

LIVERPOOL INVESTMENT LETTER

January 2021



Cardiff Business School

Ysgol Busnes Caerdydd

Julian Hodge Institute of Applied Macroeconomics



LIVERPOOL RESEARCH GROUP IN MACROECONOMICS

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

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

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<p>Against confident predictions of Remainers that an EU trade deal was impossible, a deal has now been signed which achieves the main aims of Brexit. There are still details to evolve in relations on services; but with politics less in the limelight, sensible economic arrangements should be put in place.</p> <p>The Covid second wave and the inevitable lockdown response has again brought the economy's recovery to a limping pace. In the second wave hospitals are filling up fast, with cases climbing steeply with a new variant; deaths are now rising well above normal rates. With vaccination rolling out, the prospect is that some normality will return from Easter.</p>	
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THE POST BREXIT WORLD

At last Brexit has been done, with a UK-EU trade agreement bringing the process to an end., without disturbing our business and other relationships with the EU. Now the UK is free to conclude trade agreements around the world, and remould its laws to stimulate enterprise and innovation. We have argued for a wide range of new policies to do this: see ‘After Brexit — what next?’ by Patrick Minford with David Meenagh to examine the agenda. We think these policies will lead to a new golden age of UK growth.

How Boris Johnson got his Deal

According to the Remainer school of thought on trade, the only possible deal the EU would agree to was Brexit-in-Name-Only (BRINO), in which the UK effectively continued to trade with the EU under the EU Single Market regulations. This was the deal agreed to by Theresa May and rejected by Parliament for a long time, with Boris and other Brexiteers opposing it.

When Mr. Johnson announced he would negotiate a normal free trade deal such as the EU had with Canada, these Remainer thinkers dismissed his quest as impossible. Once again, they said, Johnson would, like May, be forced to agree to BRINO ‘because the EU held all the cards’. Their argument was that that EU trade was more important for the UK than UK trade was for the EU. Exports to the EU were over 40% of UK exports; but exports to the UK were only 15% of EU exports. Hence the bargaining power lay most with the EU: we needed our neighbours more than they needed us.

However, instinctively Johnson knew this assessment was wrong, based on a wrong model of trade, the notorious and currently highly fashionable gravity model, under which trade emerges among neighbours from proximity and size, and once established is hard to dislodge; symmetrically it is hard to establish new trade that does not emerge as ‘neighbourly’ trade.

It is fairly obvious by inspection that UK trade does not conform to this model. It is far flung, much of it related to free trade patterns developed in imperial days when the flag followed trade to India, the Far East and the rest of the Commonwealth-to-be. With now dominant services, neighbourliness has little role: the City of London is the world’s No.2 financial centre. It was to describe this trade pattern that Ricardo framed his theory of comparative advantage, and later theorists such as Eli Heckscher and Bertil Ohlin located that advantage in resource endowments such as skilled labour, a deep capital market, available land and vital institutions like the legal order.

In this trade model, international markets are highly competitive and if you have a competitive product you can sell it anywhere in the world, merely absorbing transport

Table 1: Summary of Forecast

	2017	2018	2019	2020	2021	2022	2023
GDP Growth ¹	1.8	1.3	1.4	-10.6	6.1	4.2	3.2
Inflation CPI	2.6	2.4	1.8	0.9	1.6	2.1	2.0
Wage Growth	2.8	3.0	3.5	0.3	2.3	3.2	3.3
Unemployment (%) ²	4.4	4.1	3.8	5.0	5.6	3.6	2.9
Exchange Rate ³	77.4	78.6	78.1	78.6	80.1	80.0	79.9
3 Month Interest Rate	0.4	0.7	0.8	0.2	0.2	1.5	4.5
5 Year Interest Rate	0.6	1.0	0.6	0.2	0.4	1.8	4.7
Current Balance (£bn)	-68.3	-82.9	-83.8	-42.1	-47.1	-41.1	-36.8
PSBR (£bn)	53.7	39.3	43.2	332.5	155.3	86.4	40.4

¹Expenditure estimate at factor cost

²U.K. Wholly unemployed excluding school leavers (new basis)

³Sterling effective exchange rate, Bank of England Index (2005 = 100)

costs, which have become quite trivial for goods and basically do not exist for services. What you produce depends on comparative advantage and world prices; you then import what you demand and cannot produce.

In Cardiff we have done statistical work on testing our ‘Ricardian’ model as just described against the UK trade facts, comparing it with the gravity one used by Remainers. The latter is heavily rejected while the former passes comfortably.

Under our Ricardian model if you join a customs union like the EU, then that EU sets tariffs and other barriers against the rest of the world which raises the prices of the protected goods — for the EU it is goods that get protected: agriculture (France’s interest) and manufacturing (Germany’s). If you import those goods, as we do, you pay more for them not just from the rest of the world (ROW) because of the tariffs etc. but also from the EU, who charge you a premium price, due to being protected from world competition in the UK market.

It is the loss of this premium that is the EU’s loss from Brexit, apart from our budgetary contribution. In their bargaining they have tried to bully us into abandoning an independent trade policy; ideally from their viewpoint we would keep the same EU standards and so ROW non-tariff barriers; and we would be limited as much as possible in our free trade agreements with the ROW. Hence the EU push for BRINO.

But this also exposed their bargaining weakness. By signing FTAs with the ROW in which we eliminated these tariff and non-tariff barriers, prices in the UK market would fall to world prices and the EU price premium would go. Given our EU trade balance is –£100 billion approximately, the loss of this price premium is around £20 billion net (to EU exporters net of gain to EU consumers) and to EU exporters of food and manufactures of £300 billion a gross cost of £60 billion. So this is a hefty loss to EU producers of food and manufactures, where protection is 20%: a 1.8% loss of their value-added, and up to more than half their net profits.

Under ‘No Deal’, in addition tariffs would have to be imposed by both sides at chosen ‘mfn’ levels. Suppose both

the UK and the EU imposed the current EU tariffs (roughly what was proposed), then these same EU producers would have paid £13 billion to the UK Treasury — about another 0.3% of their value added, and up to 10% of their net profits.

On the UK side, matters look a lot better under No Deal. Signing FTAs with ROW gives us the gains of free trade at world prices, raising productivity and improving consumer welfare — an overall gain to GDP on our model of 4–8%. We would buy EU products at world prices too since it is only at these prices they will sell much to us at all: to preserve this key market their prices will have to compete, hence their exporters must absorb the UK tariffs, and cannot pass them on. Any tariffs the EU charges on their imports from us cannot force our producers to sell at lower than world prices which rule our markets; so UK prices in the EU will rise in line with EU tariffs (which would raise about £5 billion) and be paid by EU consumers — who will still buy our goods because EU prices generally are higher due to protection against ROW.

A further detail in all this is that under No Deal both EU and UK cannot be protectionist on standards against each other as this contradicts WTO discrimination rules.

Summing up the bargaining situation, Deal vs No Deal, we can see that the EU stood to lose a lot under No Deal while the UK would in fact have gained a lot. However, the UK wanted a deal on other grounds of having good neighbourly relations (avoiding ‘chaotic’ failures to agree new ways of interacting), as has repeatedly been emphasised by Brexiteers. Johnson and Co had no desire to make gains and cause the EU losses via a tariff war. However, as long as the EU tried to avoid a proper trade deal, they were willing to threaten this ‘walk-away’ strategy. It was due to fear of this that in the end the EU gave up trying to bully us into a BRINO, which is what they really wanted.

The brutal facts for the EU were that with a Deal they would lose their price premium to the UK, but with No Deal they would lose this and also a sizeable tariff payment to the UK Treasury. The least bad choice was a Deal.

For the UK No Deal offered up to 8% of GDP gains from free trade, plus a sizeable tariff gain not available from a Deal; but a period of uncertainty (‘chaos’) in general EU relations that would be avoided under a Deal. BRINO offered the prospect of the EU status quo — a far worse outcome than No Deal. They too preferred a Deal but could gain almost as much from No Deal.

