?

There has been a flurry of efforts to determine the effects of Brexit so far on the economy. They are usefully exemplified by the Centre for European Reform’s paper by John Springford ‘What can we know about Brexit so far?’ In this work other countries are averaged together to provide a similar behaviour to the UK in a previous period. This group is a ‘doppelganger’. Then the difference of the UK’s from this group’s behaviour in the Brexit period is taken to be the ‘effect of Brexit’. According to this method different doppelganger groups are found for different variables and the Brexit effect then varies between a 5.2% fall in GDP, a 13.7% fall in investment and a 13.6% fall in trade.

However, this approach suffers from a severe statistical problem that it does not allow for the volatility of the shocks, both before and after Brexit, hitting both the doppelgangers and the UK. We need to know if the difference during the Brexit period is statistically significant. This depends on the variability of the shocks hitting these countries in both periods. Furthermore, it depends on the effects of identifiable other shocks, such as Covid, occurring in both periods. So suppose we denote the other group as G, there will be some relationship as follows for say GDP:

$$GDP_t^{UK} = a + bGDP_t^G + cCOVID + dBREXIT + u_t$$

This specifies the assumed relationship with the effects of Covid and Brexit and the general shock  $u_t$ . For Brexit to have a significant effect  $d$  must be significant — this allows for the variance of the shocks and the effects of the identifiable Covid shock.

Another problem with this doppelganger method is that it allows the researcher to ‘data-mine’ doppelganger groups with a view to backing a preconceived view. The UK is ‘like’ many other rich countries in various ways. It is all too easy to select a group of these that did unusually well in the Brexit period and so backs the Remainder viewpoint that damage was caused. Call this data-mining ‘selection bias’.

One way to get around this bias in selecting the comparator group is to use the average of all OECD countries. This

**Table 1: Summary of Forecast**

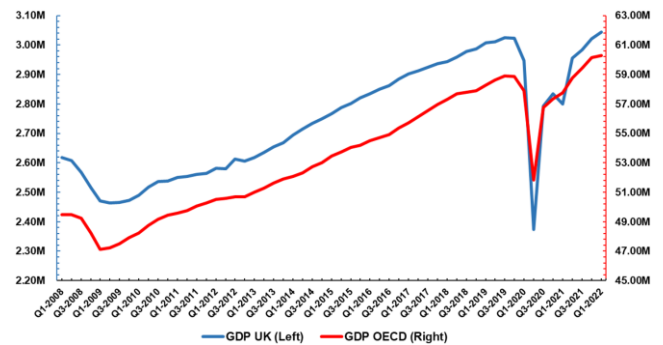
	2018	2019	2020	2021	2022	2023	2024
GDP Growth <sup>1</sup>	1.3	1.4	-9.4	7.5	5.6	2.2	2.8
Inflation CPI	2.4	1.7	1.0	2.5	7.0	4.3	3.2
Wage Growth	3.0	3.5	1.6	5.8	6.7	4.6	4.3
Survey Unemployment	4.1	3.8	4.5	4.5	4.1	3.6	2.8
Exchange Rate <sup>2</sup>	78.6	78.3	78.2	81.5	77.3	76.7	76.3
3 Month Interest Rate	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	1.9	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	317.2	169.5	55.0	31.9	23.5

<sup>1</sup>Expenditure estimate at factor cost

<sup>2</sup>Sterling effective exchange rate, Bank of England Index (2005 = 100)

averaging reduces the impact of all country-specific shocks. This OECD average also represents the average world business cycle which is the major exogenous variable impacting on the UK as a very open economy. The coefficient on it also usefully measures whether the UK is ‘doing as well’ as the average cet. par.; this can be taken as a comment on general UK policy adequacy.

We carry out this regression from 2008 to today below. What we see is that the coefficient on the log of OECD GDP is 1.03, implying that cet. par. the UK grew slightly faster than the OECD, but not significantly so. Covid is significant, as expected with the UK’s hard lockdowns. Brexit is not, either at the referendum or the departure stage.



**Table 2: Variable description**

<b>Dependent Variable</b>	<b>Definition</b>	<b>Source</b>
GDP UK	UK GDP, volume estimates, USD Million, fixed PPPs	OECD
<b>Independent Variable</b>		
GDP OECD	OECD GDP, volume estimates, USD Million, fixed PPPs	OECD
Brexit referendum dummy	1 from Q2 2016, 0 otherwise	-
Brexit departure dummy	1 from Q1 2020, 0 otherwise	-
COVID dummy	1 from Q2 2020 to Q4 2020, 0 otherwise	-
COVID recovery dummy	1 from Q1 2021, 0 otherwise	-

$$\ln(GDP\ UK) = C + \beta_1 \ln(GDP\ OECD) + \beta_2 \text{Brexit referendum dummy} + \beta_3 \text{Brexit departure dummy} + \beta_4 \text{Covid dummy} + \beta_5 \text{Covid recovery dummy}$$

**Table 3: OLS estimate results, 2008Q1 to 2022Q1**

	<b>GDP UK</b>
OECD GDP	1.03* (0.05)
Brexit referendum dummy	-0.01 (0.01)
Brexit departure dummy	-0.02 (0.01)
COVID dummy	-0.05* (0.01)
COVID recovery dummy	0.02 (0.01)
Constant	-3.57* (0.81)

Note: \*significant at the 5% level

One can do a similar analysis for trade, with the EU and the non-EU. Here the regression relates imports to demand in the importing country/bloc, to the real exchange rate, Covid and Brexit. Here we find that Brexit has a significant effect only on UK imports from the EU, but not at all otherwise. This result is the same on data in trade value or volume. This Brexit-related fall in EU imports could either be met by a rise in non-EU imports or home production (GDP); as the rise in non-EU imports is not significant, these regressions do not help us estimate this.

**Table 4: Variable description**

<b>Dependent Variable</b>	<b>Definition</b>	<b>Source</b>
Export EU	Exports trade goods & services EU, current price, SA	ONS
Export non-EU	Exports trade goods & services Non. EU, current price, S	ONS
Import EU	Imports trade goods & services EU SA	ONS
Import non-EU	Imports trade goods & services Non. EU SA	ONS
<b>Independent Variable</b>		
RXR	Effective Exchange rate index	BoE
UK GDP	GDP, CP/CVM, SA	ONS
EU GDP	Millions of Chained 2010 Euros/Market price, Seasonally Adjusted	Eurostat
World import	Import trade in goods & services, Current price/ constant price & PPPs	OECD
Brexit departure dummy	1 from Q1 2020, 0 otherwise	-
COVID dummy	1 from Q2 2020 to Q4 2020, 0 otherwise	-
COVID recovery dummy	1 from Q1 2021, 0 otherwise	-

$$\ln(\text{Export EU}) = C + \beta_1 \ln(\text{EU GDP}) + \beta_2 \ln(\text{RXR}) + \beta_3 \text{Brexit departure dummy} + \beta_5 \text{Covid dummy} + \beta_6 \text{Covid recovery dummy}$$

$$\ln(\text{Export nonEU}) = C + \beta_1 \ln(\text{World import}) + \beta_2 \ln(\text{RXR}) + \beta_3 \text{Brexit departure dummy} + \beta_5 \text{Covid dummy} + \beta_6 \text{Covid recovery dummy}$$

$$\ln(\text{Import EU}) = C + \beta_1 \ln(\text{UK GDP}) + \beta_2 \ln(\text{RXR}) + \beta_3 \text{Brexit departure dummy} + \beta_5 \text{Covid dummy} + \beta_6 \text{Covid recovery dummy}$$

$$\ln(\text{Import nonEU}) = C + \beta_1 \ln(\text{UK GDP}) + \beta_2 \ln(\text{RXR}) + \beta_3 \text{Brexit departure dummy} + \beta_5 \text{Covid dummy} + \beta_6 \text{Covid recovery dummy}$$