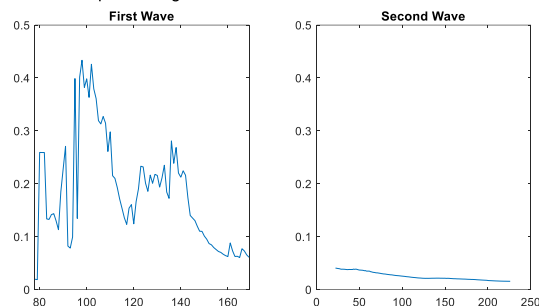
Hence the cooperative solution was a Deal. The EU could not enforce BRINO because the UK would have responded with No Deal, much superior for them compared with BRINO.

Boris Johnson is to be congratulated on understanding how wrong the Remain analysis was and sticking firmly to his No Deal threats.

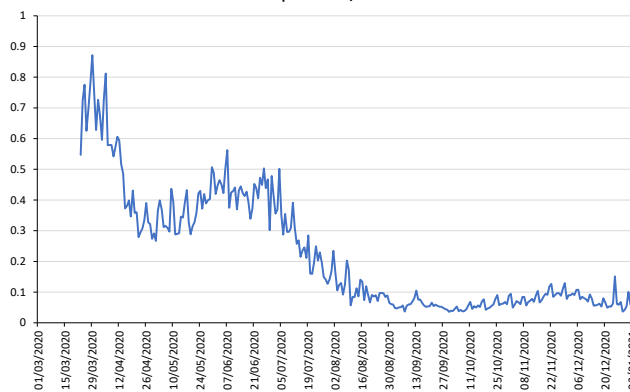
The second wave- puzzles and another lockdown

The UK’s second wave of Covid infections has risen sharply in recent weeks and hospitalisations with it. The new variant responsible is much more infectious than the first wave virus. But both the hospitalisation rate per case and the death rate per case have fallen off markedly too. This has mirrored experience in other countries with second waves.

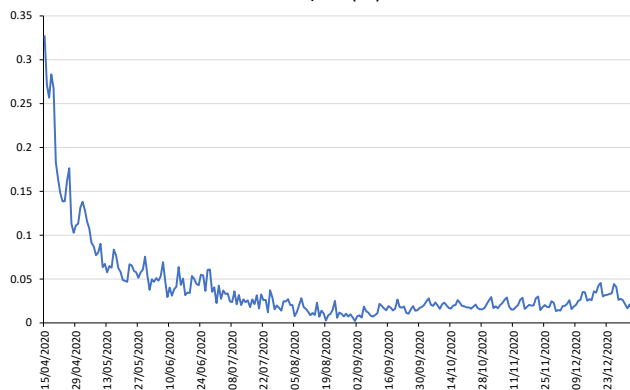
Cumulative Deaths/Cumulative Cases 21 days before, since start of wave simple average for 28 countries with second waves

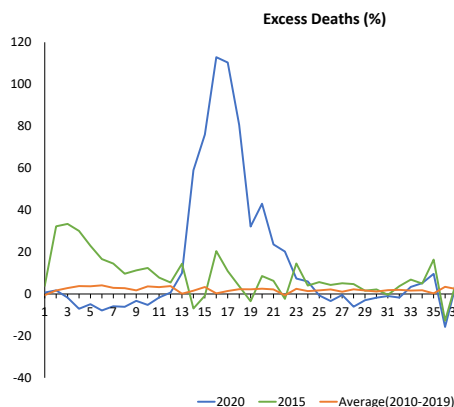
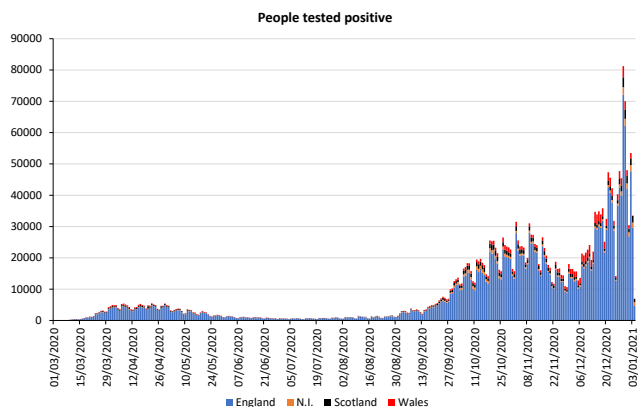


Hospitalisation/Cases



Deaths/Cases(-21)

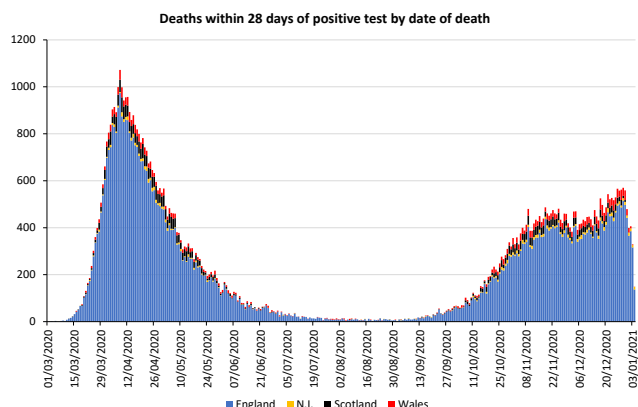




Nevertheless with infections rising so fast even these falling rates have produced big absorption of hospital capacity, with beds running short in many localities, and rising excess deaths (i.e. deaths in excess of the 5-year average for the corresponding weeks) now reaching 45% above normal.

Table 2: Deaths and Excess Deaths

	Deaths	Previous 5 year average	Excess deaths (%)
2020	604,045	531,129	13.7
2019	527,234	525,250	0.4
2018	539,340	518,151	4.1
2017	533,125	510,817	4.4
2016	524,474	502,792	4.3
2015	539,007	503,285	7.1
2014	497,700	494,158	0.7
2013	503,665	493,672	2.0
2012	496,616	494,604	0.4
2011	484,391	498,192	-2.8
2010	493,166	502,128	-1.8



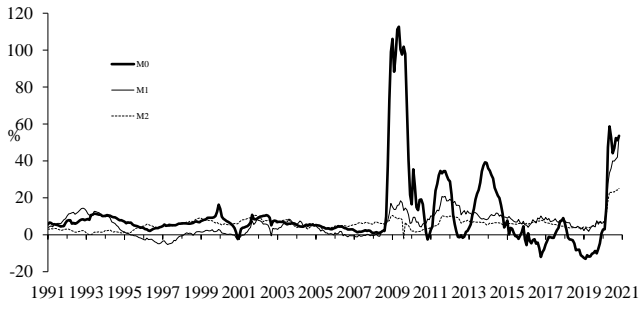
The validity of the cases data is widely questioned. An alternative interpretation of it is that the introduction of mass testing using PCR (swab) tests has created a percentage of false positives due to the swabs picking up dead virus material. A likely value for this percentage is 5%. This percent of a large and rising number of new mass tests would produce a surge in registered but false infections. As for the data on rising Covid deaths, the methodology used is to count as a death due to Covid anyone registered as Covid-infected who dies within 28 days of this registration date. However, in fact such a person may have died anyway, with the registered ‘infection’ being simply a false positive. If this group of those due to die was mass tested and produced the same rate of false positivity, then there will be a similar rate of increase of them with rising test rates as of the rest; hence we would observe rising ‘deaths due to Covid’ in line with generally rising Covid ‘cases’.

However, the rising trend of total excess deaths suggests that the data is not particularly misleading. We can compare 2020 excess deaths in the second wave with a bad year for deaths such as 2015, which as the table shows had average excess deaths over the year of 7.1%, and which as the graph shows fluctuated to over 30% in the early weeks of the year.

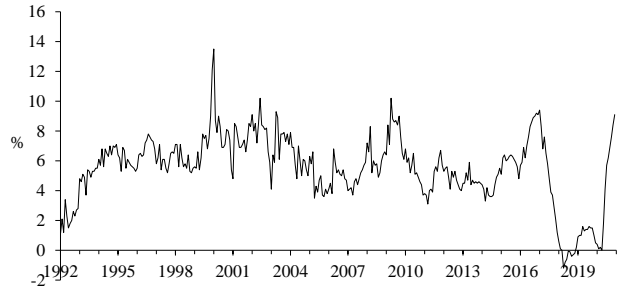
It is rather clear from the latest deaths data that deaths are becoming unusually high for the time of year, now reaching 45% above normal. While the second wave kills a much smaller proportion of infected people than the first, because it is so much more virulent, it is still resulting in an alarming rise in deaths. The same seems to be true across most of the rest of the world facing second waves.