**Table 5: Volume, OLS estimate results, 2005Q1 to 2021Q3**

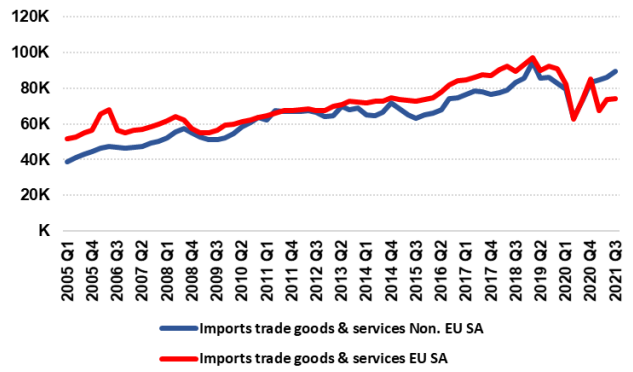
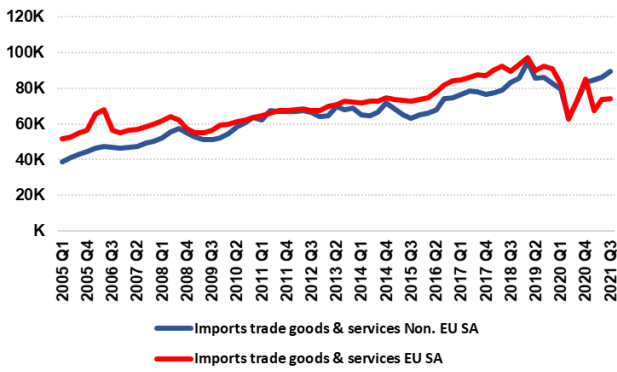
	Export EU	Export non-EU	Import EU	Import non-EU
EU GDP	1.018* (0.096)			
World import		0.707* (0.085)		
UK GDP			1.166* (0.122)	1.236* (0.134)
RXR	-0.100 (0.096)	-0.733* (0.125)	0.018 (0.069)	-0.696* (0.077)
Brexit departure	-0.058 (0.065)	+0.064 (0.082)	-0.046* (0.018)	+0.031 (0.020)
COVID	-0.109 (0.075)	-0.104 (0.094)	-0.068 (0.037)	-0.134* (0.041)
COVID recovery	-0.123 (0.074)	-0.166* (0.094)	-0.187* (0.041)	-0.027 (0.046)

Note: \*significant at the 5% level; Constant is included in the regression

**Table 6: Current price measure, OLS estimate results, 2005Q1 to 2021Q3**

	Export EU	Export non-EU	Import EU	Import non-EU
EU GDP	1.104* (0.065)			
World import		1.010* (0.037)		
UK GDP			1.034* (0.064)	1.114* (0.070)
RXR	-0.243* (0.108)	-0.590* (0.077)	0.019 (0.080)	-0.654* (0.087)
Brexit departure	-0.026 (0.065)	+0.005 (0.047)	-0.057* (0.018)	+0.026 (0.019)
COVID	-0.075 (0.073)	0.001 (0.053)	-0.063 (0.041)	-0.145* (0.044)
COVID recovery	-0.112 (0.073)	-0.112* (0.053)	-0.162* (0.043)	-0.021 (0.047)

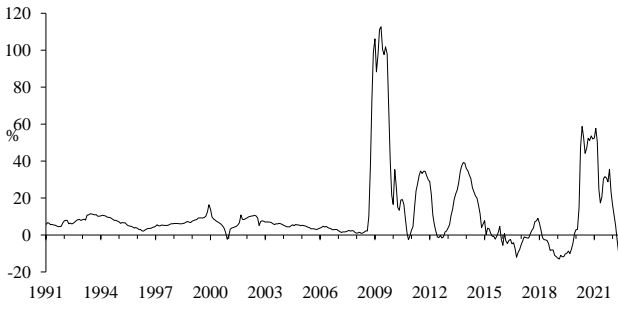
Note: \*significant at the 5% level; Constant is included in the regression



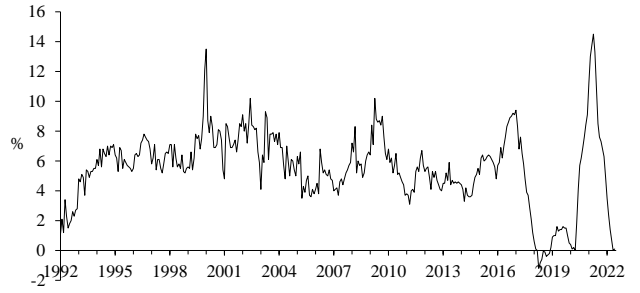
**Conclusions on the effect of Brexit on GDP and trade**

What this analysis reveals is what common sense would tell us; that there is a lot of volatility in the data, especially with Covid, and so it is not possible to find any statistically significant evidence of Brexit effects to date. This is not surprising. Rome was not built in a day. Brexit is a programme of long term institutional change, not a short term fix.