The data tells us that 2015 was a bad year for excess deaths, with a particularly bad winter of 2014–15, when they reached the high 30% range. So far the current second wave has not gone much above this, but it is still rising, so the lockdown response has been inevitable. Public opinion plainly would not support a policy of treating the current situation the same way as a ‘bad flu season’, essentially because Covid is rightly perceived as far more deadly than flu.

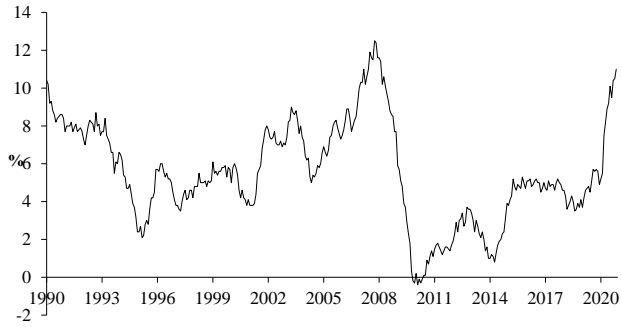
U.S.: Growth in Monetary Aggregates (Yr - on - Yr)



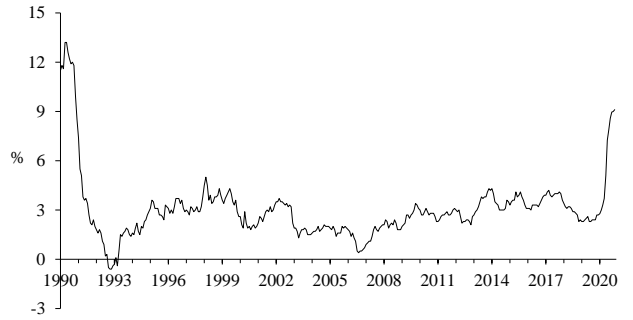
UK: Notes and Coins in Circulation Growth



Eurozone M3 Growth



Japan: Growth of M2+CD's



FOCUS ON JAPAN

Francesco Perugini

Economics Prospects for 2021

Japan's economy is expected to make its sharpest rebound in decades this year, with consumption set to pick up toward the end of 2021 as the impact of the COVID-19 pandemic on the broader economy eases. The world's third largest economy is projected to grow 3.4% in the next fiscal year, which starts in March, after shrinking 5.3% this fiscal year, according to an average of forecasts by 35 economists polled by the Japan Center for Economic Research, a think tank based in Tokyo — we forecast a milder 2.6% growth for the calendar year, while the government is more optimistic with a 4% increase. If the estimate is borne out, it would see a turnaround from the economy's worst contraction to its highest growth since fiscal 1995, when comparative data became available. Firms are also optimistic about future economic trends. In a recent Kyodo News survey, a leading Japanese newspaper, some 72% of major Japanese companies expect the economy to expand at a moderate pace in 2021 amid hopes that the fallout from the coronavirus pandemic will subside.

Consumer spending is poised to gather momentum as COVID-19 vaccines become available for widespread use by summer. "Japan's economy is going to benefit from the effect of nationwide vaccination," Atsushi Takeda, chief economist of the Itochu Research Institute, said.

Economists say that the economy would also get a one-off boost if the postponed Tokyo Olympics and Paralympics go ahead from July as currently planned. The NLI Research Institute, another major research centre based in Tokyo, estimated in March that the postponed games would carry over demand worth ¥2 trillion into the next fiscal year, while Atsushi Takeda, board member at Itochu Research, one of the largest trading companies in Japan, said the games will not just lift personal spending but also strengthen consumer confidence. "Fostering an atmosphere that we have been able to hold the games by bringing the virus spread under control is important for the economy," he said. If coronavirus vaccines become available as expected, service businesses such as entertainment, transportation and travel companies will be among the sectors to reap significant benefits, said Toshihiro Nagahama, chief economist at the Dai-ichi Life Research Institute. "Domestic consumption in the service sector could possibly normalize in the latter half of the year" with restrictions removed on human mobility and personal contact, Nagahama said. If, on the other hand, vaccination falls behind schedule, it would "jeopardize" the country's efforts to host the games, and consumption in the service sector would "continue to be forced into stagnation," he added.

The government aims to bring the economy back to pre-pandemic levels with help from stimulus measures next

fiscal year. But other economists have cautioned that such a view seems too optimistic, and that a recent resurgence of infections with new virus variants emerging could even stall the recovery in early 2021. "If virus infections keep spreading, companies will have to prepare for prolonged poor earnings," said Shinichiro Kobayashi, a senior economist at Mitsubishi UFJ Research and Consulting Co. "They might have to adjust their payrolls, cut wages and, in the worst case, some may have no choice but to go bankrupt."

Indeed, Prime Minister Yoshihide Suga recently said the government will consider declaring a fresh state of emergency to last for a month amid the spread of the novel coronavirus, covering Tokyo and the three neighbouring prefectures of Saitama, Chiba and Kanagawa. Speaking at a New Year's press conference at the Prime Minister's Office, he said: "The number of newly confirmed infections did not decline in the first three days of the New Year. Tokyo and the three prefectures accounted for half of the infections nationwide." "I take this situation seriously and have come to think that a stronger message [by declaring a state of emergency] is needed," he added.

Tokyo logged 1,337 newly confirmed infections on Dec. 31, topping the 1,000 mark for the first time for a single-day figure. As of Sunday, the number of seriously ill COVID-19 patients in Tokyo totalled 101, the highest since last year's state of emergency was lifted. The current situation is weighing heavily on the medical system in the capital. The previous state of emergency was declared on April 7 for Tokyo and six prefectures and was expanded to all 47 prefectures on April 16. The government initially planned to maintain the state of emergency through May 6, but it was ultimately lifted on May 25.

In the meanwhile, in order to revive the economy, the Cabinet recently approved a record-high ¥106.61 trillion (2.1% of GDP) draft budget for fiscal 2021. Marking a record high for the ninth consecutive year and topping ¥100 trillion for the third year in a row, the budget for the year starting in April will far exceed fiscal 2020's initial budget of ¥102.66 trillion, raising concern over a further deterioration of the country's fiscal health, already the worst among major economies. To finance the budget, new bond issuances will soar ¥11.04 trillion from the current year's initial plan to ¥43.60 trillion, the first year-on-year rise in 11 years on an initial basis. Tax revenues, which were increasing in recent years due to strong corporate earnings and tax hikes, are estimated at ¥57.45 trillion, larger than the downwardly revised estimate of ¥55.13 trillion in fiscal 2020. As a result, 40.9% of the budget will be funded by debt, compared with 31.7% in the current year. The ratio could be bigger if Prime Minister Yoshihide Suga opts for taking additional measures against the pandemic through

supplementary budgets. The draft of the initial general-account budget, which will be submitted to an ordinary Diet session to convene in January, includes ¥23.76 trillion in debt-servicing costs.

The fight against the coronavirus will be a priority this year, but for Prime Minister Suga who has signalled a continuation of the broad policy framework of Abenomics,

it may not be the ideal time to push bold regulatory and administrative reforms as steering a fragile economy will require a sensitive balancing act weighing economic activity against measures to limit the spread of the coronavirus.

MARKET DEVELOPMENTS

With high uncertainties about inflation, bond yields could rise sharply in response to necessary monetary

tightening. Equities remain the best asset class in this environment.