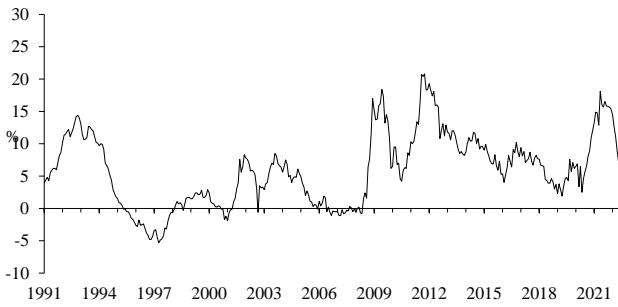
**U.S.: Growth in M0 (Yr - on - Yr)**



**UK: Notes and Coins in Circulation Growth**



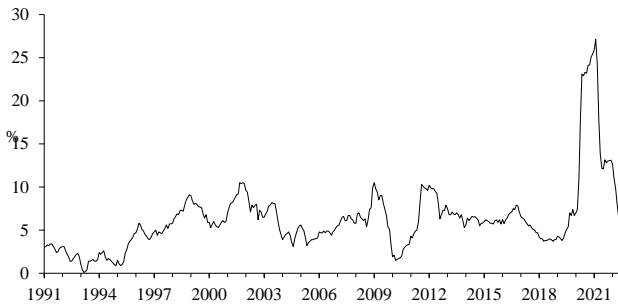
**U.S.: Growth in M1 (Yr - on - Yr)**



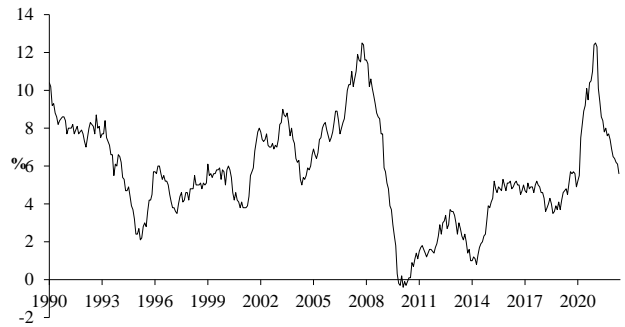
**UK: M4 Growth**



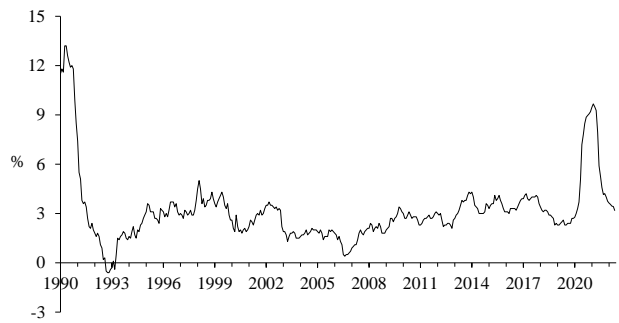
**U.S.: Growth in M2 (Yr - on - Yr)**



**Eurozone M3 Growth**



**Japan: Growth of M2+CD's**





## FOCUS ON JAPAN

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Francesco Perugini

### Will rising prices affect Upper House election?

Core consumer prices jumped 2.1% in May from a year earlier, staying above the Bank of Japan's (BOJ) inflation target for the second straight month, lifted by higher energy and food prices, government data showed last month. The nationwide core consumer price index excluding volatile fresh food items rose for the ninth straight month, a sign that cost-push inflation has shown no signs of abating as a sharp slide in the yen continues to inflate import costs for resource-poor Japan.

After the closely watched gauge of inflation leaped 2.1% in April, the sharpest gain in about seven years, the pace did not slow in May. The fading out of the year-on-year impact of lower mobile data fees, still down 22.5% in May, is also a factor behind the increase in core CPI, the Ministry of Internal Affairs and Communications said.

Looking at CPI components, energy prices surged 17.1% from a year earlier. Kerosene prices leaped 25.1% and gasoline jumped 13.1% even though the government subsidized oil wholesale prices. Food prices, excluding perishables, gained 2.7%, marking the fastest pace of gain in about seven years. Potato chips and hamburgers are among those items that saw price hikes. "Energy prices may be capped by government subsidies, but food prices will continue to rise in coming months", said Yoshiaki Shinke, senior executive economist at the Dai-ichi Life Research Institute. "Higher prices are negative for consumption. A recovery in demand from COVID-19 fallout is now supporting the economy but once it runs its course, rising prices could be felt like a body blow", he added.

The increasing cost of living is among the key issues in the Upper House election this month as opposition parties step up criticism of Prime Minister Fumio Kishida's government for its lack of action. The recent bout of inflation is not desirable and adds downward pressure on the economy, the BOJ governor has said. Indeed, Japanese households are becoming increasingly less tolerant of surging prices of food and daily necessities, according to a recent analysis of Bank of Japan (BOJ) surveys by Mizuho Research, a think-tank based in Tokyo. The analysis of the household spending surveys runs counter to BOJ Governor Haruhiko Kuroda's remark in early June that consumers had become "tolerant" of rising prices. Kuroda was later forced to retract it and apologize following a backlash from the public.

Mizuho also found a growing tendency to cut back on expenses for food and beverage. Using data from the BOJ quarterly surveys, Mizuho Research quantified households' tolerance by subtracting the percentage of respondents who considered price hikes "troubling" from those who perceived them as "desirable." The analysis of tolerance progression

between June 2004 and March 2022 showed households' tolerance for rising prices markedly decreased from the second half of fiscal 2021 when surges in oil prices became salient. Tea bags, futon bedding, air conditioners and cooking oil were among the items that consumers significantly cut back on, the company said, citing its separate analysis based on government statistics such as the consumer price index and the household expenditure survey. Saisuke Sakai, senior economist at Mizuho Research, called attention to the disproportionately high burden rising prices place on low-income households. "They are less tolerant of price hikes as daily necessities make up a bigger proportion of their spending," compared with their better-off peers, Sakai said.

Campaigning for the Upper House election kicked in late last month, with the vote on July 10 being the first real chance for the electorate to give a verdict on the administration of Prime Minister Fumio Kishida. But with the opposition expected to offer little in the way of a contest, even a precipitous rise in consumer prices is unlikely to prevent a resounding victory for the ruling Liberal Democratic Party (LDP). However, wider economic issues including the current weakening of the yen are casting a long shadow over the nation's politics and could spell trouble for the prime minister further down the road — even if the Cabinet proves successful in focusing the public's pre-election attention on issues related to security and public health.

While there is little danger of an upset from an LDP perspective, opinion polling — largely positive throughout the first nine months of Kishida's time as prime minister — has nonetheless dipped in recent weeks as consumers start to feel the pinch of rising prices. A Jiji Press poll conducted last week found that the Cabinet's approval rating stood at 48.7%, a drop of 2.1 percentage points from the month before and the first time in four months the figure had fallen below 50%.

And while that figure remains high for a prime minister at this stage of their tenure, infighting within the LDP — principally between Kishida's own dovish faction and the hawkish faction of former Prime Minister Shinzo Abe over defence spending — means that his authority within the party itself still rests on somewhat shaky ground. A healthy increase on the 35.37% of the proportional representation vote secured by the LDP under Abe's leadership in the 2019 Upper House election would provide Kishida with a strengthened mandate within the party and a greater ability to push ahead with his flagship "new capitalism" fiscal initiatives, which are expected to gain more substance following the election.

## MARKET DEVELOPMENTS

Rising interest rates are reducing equity prices, particularly for tech stocks where future profits are most uncertain. We expect inflation to fall off in 2023 as supply

bottlenecks ease and demand cools. This puts a cap on how high rates will need to go; once that is reached and growth resumes, equity prices should recover.

**Table 1: Market Developments**

	Market Levels		Prediction for Jun/Jul 2023	
	Jun 09	Jul 06	Previous Letter	Current View
<b>Share Indices</b>				
UK (FT 100)	7476	7108	12373	10697
US (S&P 500)	4097	3820	5793	5405
Germany (DAX 30)	14199	12595	25316	20945
Japan (Tokyo New)	1969	1856	2648	2496
<b>Bond Yields (government)</b>				
UK	2.31	2.18	3.50	3.50
US	3.03	2.97	2.80	2.80
Germany	1.40	1.29	0.80	0.80
Japan	0.52	0.24	0.20	0.20
UK Index Linked	-1.10	-0.86	1.00	1.00
<b>Exchange Rates</b>				
UK (\$ per £)	1.25	1.19	1.36	1.28
UK (trade weighted)	80.08	78.44	78.7	78.7
US (trade weighted)	105.06	107.60	100.5	100.5
Euro per \$	0.94	0.98	0.88	0.95
Euro per £	1.18	1.17	1.20	1.22
Japan (Yen per \$)	134.29	135.67	110.5	120.5
<b>Short Term Interest Rates</b>				
UK	0.63	0.63	2.20	2.20
US	1.74	1.60	2.40	2.40
Euro	-0.37	-0.23	0.20	0.20
Japan	-0.05	-0.05	0.10	0.10

**Table 2: Prospective Yields<sup>1</sup>**

<b>Equities: Contribution to £ yield of:</b>						
	Dividend Yield	Real Growth	Inflation	Changing Dividend Yield	Currency	Total
UK	2.10	2.2	4.3	44.00		52.60
US	2.00	2.3	3.2	36.00	-7.47	36.03
Germany	2.10	2.5	2.8	61.00	-4.09	64.31
Japan	1.90	1.8	0.7	32.00	4.54	40.94
UK indexed <sup>2</sup>	-0.86		4.3	16.00		19.45
Hong Kong <sup>3</sup>	2.60	4.0	3.2	-7.00	-7.47	-4.67
Malaysia	3.30	5.4	3.2	73.00	-7.47	77.43
Singapore	3.50	3.0	3.2	37.00	-7.47	39.23
India	1.40	6.4	3.2	32.00	-7.47	35.63
Korea	1.10	2.3	3.2	-2.00	-7.47	-2.77
Indonesia	2.20	5.3	3.2	49.00	-7.47	52.23
Taiwan	2.80	3.0	3.2	42.00	-7.47	43.53
Thailand	3.20	4.0	3.2	53.00	-7.47	55.93
<b>Bonds: Contribution to £ yield of: –</b>						
	Redemption Yield	Changing Nominal Rates	Currency	Total		
UK	2.18	-13.24				-11.06
US	2.97	1.71		-7.47		-2.80
Germany	1.29	4.94		-4.09		2.15
Japan	0.24	0.44		4.54		5.22
<b>Deposits: Contribution to £ yield of:</b>						
	Deposit Yield	Currency	Total			
UK	0.63		0.63			
US	1.60	-7.47	-5.87			
Euro	-0.23	-4.09	-4.32			
Japan	-0.05	4.54	4.49			

<sup>1</sup> Yields in terms of €s or \$s can be computed by adjusting the £-based yields for the expected currency change.

<sup>2</sup> UK index linked bonds All Stocks

<sup>3</sup> Output based on China.

**Table 3: Portfolio(%)**

	Sterling Based Investor		Dollar Based Investor		Euro Based Investor	
	June Letter	Current View	June Letter	Current View	June 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

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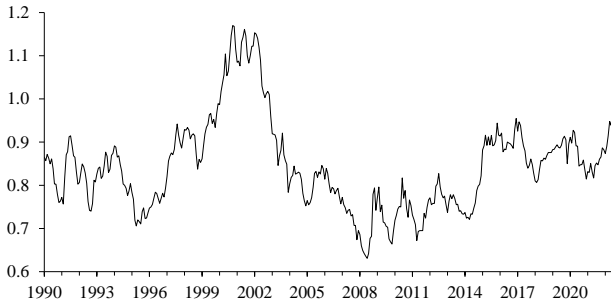
**US : Trade Weighted Index  
(Bank of England 1990 = 100)**



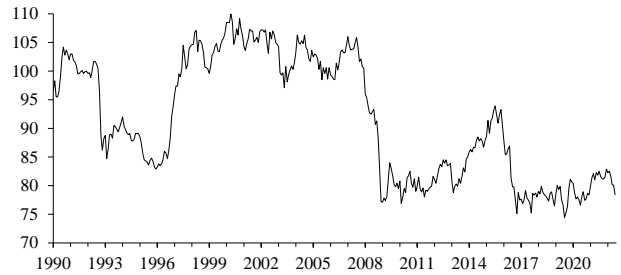
**UK: Dollars Per Pound Sterling**



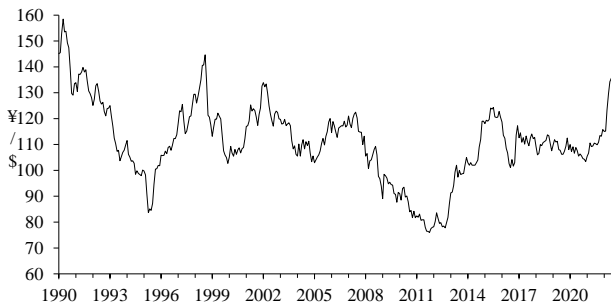
**Euro per US dollar**



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



**Japan : Yen Per U.S. Dollar**

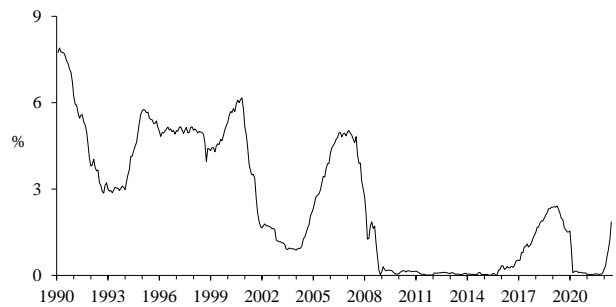


# GOVERNMENT BOND MARKETS

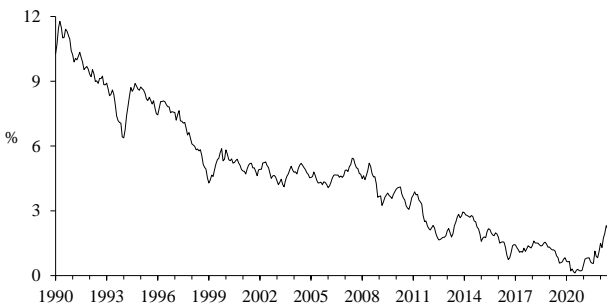
**U.S.: Yield on Long-Term Government Bonds**