Table 1: Market Developments

	Market Levels		Prediction for Dec/Jan 2021/22	
	Dec 14	Jan 6	Previous Letter	Current View
Share Indices				
UK (FT 100)	6532	6842	10209	10694
US (S&P 500)	3647	3748	4964	5101
Germany (DAX 30)	13223	13892	11699	22797
Japan (Tokyo New)	1791	1796	2098	2105
Bond Yields (government)				
UK	0.22	0.25	0.50	0.50
US	0.90	1.04	1.30	1.30
Germany	-0.62	-0.55	-0.20	-0.20
Japan	0.01	0.04	0.00	0.00
UK Index Linked	-2.37	-2.25	1.00	1.00
Exchange Rates				
UK (\$ per £)	1.33	1.36	1.30	1.30
UK (trade weighted)	77.35	78.39	80.0	80.0
US (trade weighted)	100.30	99.31	102.5	102.5
Euro per \$	0.82	0.81	0.88	0.88
Euro per £	1.10	1.10	1.14	1.14
Japan (Yen per \$)	104.08	103.39	107.5	107.5
Short Term Interest Rates				
UK	0.83	0.83	0.30	0.30
US	0.24	0.25	1.00	1.00
Euro	-0.55	-0.40	-0.50	-0.50
Japan	-0.15	-0.05	0.10	0.10

Table 2: Prospective Yields¹

Equities: Contribution to £ yield of:						
	Dividend Yield	Real Growth	Inflation	Changing Dividend Yield	Currency	Total
UK	3.60	2.4	1.9	52.00		59.90
US	1.99	2.2	2.0	31.90	4.07	42.16
Germany	3.30	1.6	1.5	61.00	-3.67	63.73
Japan	1.90	0.6	1.6	15.00	0.25	19.35
UK indexed ²	-2.25		2.0	8.00		7.65
Hong Kong ³	2.60	5.5	2.0	5.00	4.07	19.17
Malaysia	3.30	6.9	2.0	85.00	4.07	101.27
Singapore	3.50	5.0	2.0	54.00	4.07	68.57
India	1.40	5.0	2.0	14.00	4.07	26.47
Korea	1.10	2.0	2.0	-9.00	4.07	0.17
Indonesia	2.20	4.8	2.0	41.00	4.07	54.07
Taiwan	2.80	2.9	2.0	38.00	4.07	49.77
Thailand	3.20	4.1	2.0	51.00	4.07	64.37
Bonds: Contribution to £ yield of: –						
	Redemption Yield	Changing Nominal Rates		Currency		Total
UK	0.25	-2.53				-2.28
US	1.04	-2.58		4.07		2.53
Germany	-0.55	-3.49		-3.67		-7.71
Japan	0.04	0.43		0.25		0.73
Deposits: Contribution to £ yield of:						
	Deposit Yield	Currency		Total		
UK	0.83			0.83		
US	0.25	4.07		4.32		
Euro	-0.40	-3.67		-4.07		
Japan	-0.05	0.25		0.20		

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	
	December Letter	Current View	December Letter	Current View	December 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

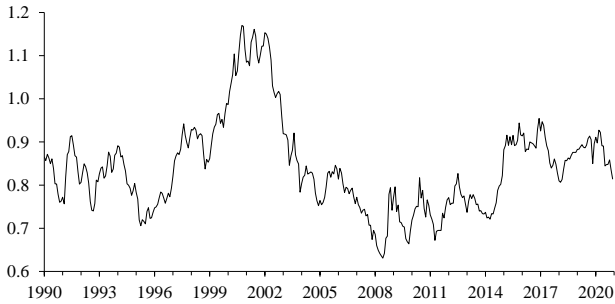
**US : Trade Weighted Index
(Bank of England 1990 = 100)**



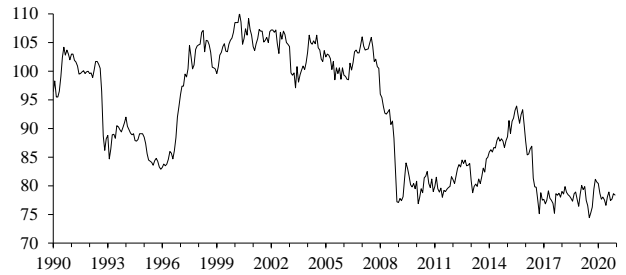
UK: Dollars Per Pound Sterling



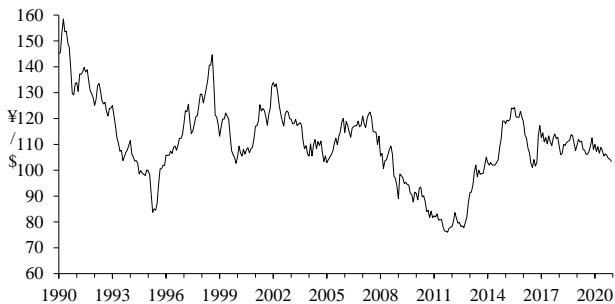
Euro per US dollar



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



Japan : Yen Per U.S. Dollar

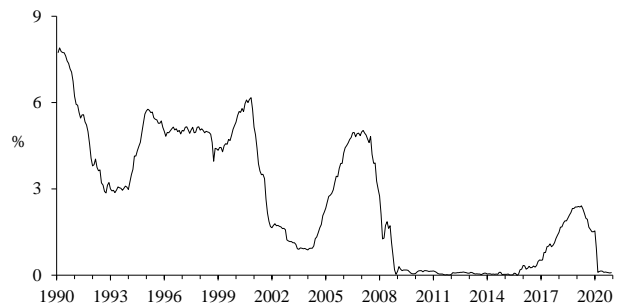


GOVERNMENT BOND MARKETS

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



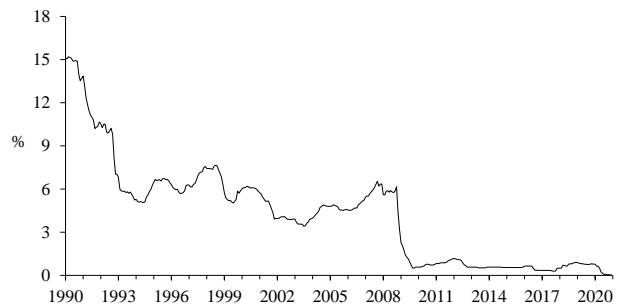
U.S. : 3-Month Treasury Bill



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



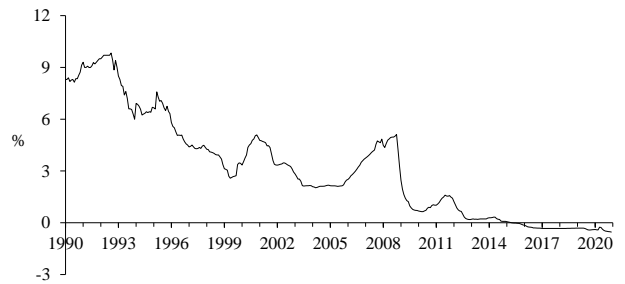
U.K. : 3-Month Certificate LIBOR Rate



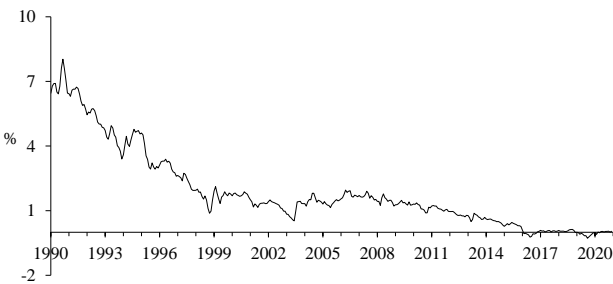
Germany: Yield on Public Authority Bonds



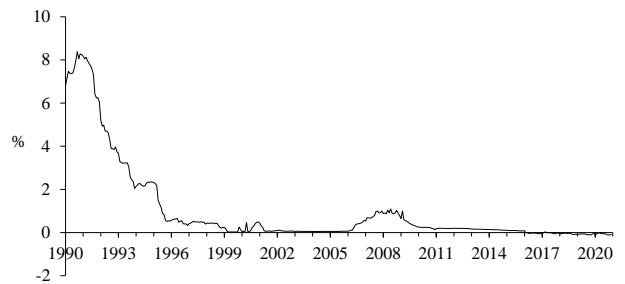
Germany : 3-Month Interbank Deposit Rate