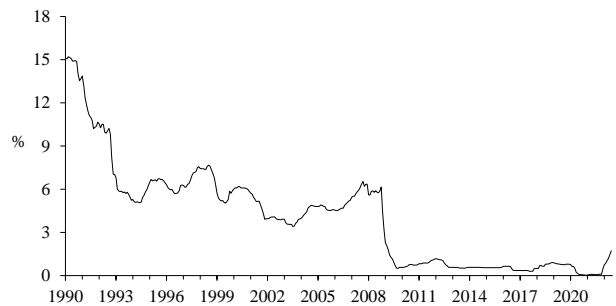
**U.S. : 3-Month Treasury Bill**



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



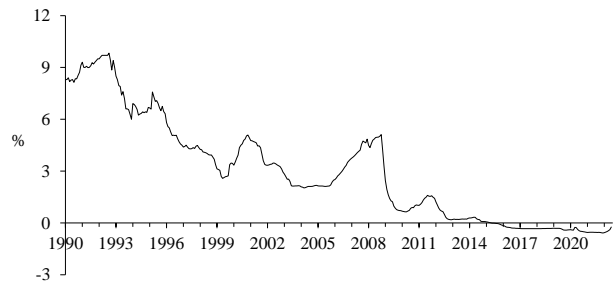
**U.K. : 3-Month Certificate LIBOR Rate**



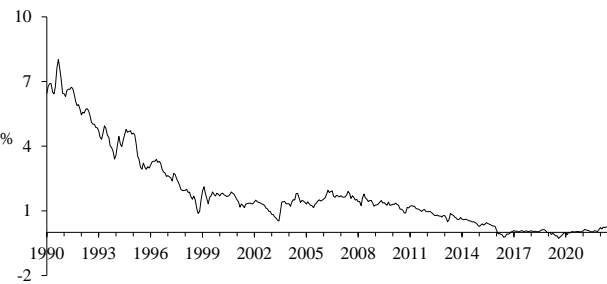
**Germany: Yield on Public Authority Bonds**



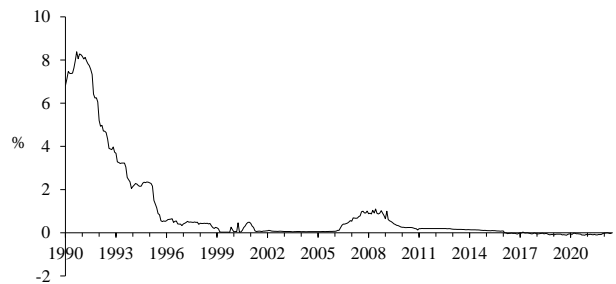
**Germany : 3-Month Interbank Deposit Rate**



**Japan: Yield on Long-Term Government Bonds**



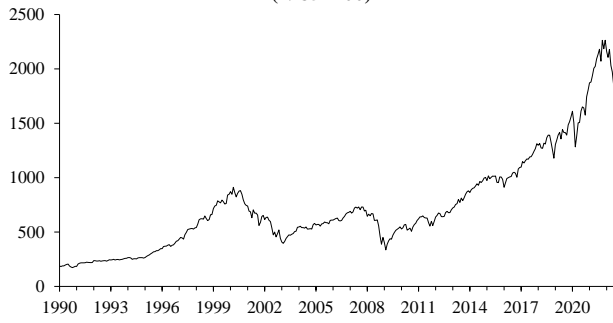
**Japan : 3-Month Money Market Rate**



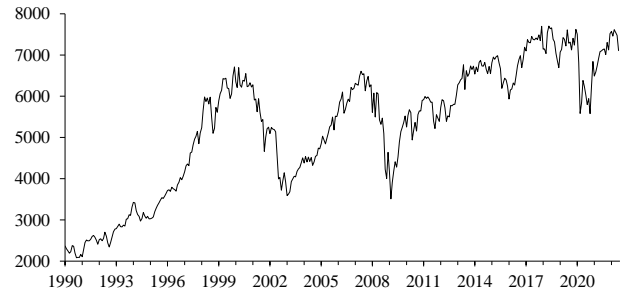
# MAJOR EQUITY MARKETS

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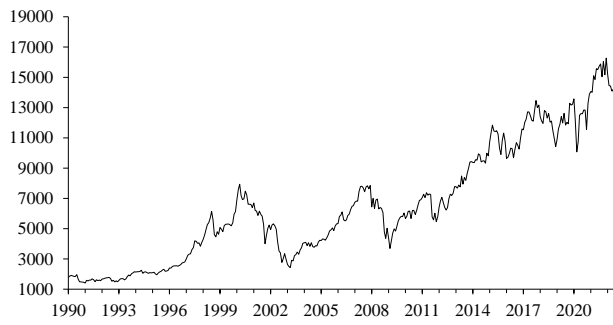
**U.S. : S & P 400 Industrial  
(1985=100)**



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



**Germany : DAX 30**



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



## EMERGING MARKETS

Anupam Rastogi

### India

The Indian economy is growing at a fast clip as the private sector is keen to take advantage of government policy and a shift in strategic thinking on the part of MNCs to have an alternate manufacturing source other than China. The government sees an investment-led growth supported by government expenditure on infrastructure. The government's breakneck push towards digitization is bearing fruit as both direct and indirect tax collection is growing.

Indian Manufacturing Purchasing Managers' Index (PMI) fell to 53.9 in June from 54.6 in May, a nine-month low. The June PMI data pointed to an improvement in operating conditions for the twelfth month. Despite an increase in commodity prices, the manufacturing side is still growing. We maintain our current fiscal year GDP growth at 6.5% and continue with this growth rate for another two years amidst a slowing world economy. The government expects GDP growth to touch 7.5%, making it the fastest growing major economy on the back of the government's initiatives in technology-led development, ease of doing business, and the digital sector. Probably a good target but difficult to achieve while the world economy faces many headwinds.

The Indian economy grew 8.7% in 2021–22; GDP was above the pre-pandemic level by December 2021. Bank credit is growing at 12.1% at the end of May, from 11.1% in April. Liquidity conditions also remained in surplus.

The consumer price index (CPI) inflation in May moderated to 7% from April's eight-year high of 7.8%. The inflation problem is not going away, and it will take a while to get it back under control. RBI Governor Shaktikanta Das said that the central bank's primary focus was to bring inflation closer to its target but could not disregard growth concerns. The Reserve Bank of India has raised borrowing costs by 90 basis points this year and vows to do more to bring price gains below its target ceiling of 6%. Good weather conditions prevailing in the country may help in the recovery.

The RBI may raise the policy repurchase rate to 5.5%, from 4.9% now, citing worsening and broadening inflationary pressures. If inflation persists, the benchmark interest rate can be pushed to 6% to ensure that the second-order impact of inflation is squeezed out.

The RBI's Monetary Policy Committee (MPC) unanimously and expectedly decided to hike the policy repo rate by 50bps to 4.9%. The RBI now expects headline inflation to remain well above the upper bound of 6% until the end of December 2022 and maintains a growth forecast for FY23 at 7.2% (versus our forecast of 6.5%). For India, inflation

India: BSE Sensex



traditionally has a lot to do with energy prices, though food prices have also played their part. This time also, fuel-led inflation has impacted the country. Still, at the same time, high fuel prices, commodity prices, and logistic issues on account of the Russia-Ukraine war have resulted in fertilizer prices shooting up.

India's merchandise trade deficit surged to a new high of \$25.6 billion in June amid slowing demand for Indian exports and rising imports of gold, coal, and crude oil. Exports grew 16.8% year-on-year to \$38 billion in June, while imports jumped 51% to \$63.6 billion, according to the preliminary data released by the commerce ministry.

We expect the current account deficit (CAD) to double to \$30 billion in Q1 FY23 from the modest \$13 billion in the previous quarter. However, robust service surpluses will partly absorb the shock. We expect the CAD to be in the \$100-105 billion range in FY23. The CAD in the current fiscal year is expected to be 3% of GDP. India witnessed a current account deficit (CAD) of 1.2% of GDP in 2021–22 against a surplus of 0.9% in FY2020–21 due to a wider trade deficit.

The Reserve Bank of India (RBI) has been intervening in the foreign exchange (forex) market to contain volatility in the rupee. But with other emerging market currencies weakening, RBI allowed the Indian currency to weaken gradually. We may witness a rupee at 80 to the dollar. India's forex reserves have fallen by \$35 billion in the last three months. However, reserves at close to \$600 billion (12 months of import cover) are sufficient for RBI to cushion the rupee's fall.

Going by the real effective exchange rate weighted by India's trade with 40 countries, INR is still around 2% overvalued compared to its long-term average. A sharp drop in INR is unlikely, given that RBI is hiking policy rates in line with rate hikes by the U.S. Fed. With the US-India interest rate differential maintained, a steep slide in the rupee's external value will be avoided.

The rupee has depreciated over 5% against the dollar this year, with the currency touching a low of 79 to a dollar. The Indian currency could weaken to 80 to the dollar over the next few weeks. Forex reserves stood at \$596.5 billion as of 10 June. However, over the next year, reserves could rise if exporters benefit from the cost advantage.

In 2021–22, gross foreign direct investment (FDI) inflows into India increased for the ninth consecutive year to \$83.5 billion, an all-time high. The Indian central bank defines FDI as investments from those outside India in an unlisted company or 10% or more of a listed company.

The United States has named India for currency manipulation because India met two of the three specific criteria for determining if a country's exchange rate is being artificially manipulated to gain an unfair advantage over the United States. The three criteria are a bilateral goods and service trade surplus of at least US\$15 billion, a current account surplus equivalent to 3% of GDP, and persistent, one-sided foreign-exchange interventions worth at least 2%. India met the first and the third criteria. Incidentally, the US has become India's largest trading partner displacing China.

India did not allow an anticipated effort by China's Xi Jinping to use this year's BRICS summit as a platform to highlight his efforts to build an alternative to the US-led global order. The virtual event brought Xi, Russian President Vladimir Putin, Indian Prime Minister Narendra Modi, South Africa's Cyril Ramaphosa, and Brazil's Jair Bolsonaro. India also effectively prevented any attempts by China and Russia to use the summit to score a propaganda victory against the U.S.

	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

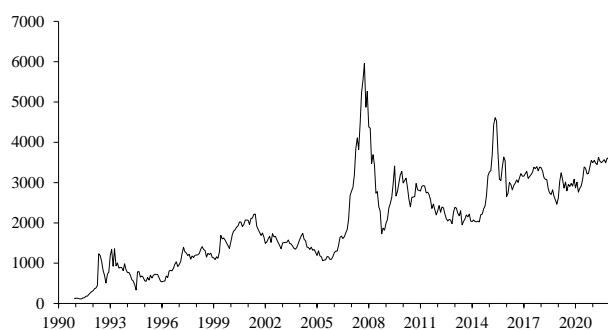
## China

The Covid pandemic is upsetting the public at large. A news item quoted an influential politburo member saying that the zero covid policy will remain in place for the next five years. The news item was quickly removed from the website as it may have caused panic. The public is wary of the government tracking all their movements. Public protests and street brawls with enforcement officials have become frequent.

Effects related to the Covid pandemic will make it challenging for China to meet its 5.5% annual growth target, according to Wang Yiming, an adviser to the monetary policy committee of the People's Bank of China. Greater China continues to rank among the worst places to live during the pandemic.

President Xi Jinping reaffirmed the GDP target and given the doubtful integrity of the government's published data, we

China: SSE Composite Index



may see the same in print. China's commitment to its zero-Covid policy remains intact. Only the result of the 20th Party Congress in October can change this policy. We maintain our forecast of GDP growth of 4% in 2022 and 2023 because the industrial sector seems less affected by the pandemic than people at large.

The Chinese economy has suffered from the Covid lockdowns since March in the technology hub Shenzhen, car manufacturing centre Jilin and financial metropolis Shanghai. But it returned to growth in June as Shanghai reopened and lockdowns eased elsewhere. Its manufacturing PMI recorded 51.7, its fastest in 13 months, in June due to a strong rebound in output, as the lifting of Covid lockdowns sent factories racing to meet recovering demand. Its services Purchasing Managers' Index climbed to 54.5 in June from 41.4 in May, the highest level in nearly a year.

Inflationary pressure stayed soft in China as Covid-19 lockdowns hammered domestic demand, leading economists to forecast that policymakers might increase stimulus to boost economic growth and employment.

Consumer inflation continued low in May, as the inflationary pressure was checked due to domestic demand compression. Consumer prices were up 2.1% from a year earlier, matching April's rate. The CPI remained below the government target of 3%. The producer price index rose 6.4% in May. With moderated inflation in May as global commodity prices cooled and consumer demand weakened, there was room for authorities to ease monetary policy and add stimulus to shore up the economy. The PBOC cut its one-year medium-term lending facility rate in January and refrained from cutting it again in May despite mounting evidence of a slowdown in economic growth. We expect the PBOC to cut its policy rate by 20 basis points by the end of the year. We also expect a cut to the reserve requirement ratio (RRR) by 50 basis points in 2022. The central bank last reduced the RRR in April by a smaller-than-expected amount. The divergence between China's monetary policy and the West is because China did not have to stimulate the economy in 2020 and 2021. The People's Bank of China kept the one-year loan prime rate (LPR) unchanged at 3.70%, while the five-year LPR, the reference rate for mortgages, was left at 4.45%.



China’s central bank cut interest rates for first-time home buyers while slashing its benchmark reference rate for mortgages by an unexpectedly wide margin of 0.15 percentage points in May.