Japan: Yield on Long-Term Government Bonds



Japan : 3-Month Money Market Rate

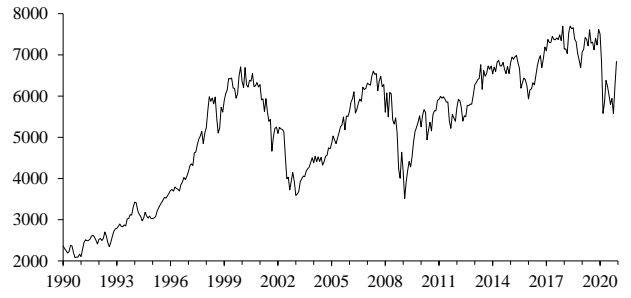


MAJOR EQUITY MARKETS

**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)**



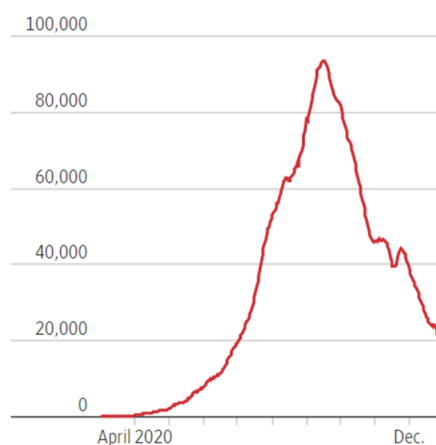
EMERGING MARKETS

Anupam Rastogi

India

In September, the way India was reporting almost 100,000 Covid-19 cases a day, we opined that it would soon pass the U.S. in overall cases. Instead, its infections dropped and are now at one-fourth that level (see the figure below). Despite being too crowded for social distancing, a weak system of an effective contact tracing and an economy that cannot afford a long-term lockdowns, India has managed well. What is clear is that the country's top leadership's unrelenting encouragement and enforcements of mask wearing has yielded the unexpected good results. "Until you have a vaccine, you have a social vaccine, and the social vaccine is the mask," remained the mantra of all politicians.

India's daily confirmed Covid-19 cases, seven-day rolling average



Note: As of Dec. 28.

Source: Johns Hopkins CSSE

Due to this, the Covid-19 pandemic's lasting impact on the Indian economy would be far lower than earlier expected as corporate India managed to shed costs and improve their balance sheets. India's emergency authorization of two Covid-19 vaccines — Oxford University-AstraZeneca vaccine Covishield, to be manufactured by Serum Institute, India and Bharat Biotech-ICMR's Covaxin manufactured in India — and meticulous planning of a massive and logistically daunting government inoculation campaign is likely to see the economy recover completely in the next two quarters. The goal of the inoculation campaign is to vaccinate more than 300 million of the country's 1.3 billion people by the middle of the year, using an army of doctors, nurses, police officers, soldiers and others to deliver and administer doses across the country.

We maintain our forecast of GDP growth of fiscal year 2020–21 to be –6% compared to more pessimistic forecast

India: BSE Sensitive



of –9% of the IMF and the World Bank. We remain circumspect of 2021 GDP growth as well, which we keep at 5% only in the fiscal year 2021–22. The December estimate of the IHS Markit Composite Purchasing Managers' Index is a warning of the rough road that lies ahead for the Indian economy. The composite PMI was at 54.9%, well above the 50% mark that separates contraction from expansion, but below the November figure of 56.3%. The main sector responsible for the deceleration is services, while manufacturing is in relatively better shape. The firms in the services sector are still facing lower demand, liquidity problems and labour shortages as the main problems.

This suggests that the economy will be able to just recover the lost ground in FY22, and surpass the FY20 GDP level in a meaningful way only in FY23. High frequency data suggest that the economy is holding well and it is almost on its feet now.

As Finance Minister Nirmala Sitharaman presents the Budget on February 1, 2021, she is expected to open the fiscal floodgates to prime the economy. The Centre's fiscal deficit is likely to double from the Budget Estimates of 3.5% of GDP for the current financial year. We expect fiscal deficit of 5% of GDP in the next fiscal year and deferring fiscal consolidation for the next two years.

India's retail inflation declined to 6.93% in the month of November, still breaching the Reserve Bank of India's (RBI) upper limit of 6%. However, the inflation will come out within the range of our forecast as another bumper crop would rein in inflation in coming months. Demand pull factors are likely to influence inflation next year.

India's current account balance is estimated at a surplus of \$35 billion or around 1.5% of GDP in FY2021 and shrinking to \$20 billion in FY2022. The current account surplus has also been supplemented by foreign capital inflows. Foreign portfolio investors have pumped \$28.7 billion into Indian equity and debt markets so far this fiscal. But total foreign capital inflows, net of debt repayments and other outflows, have been only \$16.5 billion, for April–September 2020.

India’s foreign exchange reserves rose to \$581 billion by the end of 2020.

Rupee has appreciated to 72.84 against the US dollar and domestic stock markets continue their record-breaking streak with Sensex hitting the 48,000 levels for the first time. In the coming year we expect INR to average 75 against the dollar. In the calendar year 2020, INR was the worst performing currency in Asia. The rupee was down 3.6% during the year compared to appreciation of other Asian currencies such as the Chinese renminbi, South Korean won, Malaysian ringgit and Thai baht.

	18–19	19–20	20–21	21–22	22–23
GDP (%p.a.)	6.8	4.2	-6.0	5.0	5.5
WPI (%p.a.)	3.9	3.6	5.5	5.0	5.0
Current A/c(US\$ bill.)	-70.0	-20.0	35.0	20.0	-10.0
Rs./\$(nom.)	79.5	73.0	75.0	76.0	77.0

China

China is the only major economy which has finished 2020 with gross domestic product growth of 2%. It has begun a strong start to 2021, and we project economic growth of 5.5%. China’s factory growth eased a little in December after expanding strongly in earlier months. China’s official manufacturing gauge fell to 51.9 in December from a three-year high of 52.1 in the previous month, while the Caixin Media and IHS Markit PMI fell to 53 from 54.9 in November, dragged down by weaker output and new orders. China’s growth outlook depends on how it manages deteriorating relations with developed democracies and whether President Xi Jinping’s strategy of cross-fertilization between the state and China’s dynamic private sector can really deliver higher efficiency and technological progress. Its equation with private sector is under stress after the Ant IPO’s fiasco and disappearance of Jack Ma — founder of Alibaba.

China’s headline consumer inflation fell to minus 0.5% in November from a year earlier, from 0.5% growth in October, as pork prices eased significantly, raising the risk of further deflation in China. The deflation suggests some weakness on the demand side as well. Weak inflation figures could postpone central bank action, but are unlikely to derail policy makers from their course of withdrawing the stimulus. The central bank has been signalling for several months already that it wants to start withdrawing the stimulus it pumped into the economy this year to deal with the pandemic. Worried about economy-wide debt-levels, the PBOC has signalled a return to tighter monetary policy.

China’s exports rose at the fastest pace in almost three years in November, as strong global demand for goods needed to ride out the pandemic landed the world’s second-largest economy a record trade surplus. Exports in November rose 21.1% from a year earlier. Imports rose 4.5% year-on-year in November, slower than October’s 4.7% growth. China’s exports were supported by strong overseas demand for personal protective equipment (PPE) and electronics

China: SSE Composite Index



products for working from home. China’s global trade surplus for the first 11 months of 2020 is \$460 billion, up 21.4% year-on-year.

The People’s Bank of China (PBOC) lifted the onshore yuan’s trading band by 1%, to 6.476 per dollar. This is a signal that the PBOC still wants orderly appreciation of the yuan. The yuan may strengthen to the 6.3 level on China’s strong growth and the hefty yield premiums on yuan-denominated assets. A vaccine could slow down its momentum as a wider global recovery narrows China’s yield advantage

The Biden administration is expected to soften some of the rhetoric seen in strained U.S.-China trade relations in recent years. There are no immediate signs the President-elect intends to unwind the punitive tariffs introduced under the Trump administration.

China’s recent adventurism at home and abroad can be explained in economic terms. Its leaders draw confidence to challenge the world from their country’s macroeconomic outperformance, and from their growing belief in the superiority of China’s economic governance model. A new front in the great power competition between the U.S. and China has opened. Beijing isn’t yet ready to challenge the U.S. dollar directly. But it has set its sights on the U.S. bond market, which showed new vulnerability last year. China is taking steps to displace U.S. Treasuries as the world’s most important and reliable asset.

There are signs that China is starting to reduce its direct purchases of the US Treasuries. China’s official foreign exchange reserves total more than \$3 trillion. The composition of China’s foreign reserves and the amount of its dollar-denominated assets are a state secret. But, according to statistics compiled by the U.S. Treasury Department, Chinese direct holdings of U.S. government debt fell in each of the past five months, and are now at the lowest level in nearly five years.

Currently, 10-year U.S. Treasuries yield ~1% nominally, implying a significant negative real return over the decade. China’s comparable 10-year bonds yield about 3.25%, allowing for the prospect of positive real returns. Among the

yield chasing investors Chinese sovereign debt over comparable U.S. Treasuries were not attractive. U.S. prospects rest more on the resilience and dynamism of the micro-foundations of the US economy — the culture of hard work, risk-taking, free allocation of capital and labour, and respect for the rule of law in a market system. China is trying to establish itself as the preferred destination for low-risk capital returns under a state managed economy. The jury is out if China could emerge as a more viable and serious rival to the US dollar.

	18	19	20	21	22
GDP (%p.a.)	6.6	6.1	2.0	5.5	5.5
Inflation (%p.a.)	2.2	2.9	2.0	2.0	1.8
Trade Balance(US\$ bill.)	50.0	40.0	60.0	50.0	40.0
Rmb/\$(nom.)	6.8	7.1	6.7	6.6	6.5

South Korea

South Korea's GDP is expected to contract 1% in 2020 and rebound to 3.1% growth in 2021 on the back of the ongoing recovery from the pandemic. The growth in economic activity was apparent in the high-frequency data in late 2020. The relatively robust rebound reflects base effects from the contraction in 2020, the first full-year negative growth since the Asian financial crisis. Expansionary fiscal policy, combined with accommodative monetary policy, has helped consumers to boost spending during the pandemic. Korea's growth rebound will be driven by export prospects and continued fiscal and monetary policy support during 2021. We assume that the coronavirus pandemic would be well under control by summer of 2021, giving rise to a spurt in the domestic activity and exports. South Korea's purchasing managers' index (PMI) for December remained at 52.9, its third consecutive month above the 50 level that separates contraction from expansion. The Korean PMI is taken as a bellwether for global trade because its reading is often held up as a gauge for future demand. Korean firms have reported further increases in both output and new orders in the IHS Markit's latest survey period.

South Korea's headline consumer inflation remained subdued in December, with price growth for the whole year still far below the central bank's 2% target. The benchmark consumer-price index gained 0.5% from a year earlier, compared with November's 0.6% pace of growth. The inflation averaged 0.5% for the year of 2020, marginally accelerating from a record low of 0.4% in 2019. Lower oil prices on pandemic-suppressed demand and more state subsidies for education still weighed on price growth. We forecast the headline inflation of average 1.0% in 2021 and 1.2% in 2022, almost in line with the Bank of Korea's forecast. Subdued inflation is expected to give South Korea's central bank more room to keep an accommodative monetary stance. The Bank of Korea froze its policy rate at a record low of 0.5% in November amid heightened economic uncertainties over the COVID-19 pandemic.

In 2020, South Korea's exports added up to US\$512.9 billion, down 5.4% year on year. Last month, however, the

Korea: Composite Index



average daily exports hit last year's high of US\$2.14 billion. During the same period imports fell 7.2% to US\$467.2 billion. South Korea's current account surplus for 2020 is expected to be \$70 billion as the services account deficit declined further.

If the US dollar remains under pressure in 2021, we shall see continuous appreciation of the won. The won-dollar exchange rate is set to touch 1,050 won by end of 2021. Global funds are buying the nation's shares at the fastest pace in four years and have purchased \$58 billion of bonds, on course for a full-year record.

South Korea's population decreased for the first time in 2020, entering a downward trend likely worsened by the pandemic. South Korea reported a population of 51.8 million last year, a drop of 20,838 people from 2019, according to government data. A Bank of Korea report suggests that the Covid-19 shock could have a permanent impact on the country's birth rates as the delays in childbearing turn into permanent decisions to forgo having children. Policy makers have started looking into immigration as a response to shifting population dynamics, with a focus on bringing skilled foreign workers into the country. Government officials estimate immigrants and temporary foreign residents will make up 6.9% of the overall population by 2040, an increase from last year's 4.3%.

	18	19	20	21	22
GDP (%p.a.)	2.7	1.8	-1.0	3.1	2.2
Inflation (%p.a.)	1.5	0.4	0.5	1.0	1.2
Current A/c(US\$ bill.)	86.0	60.0	70.0	60.0	40.0
Won/\$(nom.)	1130	1200	1070	1000	1000

Taiwan

Taiwan's economy has performed well as the island country could control the pandemic right from the beginning. Its GDP is expected to grow 2.7% in 2020 and revival of foreign trade and robust investment growth will continue to sustain Taiwan's economic growth in 2021. We expect the GDP to grow 3.5% in 2021. The growth had been uneven. The electronics sector has increased output while that of conventional industry has fallen.

Consumer prices remained well below target of 2% in 2020 and we expect it to grow by 1% in 2021 — well below the central bank’s target. The bank would continue with its accommodating monetary policy.

Taiwan’s dollar has appreciated 6.4% against the US dollar. It was the top performing currency in Asia in 2020. China’s renminbi appreciated 6.2% against US dollar. The Taiwanese dollar climbed as the country’s trade surpluses have ballooned during the pandemic. The NTD traded below NT\$28 against the U.S. dollar on the New Year day, reaching NT\$27.992 for a short while.

	18	19	20	21	22
GDP (%p.a.)	2.6	2.0	2.7	3.5	2.2
Inflation (%p.a.)	1.2	1.0	-1.0	1.0	1.0
Current A/c(US\$ bill.)	68.0	70.0	71.0	70.0	60.0
NT\$/\$(nom.)	29.8	31.0	29.0	28.5	31.0

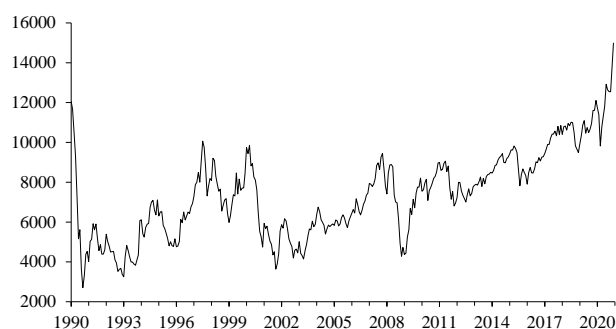
Brazil

The third quarter of 2021 saw a strong rebound. GDP grew 7.7% quarter-over-quarter after a shrinkage of 9.6% in the second quarter. This was because of the economy coming off an extremely low base caused by business restrictions and mini lockdowns in Brazil’s most important cities and supported by the ‘coronavoucher’. The voucher is part of the stimulus package where Brazil chose to make a monthly payment. The voucher payments were an important part of the Covid-relief efforts, equivalent to around 8% of GDP. These payments have been reduced to R\$300 per month from earlier payment of R\$600 per month. Fiscal constraints are forcing the government to end monthly stipends that boosted demand during the pandemic. Meanwhile, unemployment has climbed to an all-time high and the services sector continues to lag. We still expect GDP to shrink 5.5% in 2020 and grow 3% in 2021. The Central Bank of Brazil expects the economy to grow 4.4% in 2021.

Consumer prices rose 4.31% in November from a year ago pushed by continuous increase in food and transportation costs. The monthly voucher payment and depreciation of real kept consumer prices elevated. For 2020, consumer inflation is likely to be 4% and continue to be 4% for 2021 and 2022.

Brazil’s central bank signalled it may be unable to fulfil its pledge to keep interest rates at a record low for long due to rising inflation expectations. The central bank has held the benchmark Selic rate at 2% for the third straight meeting but as inflation expectations for the next two years are rising toward the target of 4%, the central bank of Brazil may be the first central bank to raise the benchmark interest rate. By

Taiwan: Weighted TAIEX Price Index



Brazil: Bovespa



the end of 2021, the selic rates may be increased gradually to 3%.