China’s exports may contract this year in volume terms even if nominal growth could be positive due to price increases. Exports in May surged as Covid-19 restrictions eased. Exports grew 16.9% in May compared with a year earlier. Imports also rose 4.1% in May after staying flat in April. The strong export surge pushed China’s overall trade surplus to \$78.8 billion in May, widening from a \$51.1 billion surplus in April.

Foreign investors are abandoning China’s bond markets. There have been three main drivers of the change: (1) a deepening monetary-policy divergence, (2) the collapse in China’s growth rate due to the impact of rolling lockdowns and restrictions to curb Covid-19 and, and (3) a hit from Russia’s war on Ukraine as investors worry that the war will linger on. However, the equity market index, the CSI 300, has risen almost 20% from its lows in April, helped by optimism about Beijing easing some of its Covid restrictions and that the government will continue to provide support from monetary and fiscal policies. President Xi presided over celebrations marking 25 years since the U.K. returned Hong Kong to China and incoming Chief Executive John Lee’s swearing-in.

The People’s Bank of China will create a yuan reserve pool with the Bank for International Settlements and five other regulators to provide liquidity to participating economies in periods of market volatility. The agreement marks the latest step from Beijing to push the internationalization of the Chinese currency, challenging a global financial system dominated by the U.S. dollar. It is partly in line with Russian thinking to develop a new global reserve currency alongside China and other BRICS nations, to challenge the dominance of the U.S. dollar. China is ready to bid on behalf of Russia as China noted the speed and stealth with which the U.S. Treasury moved on dollar-denominated assets of Russian nationals.

	20	21	22	23	24
GDP (%p.a.)	2.2	8.1	4.0	4.0	4.5
Inflation (%p.a.)	2.5	1.8	2.0	2.0	1.5
Trade Balance(US\$ bill.)	60.0	80.0	60.0	52.0	45.0
Rmb/\$(nom.)	6.7	6.4	6.7	6.7	6.6

## South Korea

The spectre of the worldwide recession has taken a toll on the growth rate of GDP in South Korea. In the first quarter of 2022, the economy slowed down a little, and we forecast GDP growth to be 2.4%. In 2023, the country’s GDP is also forecast by the same amount. South Korea has come up with a mixed bag of policy measures for slower growth and higher inflation. The government has stepped up its fiscal stimulus with a second additional budget spending for this year, while the central bank is raising interest rates to tame prices.

**Korea: Composite Index**



**Taiwan: Weighted TAIEX Price Index**



Consumer prices advanced 5.4% in May from a year earlier, and the central bank expects inflation to grow at the same pace amid supply constraints for crude oil and grain in June and July. The central bank is unlikely to switch from a quarter-percentage-point hike to a half-percentage-point increase in the base rate.

South Korea’s exports rose 5.4% yearly in June on solid demand for chips and petroleum products. Imports advanced by 26.2% due mainly to high global energy costs and the surge in raw materials prices. Accordingly, the country had a trade deficit of \$10.3 billion from January-June.

South Korea’s won is just shy of 1300 to a U.S. dollar, the weakest level in 13 years on a concern of aggressive rate hikes in the U.S. South Korea has recorded more than \$14 billion in foreign outflows this year through mid-June. It had a knock-on effect on the stock market. The benchmark Kospi Composite was down about 21% this year amid a global market selloff.

	20	21	22	23	24
GDP (%p.a.)	-0.9	4.2	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	1250	1300	1310

## Taiwan

The impact of China’s slowdown is becoming visible in Taiwan. Laying off workers due to demand shrinkage of industrial products is weakening private consumption. We expect Taiwan’s GDP to grow by 3.5% in 2022. An outbreak of indigenous COVID-19 infection forced businesses in the service sector to place their workers on unpaid leave. But

this type of interruptions will be few. In Taiwan, 83% of the population is fully vaccinated.

The central bank has cut the GDP growth forecast to 3.75% in 2022 as downside risks in the global economy are expected to hurt the local economy.

The central bank revised the consumer price index upwards to grow 2.83%. To rein in growing inflationary pressure, the central bank raised its key interest rates by 12.5 basis points, with the discount rate up to 1.5% in June. In the second consecutive quarter, the central bank has hiked interest rates after a 25 basis point hike in March. Besides this, the central bank has also raised the reserve ratio by 25 basis points effective from 1 July. In line with central banks elsewhere, the bank moved to reduce market liquidity. According to the central bank’s estimates, its measures will take about NT\$120 billion (~US\$4 billion) out of the banking sector.

In June, the trade surplus was down 60.5% from a year earlier; even though the exports are growing by 20% from a year earlier, the imports rose 26.7% year-on-year.

The United States has named Taiwan for currency manipulation because Taiwan met two of the three specific criteria for determining if a country’s exchange rate is being artificially manipulated to gain an unfair advantage over the United States. The three criteria are a bilateral goods and service trade surplus of at least US\$15 billion, a current account surplus equivalent to 3% of GDP, and persistent, one-sided foreign-exchange interventions worth at least 2%.

The U.S. has moved further in its policy of strategic ambiguity with respect to Taiwan. The U.S. has insisted that the U.S. government’s “One China Policy” had not changed. In May, the U.S. Department of State website changed its description of U.S. relations with Taiwan. It removed wording “on not supporting Taiwan independence and on acknowledging Beijing’s position that Taiwan is part of China.” The description is changed again to “not support Taiwan independence.” Taiwan has not raised any concern as it is hopeful that help from the Quad countries — Australia, Japan, India, and the U.S. — will be swifter than the help provided by the U.S. and the E.U. to Ukraine.

	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

Brazilian economic indicators have been very volatile in the last 18 months because of inflated commodity prices and unprecedented monetary tightening. The Central Bank expects Gross Domestic Product (GDP) to grow 1.7% by the end of 2022. We want to keep our cautious GDP forecast for the time being at 1% because of uncertainty around the presidential election due in October.

Brazil: Bovespa



The central bank also expects inflation to cool down rapidly. The bank forecast National Consumer Price Index (IPCA) to grow by 6.3% in 2022. It projects inflation to subside to 4% and 3.1% in 2022 and 2023, respectively. Our forecast for 2022 and two years after that remains unchanged as recession in developed countries and muted growth of the Chinese economy will adversely impact Brazil’s exports while imports remain elevated.

The central bank raised its benchmark interest rate for the 11th consecutive time in mid-June, despite signs of slowing inflation and economic growth, and signalled another rate boost at its next meeting in August. It raised the Selic rate by a half-point to 13.25%, the highest level in more than five years. The effects on inflation from its previous hikes are visible, but it will take another two quarters before it falls within the central banks’ target of 4% with +/- 1.5% tolerance.

Congress approved a bill to limit states’ fuel sales taxes, which should help slow the pace of consumer-price increases ahead of Brazil’s October presidential election.