Brazil exported goods worth \$209.9 billion last year, down from \$225.4 billion the year before. Imports fell to \$158.9 billion from \$177.3 billion. Total trade volume last year fell 7.7% on a daily average basis, but the annual surplus chalked up 6% more than the \$48.1 billion recorded in 2019.

Brazil’s balance of payments position with the rest of the world improved in October as a \$1.5 billion current account surplus helped shrink the 12-month accumulated deficit to its smallest in two and a half years.

After hitting a 16-year low in early November, the real is showing signs of appreciation. Twenty-one Brazilian companies raised 30 billion reais, equivalent to about \$5.8 billion, through IPOs listed on Brazil’s stock exchange this year through November, already making it the most active year since 2007, according to the Brazilian Financial and Capital Markets Association.

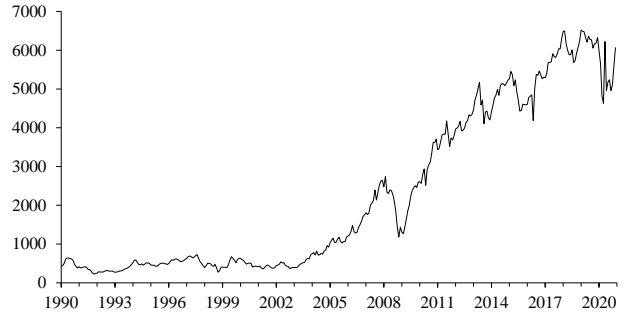
	18	19	20	21	22
GDP (%p.a.)	1.1	0.8	-5.5	3.0	2.5
Inflation (%p.a.)	3.8	4.3	4.0	4.0	4.0
Current A/c(US\$ bill.)	-14.6	-36.0	-7.6	-20.0	-26.0
Real/\$(nom.)	3.8	4.2	5.5	4.9	4.8

Other Emerging Markets

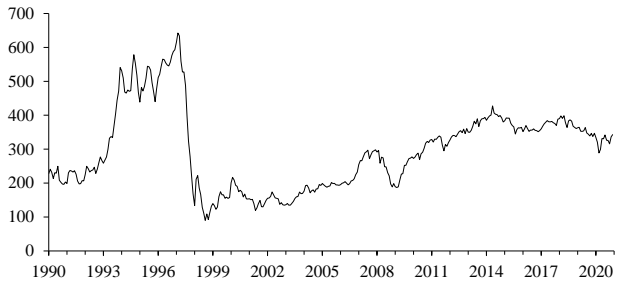
Hong Kong: FT-Actuaries



Indonesia: Jakarta Composite



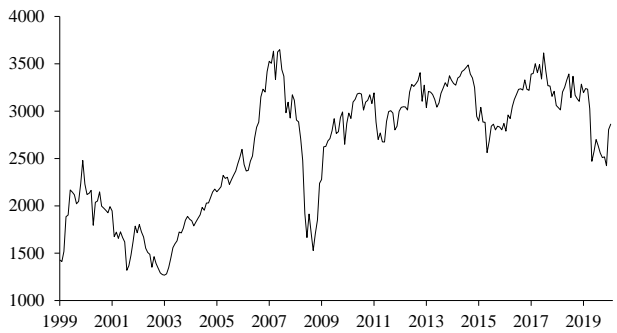
Malaysia: FT-Actuaries (US\$ Index)



Thailand: Composite Index



Singapore: Straits Times Index

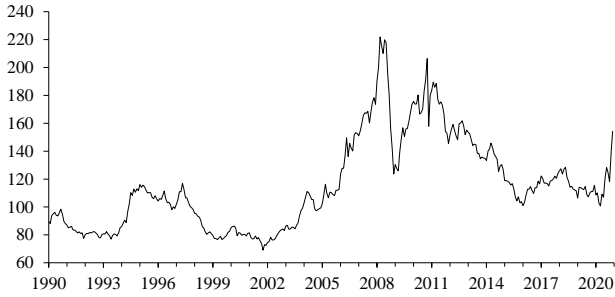


Philippines: Manila Composite

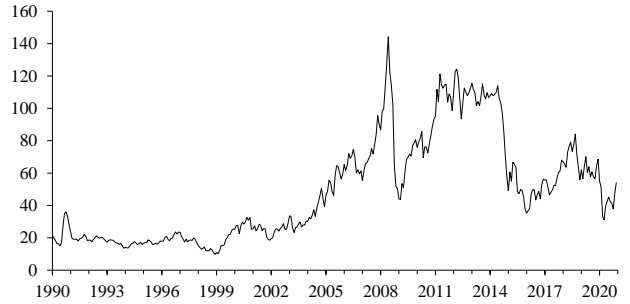


COMMODITY MARKETS

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



Oil Price: North Sea Brent (in Dollars)



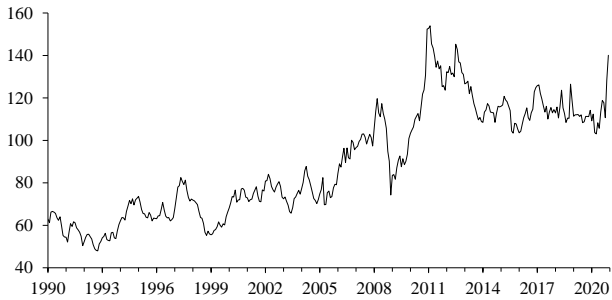
Commodity Price Index (Sterling)
(Economist, 2015 = 100)



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
2018	2.4	1.0	0.7	78.6	76.9	-1.1	3.3	-1.0
2019	1.8	0.6	0.8	78.1	75.9	-0.1	2.5	-1.1
2020	0.9	0.2	0.2	78.6	73.5	-1.4	1.2	-1.6
2021	1.6	0.4	0.2	80.1	75.5	-1.8	2.2	-1.5
2022	2.1	1.8	1.5	80.0	75.8	-0.5	3.0	-0.2
2023	2.0	4.7	4.5	79.9	76.0	2.5	2.7	2.7
2020:1	1.4	0.4	0.6	79.5	74.9	-0.6	2.7	-1.3
2020:2	0.6	0.0	0.1	77.6	71.9	-1.4	1.4	-1.8
2020:3	0.7	0.1	0.1	77.7	72.4	-1.6	0.3	-1.8
2020:4	1.0	0.4	0.1	79.6	74.8	-1.8	0.6	-1.5
2021:1	1.2	0.4	0.2	79.6	75.2	-1.9	1.6	-1.6
2021:2	1.5	0.4	0.2	80.7	75.7	-1.9	1.9	-1.6
2021:3	1.7	0.5	0.3	80.2	75.7	-1.8	2.4	-1.5
2021:4	1.9	0.5	0.3	80.0	75.5	-1.7	2.8	-1.5
2022:1	2.1	1.0	1.0	79.5	75.4	-0.9	3.3	-1.0
2022:2	2.1	1.8	1.5	80.5	76.0	-0.5	3.0	-0.2
2022:3	2.1	2.0	1.6	80.1	75.9	-0.4	2.9	0.0
2022:4	2.0	2.5	2.0	80.0	75.8	0.0	2.7	0.5

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)
2018	266.6	3.0	4.1	1.1	142.8
2019	275.7	3.5	3.8	1.0	148.8
2020	275.9	0.3	5.0	1.3	147.9
2021	282.1	2.3	5.6	1.5	148.9
2022	291.0	3.2	3.6	1.0	150.5
2023	300.6	3.3	2.9	0.8	152.4
2020:1	279.7	2.7	4.0	1.0	150.0
2020:2	270.1	-0.5	4.1	1.1	145.9
2020:3	276.4	-0.6	4.8	1.3	147.8
2020:4	277.3	-0.2	6.9	1.8	148.0
2021:1	279.4	-0.1	6.4	1.7	147.9
2021:2	278.6	3.2	5.8	1.5	148.3
2021:3	284.4	2.9	5.3	1.4	149.5
2021:4	285.9	3.1	4.7	1.2	149.8
2022:1	288.1	3.1	4.2	1.1	149.4
2022:2	287.8	3.3	3.8	1.1	150.0
2022:3	293.3	3.1	3.3	0.9	151.1
2022:4	294.7	3.1	3.0	0.8	151.4