Brazil’s trade surplus narrowed in May as imports rose more than exports. The country recorded an excess of \$4.9 billion in May after a surplus of \$8.1 billion in April. Brazil’s trade balance for the year’s first five months accumulated a surplus of US\$ 25 billion.

The real declined more than 9% against the dollar over the last three months due to a decline in commodity prices.

Presidential candidate Luiz Inacio Lula da Silva is gaining currency that he can put the economy back on track and help to boost the country’s currency. A stronger real would help in bringing inflation down. Many who supported Bolsonaro in 2018 are now “jumping ship.”

Brazil President Jair Bolsonaro is facing a more significant challenge from a Supreme Court judge. Justice Alexandre de Moraes leads a broad investigation into disinformation that keeps touching the president. Bolsonaro is following Donald Trump’s lead and sowing doubt about the integrity of the voting process. Moraes is due to take charge of the electoral authority six weeks before October’s vote has made things worse.

Liverpool Investment Letter — July 2022

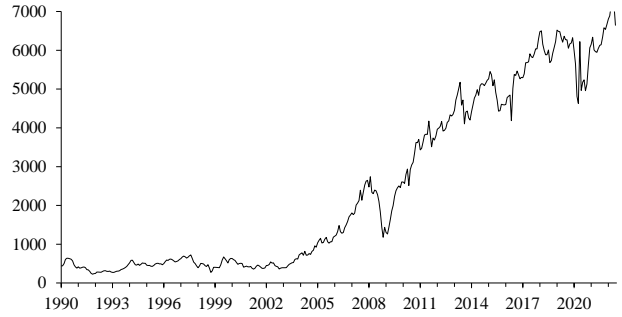
	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>
GDP (%p.a.)	-3.9	4.6	1.0	1.5	2.0
Inflation (%p.a.)	4.5	8.5	8.0	4.0	4.0
Current A/c(US\$ bill.)	-7.6	-10.0	-10.0	-12.0	-20.0
Real/\$ (nom.)	5.5	5.3	5.2	5.0	5.0

## Other Emerging Markets

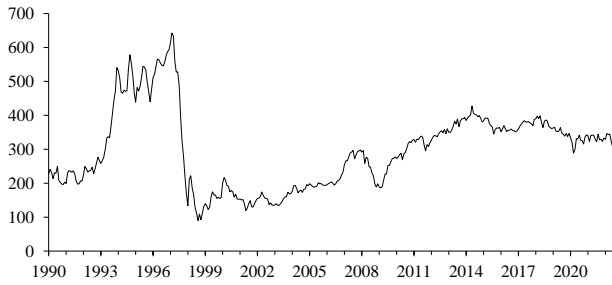
**Hong Kong: FT-Actuaries**



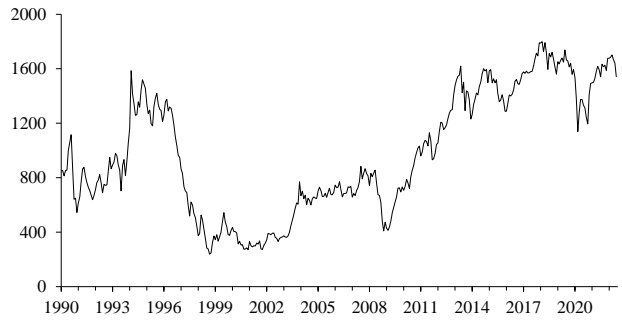
**Indonesia: Jakarta Composite**



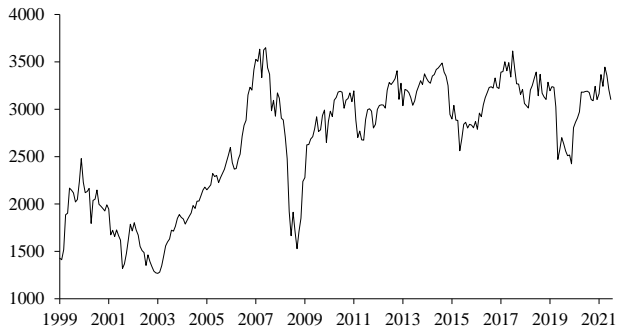
**Malaysia: FT-Actuaries  
(US\$ Index)**



**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)**



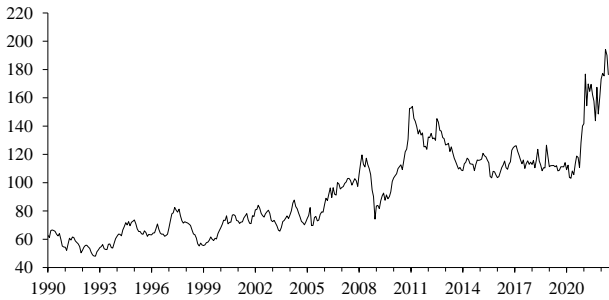
**Commodity Price Index (Sterling)**  
(Economist, 2015 = 100)



**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 % <sup>1</sup> (CPI)	Short Dated (5 Year) Interest Rates	3 Month Int. Rates	Nominal Exchange Rate (2005=100) <sup>2</sup>	Real Exchange Rate <sup>3</sup>	Real 3 Month Int. Rates % <sup>4</sup>	Inflation (RPIX)	Real Short Dated Rate of Interest <sup>5</sup>
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

<sup>1</sup> Consumer's Expenditure Deflator

<sup>2</sup> Sterling Effective Exchange Rate Bank of England

<sup>3</sup> Ratio of UK to other OECD consumer prices adjusted for nominal exchange rate

<sup>4</sup> Treasury Bill Rate less one year forecast of inflation

<sup>5</sup> 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) <sup>1</sup>	Wage Growth <sup>2</sup>	Unemployment (New Basis) Percent <sup>3</sup>	Millions	Real Wage Rate <sup>4</sup> (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

<sup>1</sup> Whole Economy

<sup>2</sup> Average Earnings

<sup>3</sup> Wage rate deflated by CPI

**Estimates and Projections of the Gross Domestic Product<sup>1</sup> (£ Million 1990 Prices)**

	Expenditure Index	£ Million '90 prices	Non-Durable Consumption <sup>2</sup>	Private Sector Gross Investment Expenditure <sup>3</sup>	Public Authority Expenditure <sup>4</sup>	Net Exports <sup>5</sup>	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

<sup>1</sup> GDP at factor cost. Expenditure measure; seasonally adjusted

<sup>2</sup> Consumers expenditure less expenditure on durables and housing

<sup>3</sup> Private gross domestic capital formation plus household expenditure on durables and clothing plus private sector stock building

<sup>4</sup> General government current and capital expenditure including stock building

<sup>5</sup> Exports of goods and services less imports of goods and services

**Financial Forecast**

	PSBR/GDP % <sup>1</sup>	GDP <sup>1</sup> (£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

<sup>1</sup> 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)<sup>1</sup>

	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

<sup>1</sup> 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. <sup>1</sup>	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

<sup>1</sup> 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