¹ Whole Economy

² Average Earnings

³ Wholly unemployed excluding school leavers as a percentage of employed and unemployed, self employed and HM Forces

⁴ Wage rate deflated by CPI

Estimates and Projections of the Gross Domestic Product¹ (£ 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
2018	165.5	792330.9	445721.1	307723.0	201029.6	-41308.9	120833.9
2019	167.8	803514.4	475369.3	308458.5	209136.4	-70959.7	118490.1
2020	150.0	718476.1	420452.9	249418.8	199237.6	-30051.5	120581.7
2021	158.1	756923.9	447041.8	266059.5	206929.7	-33024.7	130082.4
2022	164.7	788777.8	453549.5	290984.1	208197.1	-30743.3	133209.6
2023	170.0	814289.1	460358.3	309186.2	209439.4	-28806.2	135888.6
2018/17	1.3		1.0	2.3	0.2		-4.6
2019/18	1.4		1.1	-4.7	2.2		-12.4
2020/19	-10.6		-11.6	-19	-4.8		6.8
2021/20	6.1		7.3	9.4	4.4		4.9
2022/21	4.2		1.5	9.3	0.6		3.3
2023/22	3.2		1.5	6.3	0.6		3.3
2020:1	164.2	196593.0	118032.8	72147.1	51656.8	-11632.2	33611.5
2020:2	131.7	157646.1	91565.8	47009.3	43743.5	429.6	25102.1
2020:3	151.1	180847.7	99893.7	71247.0	50846.1	-10259.5	30879.6
2020:4	153.2	183389.3	110960.6	59015.4	52991.2	-8589.3	30988.6
2021:1	156.8	187734.8	112264.9	71379.2	51092.1	-14304.1	32697.3
2021:2	158.7	189958.1	111099.5	63816.2	51382.0	-4227.8	32111.8
2021:3	157.4	188426.7	111232.3	65413.0	51174.4	-6797.8	32595.2
2021:4	159.4	190804.2	112445.1	65451.1	53281.3	-7695.0	32678.3
2022:1	165.5	198169.7	113844.0	80174.4	51388.5	-13800.2	33437.0
2022:2	164.7	197178.3	112654.9	69212.6	51690.2	-3387.5	32991.9
2022:3	162.6	194610.3	112897.7	70334.8	51481.4	-6585.6	33518.0
2022:4	166.1	198819.5	114152.9	71262.3	53637.0	-6970.1	33262.6

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)	Debt Interest (£bn)	Current Account (£ bn)
			Financial Year		
2018	1.9	2092.5	39.3	22.4	-82.9
2019	2.0	2127.5	43.2	24.0	-83.8
2020	17.9	1955.7	332.5	25.8	-42.1
2021	7.2	2149.6	155.3	26.8	-47.1
2022	3.8	2276.2	86.4	29.2	-41.1
2023	1.7	2397.8	40.4	33.4	-36.8
2020:1	-0.9	542.0	-5.0	6.5	-20.6
2020:2	39.4	431.7	170.1	6.4	-2.8
2020:3	12.0	495.3	59.4	6.4	-14.7
2020:4	11.8	508.4	60.0	6.5	-4.0
2021:1	8.3	520.3	43.0	6.6	-26.3
2021:2	7.3	526.6	38.5	6.6	-12.2
2021:3	7.6	526.8	40.2	6.7	-6.8
2021:4	8.1	534.9	43.5	6.7	-1.8
2022:1	5.9	561.4	33.0	6.8	-24.9
2022:2	4.3	557.9	24.2	6.9	-10.3
2022:3	4.9	554.6	27.0	7.0	-5.9
2022:4	4.8	570.7	27.5	7.5	0.0

¹ GDP at market prices (Financial Year)

WORLD FORECAST DETAIL

Growth Of Real GNP

	2017	2018	2019	2020	2021	2022
U.S.A.	2.3	3.0	2.2	-3.6	4.0	2.5
U.K.	1.8	1.3	1.4	-10.6	6.1	4.2
Japan	2.2	0.3	0.7	-5.3	2.6	1.0
Germany	2.6	1.3	0.6	-5.4	3.9	2.0
France	2.4	1.8	1.5	-9.3	5.9	2.0
Italy	1.7	0.9	0.3	-9.0	4.9	1.9

Growth Of Consumer Prices

	2017	2018	2019	2020	2021	2022
U.S.A.	2.1	2.4	1.8	2.0	2.0	2.0
U.K.	2.6	2.4	1.8	0.9	1.6	2.1
Japan	0.5	1.0	0.5	0.0	0.0	0.5
Germany	1.5	1.8	1.4	0.5	1.5	1.7
France	1.0	1.8	1.1	0.5	0.8	1.5
Italy	1.2	1.2	0.6	-0.2	0.4	1.0

Real Short-Term Interest Rates

	2017	2018	2019	2020	2021	2022
U.S.A.	-1.0	0.6	-0.5	-1.6	-1.0	0.0
U.K.	-2.0	-1.1	-0.1	-1.4	-1.9	-0.5
Japan	-0.9	-0.4	0.1	0.0	-0.4	-0.5
Germany	-2.1	-1.7	-0.9	-1.9	-2.2	-1.9
France	-2.1	-1.4	-0.9	-1.2	-2.0	-1.7
Italy	-1.5	-0.9	-0.2	-0.8	-1.5	-1.4

Nominal Short-Term Interest Rates

	2017	2018	2019	2020	2021	2022
U.S.A.	1.4	2.4	1.5	0.4	1.0	2.0
U.K.	0.4	0.7	0.8	0.2	0.2	1.8
Japan	0.1	0.1	0.1	0.0	0.1	0.1
Germany	-0.3	-0.3	-0.4	-0.4	-0.5	-0.1
France	-0.3	-0.3	-0.4	-0.4	-0.5	-0.1
Italy	-0.3	-0.3	-0.4	-0.4	-0.5	-0.1

Real Long-Term Interest Rates

	2017	2018	2019	2020	2021	2022
U.S.A.	0.4	0.9	0.1	0.3	0.8	1.0
U.K.	-1.2	-0.7	-1.1	-1.7	-1.6	-0.2
Japan	-0.6	-0.6	-0.6	-0.5	-0.6	-0.7
Germany	-1.2	-1.4	-1.9	-2.3	-2.2	-2.0
France	-0.6	-0.7	-1.4	-1.9	-1.7	-1.6
Italy	0.9	1.8	0.2	-0.6	-0.5	-0.3

Nominal Long-Term Interest Rates

	2017	2018	2019	2020	2021	2022
U.S.A.	2.4	2.9	2.1	2.3	2.8	3.0
U.K.	0.6	1.0	0.6	0.2	0.4	1.8
Japan	0.1	0.0	0.0	0.1	0.1	0.1
Germany	0.4	0.2	-0.2	-0.5	-0.3	0.0
France	0.8	0.7	0.1	-0.3	0.0	0.2
Italy	1.9	2.8	1.4	0.7	0.9	1.2

Index Of Real Exchange Rate(2000=100)¹

	2017	2018	2019	2020	2021	2022
U.S.A.	94.5	93.5	96.3	96.2	95.5	94.9
U.K.	75.5	76.9	75.9	73.5	75.5	75.8
Japan	58.3	57.8	56.3	54.2	51.4	48.0
Germany	94.3	96.5	95.6	94.1	92.2	90.0
France	95.3	97.4	96.3	94.5	92.1	89.4
Italy	101.2	102.8	104.5	105.2	103.8	101.7

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)						
	2017	2018	2019	2020	2021	2022
U.S.A. ¹	101.68	109.96	104.31	106.53	105.84	104.43
U.K.	1.29	1.34	1.28	1.28	1.28	1.30
Japan	112.14	110.43	109.03	106.79	107.50	107.30
Eurozone	0.89	0.85	0.89	0.88	0.88	0.87

¹ The series for the USA is a trade weighted index (1990=100); the series for the UK is \$ per £

* Forecasts based on the Liverpool World Model